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Why Prosocial Referral Incentives Work: The Interplay of Reputational Benefits and Action Costs

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The Interplay of Reputational Benefits and Action Costs

ABSTRACT

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 incentives 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, recipient-benefiting referrals recruited more new customers than sender-

benefiting referrals. In five additional experiments, we test a process account that invokes two

countervailing forces: reputational benefits and action costs. First, at the referral stage, senders

anticipate reputational benefits for referring when recipients receive a reward. As a result,

recipient-benefiting referrals are just as effective as sender-benefiting referrals at this stage.

Second, at the uptake stage, recipient-benefiting referrals are *more* effective than sender-

benefiting referrals: recipient-benefiting referrals directly incentivize uptake (i.e., signing up for

a new product or service), which is a high-effort action in referral programs. The preponderance

of sender-benefiting (vs. recipient-benefiting) referral offers in the marketplace suggests these

effects are unanticipated by marketers who design incentive schemes.

Keywords: incentives, prosocial behavior, judgment and decision-making, referral rewards

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 equivalently sized prosocial incentives (DellaVigna and Pope 2016; Imas 2014; Schwartz, Keenan, Imas, and Gneezy, 2019).

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). Furthermore, consumers often pay more for charity-linked products than standard 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. Anonymous donations are rare (Glazer and Konrad 1996) and people are more likely to give when generous behavior is public compared to when it is private (Andreoni and Petrie 2004; Bereczkei, Birkas, and Kerekes 2007). 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 2008), potentially in part because one's reputation is most important among those who know them 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

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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 benefits into 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 people they know to become new customers.

CUSTOMER REFERRAL INCENTIVES

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). Customer referral rewards can be a cost-efficient method for gaining new customers (Ryu and Feik 2007). These referral programs not only recruit new customers, but referred customers tend to be particularly valuable (Schmitt, Skiera, and Van den Bulte 2011); customers 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: first, the referral decision where the original customer (i.e., the "sender") decides whether or not to refer, and second, the uptake decision where the potential customer (i.e., the "recipient") decides whether or not to become a new customer. 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, Gupta, Jung, and Sen, *conference proceedings*).

Indeed, many firms focus on incentivizing the referral stage. We asked a hypothesis-blind research assistant to find 300 current referral incentive programs online and then, to categorize them based on how the incentive was designed (i.e., 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).[1]

Past work on referral incentives provides further evidence that marketers tend to predict that fully recipient-benefiting referral incentives will be ineffective. In a field experiment with a corporate partner, for example, Hong et al. (2017) decided against testing recipient-benefiting incentives, focusing instead on different splits of shared incentives (e.g. $5 for both referrer and recipient vs. unfair splits, such as $7 for the referrer and $3 for the recipient). In explaining this choice, they noted: "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 (e.g., Fehr 2004), and recipient-benefiting referrals, which allow referrers to provide recipients an opportunity to earn a reward, may confer valued reputational benefits to the referrer. Second, action costs matter, all else equal, incentives are particularly effective at prompting action when behavior is effortful (Beshears, Choi,

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[1] 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.

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Laibson, Madrian, 2019). In the current context, we observe that action costs are particularly

high at the uptake stage, meaning that recipients' behavior is particularly influenced by

incentives.

In short, we show that recipient-benefiting referral programs, by addressing 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 conceptualization

then outline our predictions and provide an overview of our empirical work.

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. 2019). 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 1998; Lacetera and Macis 2010), potentially explaining why anonymous donations are rare (Glazer and Konrad 1996). Church donations increase when anonymity is reduced, and thus 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). Moreover, the burgeoning literature on referral rewards is consistent with the idea that reputational benefits play a role in customers' willingness to refer: in one hypothetical scenario study, participants reported greater willingness to refer close (vs. distant) social ties when offered a recipient-benefiting reward as opposed to a sender-benefiting reward (Ryu & Feick, 2007). From the present perspective, this fits: referrers would be more likely to anticipate receiving reputational rewards from close friends relative to distant others.

ASYMMETRIC ACTION COSTS AT REFERRAL AND UPTAKE STAGES

An important feature of the two-step referral process is that there tends to be an asymmetry in action costs between the referral and uptake stages. We define action costs as the monetary or non-monetary (i.e., effort or time) costs necessary to complete a task or request. For the referrer, this is the cost of making the referral, and for the recipient, this 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 enters an email address. Recipients, however, tend to incur higher costs: to complete a referral, recipients must typically spend money on a product, download an app, or join a service (and receive the accompanying e-mails, notifications, etc.).

This difference in action costs has implications for how incentives perform at the two decision stages. Logically, the incentive structure of a referral program is likely to affect the extent to which referrers and recipients a) anticipate reputational benefits and, b) are directly incented to act. Specifically, in recipient-benefiting referral programs, referrers may anticipate that recipients will like them more for providing the opportunity to receive a reward. Likewise, in sender-benefiting referral programs, recipients may anticipate that the referrer will like them more for following through on the referral (thereby enabling the referrer to realize the reward). However, we predict that high action costs at the uptake stage may overwhelm the potential reputational benefits recipients would receive for following through on sender-benefiting referrals, thereby rendering sender-benefiting incentives ineffective at the uptake stage.

Indeed, previous research shows that there are typically limits to the sacrifice individuals are willing to make in order to behave prosocially, even when reputational benefits might be earned. For example, consumers are willing to pay more for brands that support good causes; however, the extra amount they are willing to pay is small (Strahilevitz 1999). If cause-related products involve tradeoffs in price or quality, the positive effect on purchases is often attenuated (Barone, Miyazaki, and Taylor 2000). Similarly, valuing prosocial norms does not lead to prosocial behavior when the prosocial behavior is sufficiently costly (Schwartz 1977). In one series of studies, for example, students received moral appeals to conserve energy, which varied the salience of personal cost; conservation intent increased only for those students who did not perceive high personal costs of conservation (Tyler et al. 1982). Because of these limits on the costs individuals are willing to accrue to behave prosocially, we expect other-benefiting incentives to perform better at the referral stage where action costs are low, than at the uptake stage where action costs are high.

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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., in a recipient-benefiting referral structure) will result in more new customers than offering referrers a selfish incentive (i.e., in a sender-benefiting referral structure). Consistent with this hypothesis, a recent field experiment found recipient-benefiting incentives yield higher conversion rates (a greater number of new customers) than sender-benefiting referral incentives (Bapna et al., *conference proceedings*).

Why might recipient-benefiting incentives outperform sender-benefiting ones? To the best of our knowledge, to date, no published work has answered this question empirically. Yet, answering it is important for both marketing theory and practice. In this paper, we provide a comprehensive account of when and why recipient-benefiting incentives outperform sender-benefiting ones. Specifically, we provide empirical evidence of the operation of two countervailing forces: reputational benefits and action costs. We posit that at the referral stage, recipient-benefiting incentives are as effective as sender-benefiting ones because both offer referrers sufficient incentive to compensate them for the (minimal) action cost they incur. The nature of that incentive differs, however, as the sender-benefiting incentive offers the referrer a direct financial incentive, while the recipient-benefiting incentive offers the referrer anticipated reputational benefits. Then, at the uptake stage, recipient-benefiting referrals are *more* effective than sender-benefiting referrals because recipient-benefiting referrals directly incentivize uptake (i.e., signing up for a new product or service), which is the more effortful action in referral programs.

This process account is of theoretical interest because it is the first work, to our

knowledge, to investigate anticipated reputational benefits as a driver of prosocial behavior in

referral programs and to explore their limits when action costs are high. As such, the present

research is poised to add not only to the narrow topic of referral incentives, but to the prosocial

behavior literature in general. This process account is also of practical interest, for it provides

guidance to marketers on how to optimally structure referral programs for maximal new

customer conversions. Such practical insight seems timely, given that incentive architects tend to

focus on encouraging current customers to refer, that is, sender-benefiting referral programs are

substantially more common than recipient-benefiting ones in the marketplace.

We test our account in eight experiments (plus five additional studies in the web

appendix). The first three studies document the effect that recipient-benefiting referrals

outperform sender-benefiting referrals. Study 1 is a field experiment with a phone app company

that varies incentive structure and measures new customer conversions. 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 (referral and uptake), showing that

recipient-benefiting incentives perform as well as sender-benefiting incentives at the referral

stage, and substantially outperform sender-benefiting incentives 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 the process account.

Next, five subsequent experiments explain when and why recipient-benefiting referrals

outperform sender-benefiting referrals. Studies 4A – 4C focus on the first stage of the process –

where action costs are typically low – illustrating that recipient-benefiting programs lead

referrers to anticipate reputational benefits, in turn spurring them to act (i.e., to refer). Studies 5A

and 5B incorporate action costs, demonstrating that when action costs are low (as is typical at 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 less likely to act when the incentive benefits others compared to when it benefits themselves.

Across our experiments, we measure the effectiveness of various parts of the referral process: the referral rate (i.e., whether current customers decide to refer someone); the uptake rate (i.e., whether referral recipients decide to take up the referral); and the conversion rate (i.e., the number of recipients taking up the referral, as a function of the number of referral requests the firm made); see Figure 1. Following recommendations from Simmons, Nelson, and Simonsohn (2012), we report all manipulations, all measures, and all data exclusion criteria for all studies.

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.

Methods

The company e-mailed 6,364 current customers, requesting that these customers 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

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[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.

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 that 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 Web Appendix A). The promotion lasted two weeks, during which time referred individuals could download the app using their friend's code. The company could not track how many referrals were made, but importantly, it did track the new customer downloads by condition. As a result in this study the outcome measure of interest is the new customer conversion rate (because we did not track the intermediary step – the number of referrals made – in this experiment, we could not assess referral rate, nor could we assess uptake rate).

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Insert Figure 1 about here
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Results

Table 1 summarizes the results. Overall, the conversion rate was low (less than 1%), not uncommon in field settings. Nevertheless, we detected significant differences between experimental conditions. In modest support for our hypothesis, the conversion rate was marginally higher in the recipient-benefiting condition relative to the sender-benefiting condition (recipient-benefiting: .94%; sender-benefiting: .39%; $\chi^2(1) = 2.92$, $p = .09$). In addition, the recipient-benefiting condition produced a significantly higher conversion rate relative to both the no-incentive control condition (.08% conversion rate; $\chi^2(1) = 9.41$, $p = .002$), and the donation incentive (.08%; $\chi^2(1) = 9.29$, $p = .002$), but not relative to the shared referral condition (.94%; $\chi^2(1) = .002$, $p = .99$). By contrast, the sender-benefiting condition produced a conversion rate that was only marginally significantly better than the control condition ($\chi^2(1) = 2.69$, $p = .10$)

and the donation incentive ($\chi^2(1) = 2.67$, $p = .10$) and marginally significantly worse than the shared incentive ($\chi^2(1) = 2.89$, $p = .09$).

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Insert Table 1 about here

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Discussion

The results from Study 1 are consistent with the prediction that recipient-benefiting referrals can increase conversions compared to offering either a) no incentive, or b) a sender-benefiting referral. It is also noteworthy that the recipient-benefiting condition outperformed another version of the other-benefiting referral – a donation incentive, whereby an incentive is given to a charity rather than a member of one's social network. This result is consistent with past research (Imas 2014; Schwartz et al. 2019) 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 herself (we posit that this is a reputational benefit, and explicitly test this idea in Studies 4A-4C). Finally, it is interesting to note that the shared incentive, which is the most commonly offered referral reward, did not outperform the recipient-benefiting incentive. Study 2 is another field experiment, aiming to replicate and extend these findings by tracking behavior at both the referral and uptake decision stages in addition to measuring customer conversions.

STUDY 2: SENDER-BENEFITING AND RECIPIENT-BENEFITING INCENTIVES AT

REFERRAL AND UPTAKE STAGES

Study 2 is a randomized field experiment 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).

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. The firm successfully delivered 1,438 emails (4.1% bounced

back). Current members received an email requesting that they refer a friend to buy a

membership to Game Access (See Web 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 desired. 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

followed through on those referrals by signing up.

Results

Table 1 summarizes the results.

Referral stage. The referral rate was just as high in the recipient-benefiting condition

(28.22%) as it was in the sender-benefiting condition (25.91%; $\chi^2 (1) = .64$, $p = .42$). Both of

these rates were significantly higher than the control condition (17.79%, $\chi^2 (1) = 9.24$, $p < .01$

and $\chi^2 (1) = 14.91$, $p < .001$, respectively).

As customers could have made as many referrals as they wished, one might wonder

whether the above result is driven by a few outlier customers making many referrals (in the

sender- and recipient-benefiting conditions). Supplementary analysis suggests this not to be the

case, for the same pattern is observed when assessing the proportion of customers who made a

referral (i.e., number of customer who made at least one referral / number of customers asked to

make referrals). In the recipient-benefiting condition, 21.37% of customers made at least one

referral, which was not significantly different from the 23.77% who did so in the sender-benefiting condition ($\chi^2(1) = .78$, $p = .38$). Both of these percentages are significantly higher than the control condition (16.36%; vs. recipient-benefiting: $\chi^2(1) = 3.98$, $p = .046$; vs. sender-benefiting: $\chi^2(1) = 8.20$, $p = .004$).

Uptake stage. The uptake rate was significantly higher in the recipient-benefiting condition (16.91%, 23 out of 136 referral recipients) compared to both the sender-benefiting condition (6.61%, 8 out of 121 referral recipients, $\chi^2(1) = 6.38$, $p = .01$) and the control condition (3.45%, 3 out of 87 referral recipients, $\chi^2(1) = 9.29$, $p < .01$). The uptake rate in the sender-benefiting condition was not significantly different than that of the control condition ($\chi^2(1) = 1.00$, $p = .32$).

Conversion rate. The conversion rate was significantly higher in the recipient-benefiting condition (4.77%) compared to both the sender-benefiting condition (1.71%, $\chi^2(1) = 7.03$, $p = .008$) and the control condition (.61%, $\chi^2(1) = 16.12$, $p < .001$; see Figure 2). The conversion rate in the sender-benefiting condition was not significantly different from that of the control condition ($\chi^2(1) = 2.55$, $p = .11$).

One-month follow-up. Follow-up subscription renewal data showed that the conversion rate patterns remained one month after the intervention. That is, the company had a greater rate of new customers that remained customers a month later 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 ($\chi^2(1) = 1.78$, $p = .18$).

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Insert Figure 2 about here
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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 as well as selfish (sender-benefiting) incentives at the referral stage. However, at the uptake stage, recipients are more likely to act when there is a selfish (recipient-benefiting) incentive offered.

STUDY 3: COMPARING REFERRAL VERSUS RECIPIENT STAGES

Studies 1 and 2 find that recipient-benefiting referrals outperform sender-benefiting ones. However, because we did not assigned participants to their role, it is possible that recipient-benefiting rewards were effective because customers select different recipients depending on whether they are offered a self-benefiting or other-benefiting reward. We therefore designed Study 3 as a 2x2 between-subjects design in which we randomized participants to role (referrer vs. recipient) as well as to incentive structure (self-benefiting vs. other-benefiting), enabling us to isolate the pure causal effect of reward structure on customer conversion.

In Study 3, we also begin to test our process account. Specifically, we measure action costs, which we define as the effort, time, and/or payment required to follow-through on an action. We predicted that recipients would perceive higher action costs relative to referrers, and that recipients in the other-benefiting condition (who would not receive an incentive for taking up the product) would perceive the action costs as particularly high.

Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2JjOdf4), we recruited 800 MTurk participants (816 participants completed the study; $M_{Age} = 35.40$, 61.81% female). For this study, we described a (fictitious) food delivery service called Food2Me that

delivers from local restaurants and charges $50 for a one-year subscription. 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. Specifically, participants assigned to the role of referrer were told to imagine the following, "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 you choose to refer your friend, [Friend's name], Food2Me would send [Friend's name] the following email." Participants assigned to the role of recipient were told to imagine the following, "You receive the following email stating that your friend, [Friend's name], referred you to try a new food delivery app called Food2Me". All participants were then shown the email from Food2Me (see Web Appendix A for study materials).

We also manipulated the incentive structure, such that it was either self-benefiting or other-benefiting. The incentive was a free year of Food2Me. *Referrers* assigned to the self-benefiting incentive were told that they would receive the incentive if the person they referred signed up for the service (and that this person would not receive any incentive for signing up). Referrers assigned to the other-benefiting incentive were told that they would not receive any incentive for making a referral, but that the person they referred would receive a free year for signing up. Similarly, *recipients* assigned to the self-benefiting incentive were told that they would receive a free year if they signed up (and that the friend who referred them would not receive any incentive). Recipients assigned to the other-benefiting incentive were told that they would not receive any incentive for signing up, but that the person who referred them would receive a free year.

Next, participants were required to correctly identify who would receive an incentive

(themselves or their friend). Then, we assessed our primary outcome measure: action choice.

Specifically, referrers were asked: "Would you refer [Friend's Name] to sign up for the

Food2Me delivery service?" and recipients were asked, "Would you sign up for the Food2Me

delivery service?" Finally, we measured perceived action costs 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).

Results

Action choice. Table 1 summarizes the results. We performed a binary logistic regression

on choice to act as a function of role and incentive. This analysis yielded a significant interaction

between role and incentive ($\chi^2(1) = 7.67$, $p = .006$). 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%; ($\chi^2(1) = 3.61$, $p = .058$).

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%; $^2(1) = 4.46$, $p = .035$).

Action costs. As expected, there was a main effect of role on action costs: recipients

perceived the cost of taking action as higher than referrers ($F(1, 812) = 108.72$, $p < .001$). There

was no main effect of incentive on action costs ($F(1, 812) = .004$, $p = .95$). There was a

significant interaction between role and incentive ($F(1, 812) = 19.40$, $p < .001$). Consistent with

our account, recipients perceived the actions costs to be significantly higher in the other-

benefiting condition (i.e., in which they received no financial compensation for costly uptake)

relative to the self-benefiting condition ($M_{Other} = 3.72$, SD = 1.43; vs. $M_{Self} = 3.28$, SD = 1.49;

t(398) = 3.06, *p* = .002). Interestingly, referrers perceived the actions costs to be significantly

higher in the self-benefiting condition relative to the other-benefiting condition (M_{Self} = 2.67, SD

= 1.46; M_{Other} = 2.24, SD = 1.31; t(411) = 3.17, *p* = .002).

Discussion

Study 3 replicates the pattern found in the prior field experiment in a fully randomized

design – that is, in a set-up in which participants were randomized to role as well as incentive

structure. Specifically, at the referral stage, referrers in the other-benefiting condition were just

as likely (in this study, marginally significantly more likely) to make a referral relative to

referrers in the self-benefiting condition. At the uptake stage, recipients in the self-benefiting

condition (i.e., who received compensation for signing up for the service) were more likely to

sign up for the service relative to those in the other-benefiting condition. Study 3 also provides

preliminary evidence of the role of action costs in the effectiveness of other-benefiting and self-

benefiting incentives.

In an additional study (Web Appendix C, Study 1), we conceptually replicated this

pattern of referral and uptake. We also measured both action costs and anticipated reputational

benefits. We again found that recipients perceived higher actions costs relative to referrers, and

that recipients in the other-benefiting condition (in which referrers, and not recipients, receive a

reward) perceived action costs to be particularly high. As for anticipated reputational benefits,

consistent with our account, both referrers and recipients believed they would receive higher

reputational benefits for taking action when offered the other-benefiting incentive compared to

the self-benefiting incentive.

Next, we isolate 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.

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 both referral and uptake decisions, and

test whether the reputational benefits that referrers anticipate mediate their propensity to refer.

Study 4A tests two additional, alternative explanations for why recipient-benefiting

incentives perform as well as sender-benefiting incentives at the referral stage. The first is a

psychological costs account: in the sender-benefiting condition, referrers might feel guilt or

discomfort for gaining a reward when the recipient attains no material reward, decreasing referral

likelihood. The second is a social imposition account: in the sender-benefiting condition,

referrers might feel that they are putting social pressure on the recipient to take up the offer,

because they are not offering those recipients a material incentive to do so. Both of these

explanations would suggest that the decreased conversion rates observed with sender-benefiting

rewards relative to recipient-benefiting rewards is a product of depressed referral rates with

sender-benefiting rewards. So far however, we have found no such pattern: In Study 2, referral

rates were significantly higher in the sender-benefiting condition relative to control. Nonetheless,

in Study 4A we measure both psychological costs and anticipated social imposition and test to

what extent reputational benefits emerges as a mediator alongside these alternative accounts.

Next, in Studies 4B and 4C, we test the role of anticipated reputational benefits at the

referral stage via moderation. In Study 4B, we vary expected 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 test whether they moderate the capacity for recipient-benefiting programs to spur referrals.

Study 4A

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-benefiting, 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 Web 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 before continuing to the follow-up questions.

We included several follow-up questions about reputational benefits, psychological costs, and social imposition to explore the process underlying these referral decisions. To measure anticipated reputational benefits we asked: "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) To measure psychological costs, we asked: "How would you feel if you made this referral?" (Selfish, Deceitful, Guilty, Uncomfortable, Sneaky, Conflicted; 1 = Not at all, 7 = Very much; α = .89). To measure perceived social imposition, we asked: "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). In the main text, we focus on the process results that directly test our account (which centers on comparing the recipient-benefiting versus sender-benefiting conditions); however, process results for all conditions are reported in Web 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.

Results

Table 1 summarizes the results.

Referral stage. Consistent with Study 2, there was no significant difference in referral rates between the sender-benefiting (64.84%), recipient-benefiting (58.06%), and shared conditions (56.99%; $\chi^2 (2) = 1.38$, p = .50) – all three of these rates were significantly higher than that of 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 ($M_{Recipient-benefiting} = 4.41$, SD = 1.33) relative to the sender-benefiting condition ($M_{Sender-benefiting} = 3.69$, SD = 1.34; t(182) = -3.64, *p* < .001). Psychological costs were higher in the sender-benefiting condition ($M_{Sender-benefiting} = 2.48$, SD = 1.32) relative to the recipient-benefiting condition ($M_{Recipient-benefiting}= 1.75$, SD = 1.17; t(182) = 3.98, *p* < .001); and social imposition was perceived to be marginally significantly higher in the sender-benefiting condition ($M_{Sender-benefiting} = 2.98$, SD = 1.34) relative to the recipient-benefiting condition ($M_{Recipient-benefiting} = 2.65$, SD = 1.36; t(182) = 1.68, *p* = .096). Participants reported no

difference in psychological costs or anticipated reputational benefits between the no incentive, control condition and the sender-benefiting condition (ps > .30; for all process results, see Web Appendix B).

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, there may be 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 incentive on referral choice. Specifically, we found a statistically significant indirect effect of reputational benefits (.34; 95% CI [.11, .71]), whereas the indirect effect of psychological costs was not significant (.09; 95% CI [-.45, .14]) nor was the indirect effect of social imposition (.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. Uptake rates were significantly higher in the recipient-benefiting condition (69.81%), compared to the sender-benefiting (28.07%, $\chi^2(1) = 41.74$, $p < .001$) and control conditions (24.00%, $\chi^2(1) = 14.23$, $p < .001$). There was a non-significant difference in uptake between the recipient-benefiting and shared conditions (64.71%, $\chi^2(1) = .30$, $p = .58$). There was also a non-significant difference in uptake in the sender-benefiting and control conditions ($\chi^2(1) = .15$, $p = .70$); it is worth noting that recipients in the control and sender-benefiting conditions received identical e-mails in this study, so this lack of difference is unsurprising.

Conversion rate. Consistent with Studies 1 and 2, the conversion rate was significantly 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 conversion rate in the control condition was significantly lower than the incentive conditions (6.52%, $\chi^2(3) = 35.78$, $p < .001$).

Discussion

Consistent with Studies 1 and 2, the recipient-benefiting referral was more effective than the sender-benefiting referral; it produced significantly higher uptake and conversion rates. 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 impositions vary between sender-benefiting and recipient-benefiting referral conditions, they do not appear to account for the influence of referral type on referral choice (as they did not mediate the effect). While this self-reported

mediation study shows initial support for the role of anticipated reputational benefits in our

account, we seek stronger evidence via moderation in Studies 4B and 4C.

Study 4B

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.

Next, participants imagined that: "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 further told that Amazon has a referral

program; between-subjects, we manipulated whether participants were told that the referral

program gives: 1) a sender-benefiting incentive, in which case 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, in which case participants were told that each

individual they refer will receive a $10 Visa gift card if they join the program. We also

manipulated, again between-subjects, whether the referral would be anonymous: half of

participants were told that the referral would be anonymous and their friend would not be told

who sent it, while those in the identified condition were not given this information (study

materials in Web Appendix A).

Next, to ensure participants understood the incentive system, participants were required

to correctly identify who would receive a reward for a successful referral (i.e., themselves or

their friend). 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).

Results

Table 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 3).

When the referral was identified – i.e., recipients would know who referred them – the referral

rate 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 referral rate 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 3).

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Insert Figure 3 about here

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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 impositions (e.g., imposing a

selfish request upon one's friend) drove the performance of prosocial incentives at the referral

stage, anonymity should not matter. In other words, these mechanisms would still be active in an

anonymous referral, and so they cannot account for how, when referrals were made

anonymously, the referral rate in the recipient-benefiting condition was lower than that of the

sender-benefiting condition. Further, if purely altruistic motivations (i.e., the desire to help others

without any concern for personal benefit, reputational or otherwise) drive the propensity to refer

in the recipient-benefiting condition, then referral rates in this condition should be just as high as

those of the sender-benefiting condition *even when referrals are made anonymously* (which is

not what we found in Study 4B).

Further attesting to the reputational benefit explanation of referrer behavior, Web

Appendix C (Study 3) offers a conceptual replication of Study 4B in which we manipulated

reputational benefits by varying whether the referral recipient was 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, when asked to refer strangers, recipient-benefiting incentives were less effective than

sender-benefiting incentives.

Study 4C

Method

As outlined in our pre-registered research plan (available at https://bit.ly/2PWC7Jp), we

recruited 600 MTurk participants; 583 met our pre-registered conditions of both completing the

dependent variable and using a unique location ($M_{Age} = 36.48$, 62.89% female).

Participants were randomly assigned to a referral incentive 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

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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; α = .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)", and 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).

Results

Referral likelihood. Table 1 summarizes the results. There was a non-significant difference in referral likelihood among participants in the recipient-benefiting condition relative to those in the sender-benefiting condition (M$_{Recipient-benefiting}$ = 5.42, SD = 1.79; M$_{Sender-benefiting}$ = 5.22, SD = 1.97; t(581) = 1.24, *p* = .22).

Moderation by reputation concern. We measured trait concern for reputation, which did not differ between conditions (M$_{Sender-benefiting}$ = 4.78, SD = 1.05; M$_{Recipient-benefiting}$ = 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 (β = .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-Neyman 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 (β =

.24, SE = .12, p = .05).

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

incentive type on the propensity to make a referral. Study 4B goes further, by experimentally

manipulating anticipated reputational benefits, and showing that when referrals are anonymous,

recipient-benefiting incentive programs no longer induce referrals. Finally, Study 4C shows that

the effect of recipient-benefiting incentives on referral propensity is moderated by individual

differences in reputational concerns. Such referral programs are particularly effective at inducing

referrals among those generally concerned about their reputation.

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 recipient-benefiting

incentives. We have posited that at the referral stage, recipient-benefiting incentives perform as

well as sender-benefiting incentives because 1) senders expect to receive reputational benefits

when making a referral with recipient-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 at the referral stage. We test this

proposition in Study 5A.

We have also posited that at the uptake stage, recipient-benefiting incentives *outperform*

sender-benefiting incentives because they provide sufficient motivation for recipients – who

typically face high action costs – to act. If this is the case, then decreasing recipients' action costs

should increase the relative effectiveness of sender-benefiting incentives. We test this

proposition in Study 5B.

Study 5A

Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2E4M6rn), 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, participants imagined that they were

part of the Amazon BOLD loyalty program and could refer a friend to try it. Again, participants

provided their first name and the first name of a close friend.

We manipulated whether they received a sender-benefiting or recipient-benefiting

referral request, with an incentive of $10 (Visa gift card) in both conditions. 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." 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 a friend to the loyalty program. See Web

Appendix A for manipulation stimuli (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 to refer (click a link or print out documents

and mail them in) before they could move to the referral decision. 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 if

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; α = .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…" Effortful,

Burdensome, Costly" (α = .88).

Results

Manipulation check. As expected, the high cost condition was perceived as having higher

action costs than the low cost condition (F(1, 823) = 53.28, $p < .001$). Further, there was a non-

significant effect of referral incentive type on action costs (F(1, 823) = .52, $p = .47$). There was,

however, a significant interaction of action cost and incentive type (F(1, 823) = 9.23, $p = .002$).

For full results, see Web Appendix B.

Referral rate. Table 1 summarizes the results. We performed a binary logistic regression

on referral choice as a function of action cost (high/low) and incentive 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 4). When action costs were low, the referral rate

was marginally significantly higher 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 costs

were high, the referral rate was marginally significantly higher in the sender-benefiting condition

(73.63%) compared to the recipient-benefiting condition (63.82%, $\chi^2(1) = 3.45$, $p = .06$).

Reputational benefits. We were also interested in whether referrers expect to receive reputational benefits when offered a recipient-benefiting incentive. As in previous studies, there was a main effect of incentive type on reputational benefits: participants expected higher reputational benefits for sending their friend a recipient-benefiting referral versus a sender-benefiting referral, $(F(1, 824) = 58.11, p < .001)$. Action costs had no significant main 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 $(M_{Sender-benefiting} = 4.46, SD = 1.64; t(406) = 6.51, p < .001)$. Similarly, in the low-cost condition, reputational benefits were significantly higher for the recipient-benefiting referral $(M_{Recipient-benefiting} = 5.22, SD = 1.33$ vs. $M_{Sender-benefiting} = 4.63, SD = 1.53; t(414) = 4.23, p < .001)$.

Discussion

Study 5A finds that when action costs are high, sender-benefiting incentives outperform recipient-benefiting incentives at spurring consumers to make a referral. However, when action costs are low, as is often the case at the referral stage, there is no significant difference between the two incentive types (although in this case, there is a marginally significant preference for recipient-benefiting incentives).

Study 5B

Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2JANrtB), 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, participants imagined that a friend had 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 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. Similar to Study 5A, 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." For emails used in all conditions, see Web Appendix A (full survey can be found at our open science link). All participants were required to correctly identify who would receive an incentive and what was required in order to sign up 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 chose to follow 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 will have a

minimal positive effect at the uptake stage due to the higher burden of follow-through. We

additionally measured reputational benefits using the items used in previous studies, and 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).

Results

Manipulation check. As expected, 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 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). For full results, see Web

Appendix B.

Uptake rate. Table 1 summarizes the results. We performed a binary logistic regression

on uptake decision as a function of action costs (high/low) and referral type (sender-

benefiting/recipient-benefiting). This analysis yielded a significant interaction of action costs and

incentive type ($\chi^2(1)$ = 9.21, p = .002, Figure 4). When action costs were high, the referral rate

was higher in the recipient-benefiting condition (32.20%) than the sender-benefiting condition

(15.59%, ($\chi^2(1)$ = 21.42, p < .001). However, when action costs were low, the uptake rate was

statistically indistinguishable in the sender-benefiting condition (54.40%) relative to the

recipient-benefiting condition (55.90%, $\chi^2(1)$ = .86, p = .77).

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Insert Figure 4 about here

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Reputational benefits. Again, we were interested in whether participants expect to receive

reputational benefits for following through on a referral when offered a sender-benefiting

incentive. There was a main effect of incentive type on anticipated reputational benefits:

participants expected higher reputational benefits for following through on a referral that benefited their friend (sender-benefiting referral) as opposed to one that benefited themselves (recipient-benefiting referral; $(F(1, 739) = 19.90, p < .001)$. The action cost manipulation also had a marginally significant main effect on reputational benefits, $(F(1, 739) = 3.64, p = .057)$, such that action costs led to a marginally significant increase in expected reputational benefits. 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 ($M_{Sender-benefiting} = 5.01$, SD = 1.38) than the recipient-benefiting referral ($M_{Recipient-benefiting} = 4.72$, 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 ($M_{Sender-benefiting} = 5.34$, SD = 1.25 vs. $M_{Recipient-benefiting} = 4.76$, SD = 1.26; $t(375) = 4.46, p < .001$).

Discussion

Study 5B finds that when action costs are low, sender-benefiting incentives are as effective as recipient-benefiting incentives at spurring uptake. However, when action costs are high, as is often the case at the uptake stage, recipient-benefiting incentives outperform sender-benefiting incentives. We conceptually replicated this pattern in a study in which we operationalized action costs by manipulating the monetary cost of uptake (a $2 service vs. a $100 service; see Web Appendix C –Study 4).

GENERAL DISCUSSION

People commonly believe that behavior is strongly influenced by self-benefiting incentives (e.g., monetary incentives; Miller and Ratner 1996; 1998) and research has shown that such incentives can effectively motivate behavior (Schwartz et al. 2019). 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 involve one's social ties, prosocial incentives can be as effective at spurring referral behavior as self-benefiting incentives.

The present research builds on related work on customer referral rewards, which focuses on 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). In this paper, we provide experimental evidence of the surprising effectiveness of other-benefiting incentives over self-benefiting incentives when observing real behavior at both decision stages of the referral process. Moreover, we provide a comprehensive account for *why* this effect occurs. Building on prior work suggesting 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 examine the specific role of reputational benefits in motivating action at the referral stage and find that customers are motivated to refer because they want their social network to view them favorably. However, anticipated reputational benefits are only part of the explanation for the superiority of recipient-benefiting incentives as compared to the more common sender-benefiting incentives: action costs also contribute. Specifically, 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.

Our work additionally builds on research exploring people's concern for 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 recipient-benefiting (i.e., prosocial) incentives as they are when offered sender-benefiting

(i.e., selfish) incentives. However, our research suggests that this effectiveness of the prosocial

incentive is tenuous, in the sense that for it to emerge, the following conditions must be met: the

costs of acting prosocially are low (Studies 5A and 5B); the recipient is someone to whom the

sender's reputation is important (Web Appendix Study 3); the recipient must know that the

sender has acted prosocially (Study 4B).

This fragility of prosocial preferences is somewhat dispiriting, in the sense that it

illustrates potentially stark, self-serving boundaries of human generosity. On the other hand, in

the context of referrals, the recipients have demonstrated no clear need for help. 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 2008). 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 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. Shared incentives performed 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, we examined 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, 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). We use incentive magnitudes that this previous work would categorize as large. Therefore, we might expect self-benefiting (vs. other-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; at large enough magnitudes, sender-benefiting incentives may dominate recipient-benefiting incentives at the referral stage. For example, property owners may offer tenant referral rewards valued at hundreds or even thousands of dollars. On the other hand, when sender-benefiting referral incentives are very

large, psychological costs of referral, which we found to play only a weak role in referral choice, may be amped up. 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., a photo-sharing app, videogame rentals, and a food delivery service) and consistently show that recipient-benefiting referral incentives yield a higher conversion rate than sender-benefiting 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. Recipient-benefiting 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 Web 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, this work suggests 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

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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 ensure that referral programs

include an incentive to the referral recipient. 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 may 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

insights about areas in which incentive design can be improved.

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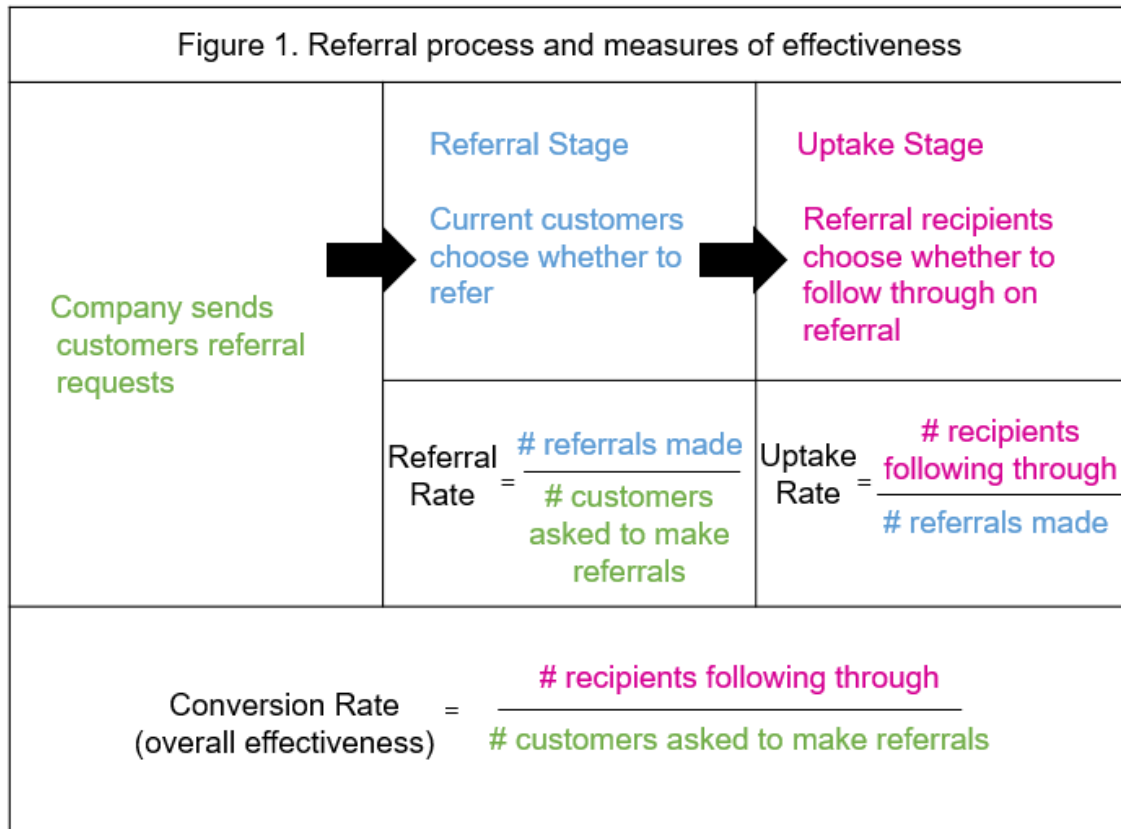
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FIGURE 1: REFERRAL PROCESS

Figure 1. Referral process and measures of effectiveness

Company sends customers referral requests

Referral Stage

Current customers choose whether to refer

Uptake Stage

Referral recipients choose whether to follow through on referral

$$\text{Referral Rate} = \frac{\text{\# referrals made}}{\text{\# customers asked to make referrals}}$$

$$\text{Uptake Rate} = \frac{\text{\# recipients following through}}{\text{\# referrals made}}$$

$$\text{Conversion Rate (overall effectiveness)} = \frac{\text{\# recipients following through}}{\text{\# customers asked to make referrals}}$$

FIGURE 2

STUDY 2: REFERRAL RATE, UPTAKE RATE, AND CONVERSION RATE BY

CONDITION
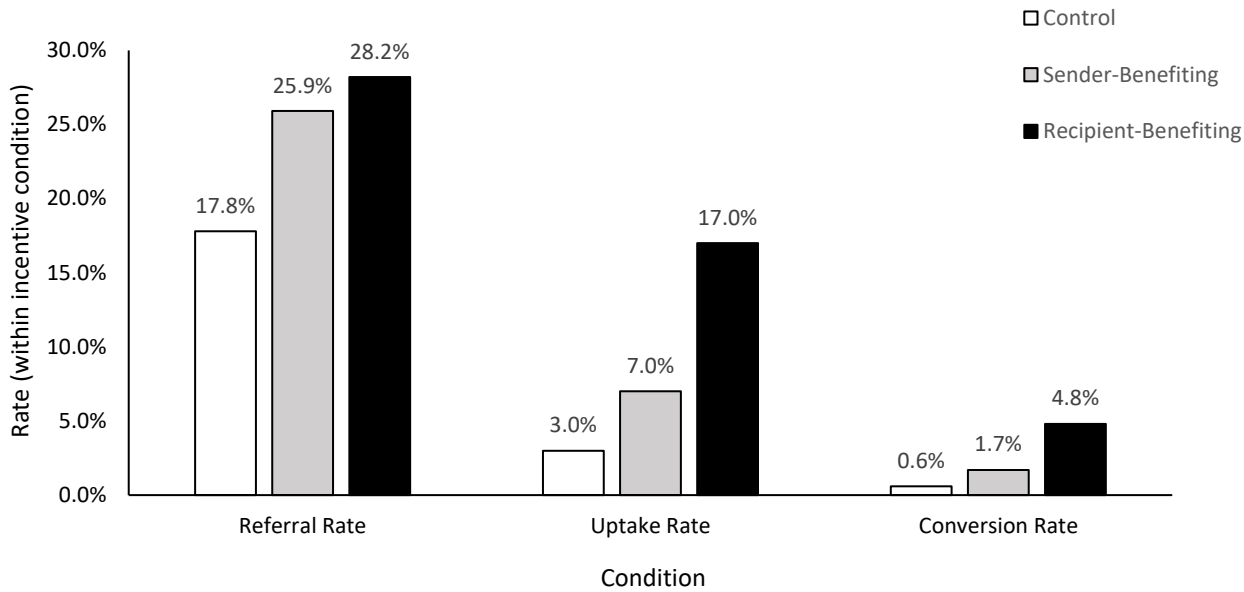
Figure 2. At the referral stage, recipient-benefiting incentives perform as well as sender-benefiting incentives (and both outperform the control condition in which no incentives were offered). At the uptake stage, recipient-benefiting incentives outperform both sender-benefiting incentives and the control. Overall, recipient-benefiting referrals lead to the most new customer conversions.
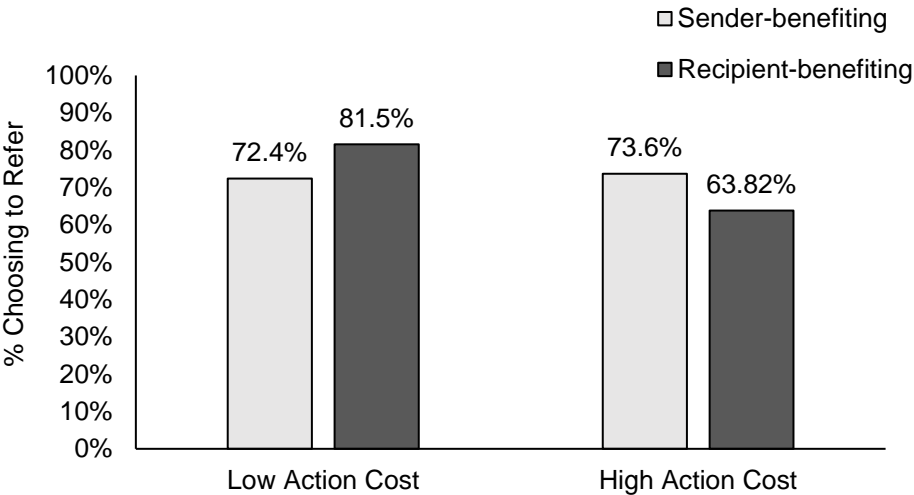
FIGURE 3

STUDY 4B: REFERRAL CHOICE BY REFERRAL TYPE AND ANONYMITY
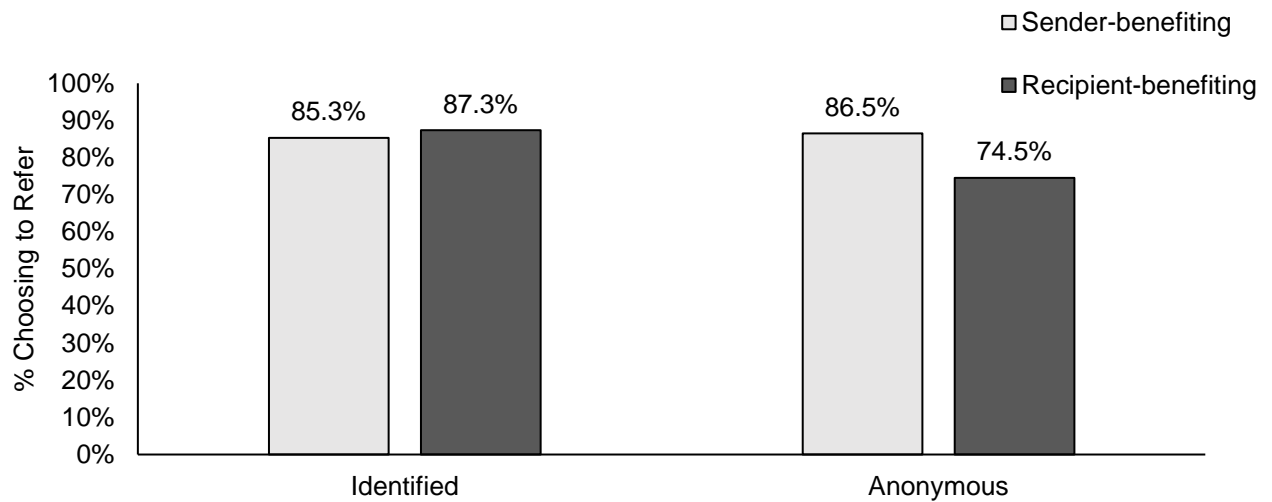
Figure 3. Sender-benefiting and recipient-benefiting incentives lead to equal referral choice when the referral is not anonymous. When the referral is anonymous, sender-benefiting incentives lead to more referrals.

FIGURE 4
STUDY 5A: REFERRAL CHOICE BY REFERRAL TYPE AND ACTION COST

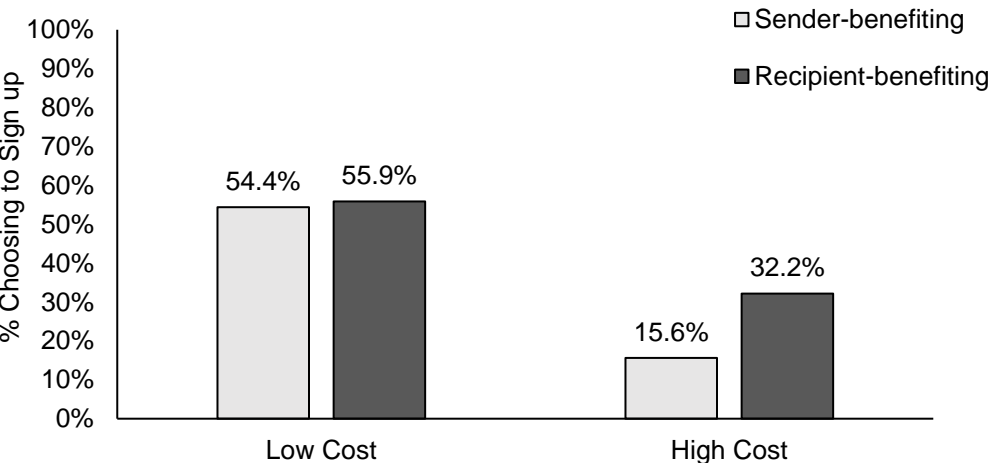STUDY 5B: UPTAKE CHOICE BY REFERRAL TYPE AND ACTION COST

Figure 4. When action costs are low, other-benefiting incentives are as effective as self-benefiting incentives (sender and recipient-benefiting rewards are both equally effective). When action costs are high, self-benefiting incentives are more effective (sender-benefiting incentives are more effective at the referral stage; recipient-benefiting incentives are more effective at the uptake stage).

TABLE 1: SUMMARY RESULTS OF ALL STUDIES

Study #	Study Type	Experimental Conditions	Referral Rate	Uptake Rate	Conversion Rate
Study 1	Field Experiment N = 6,364	Control			.08%[a]
		Sender-benefiting			.39%[ab†]
		Recipient-benefiting			.94%[b†c]
		Shared			.94%[b†c]
		Donation			.08%[a]
Study 2	Field Experiment N = 1,438	Control	17.79%[a]	3.45%[a]	.61%[a]
		Sender-benefiting	25.91%[b]	6.61%[a]	1.71%[a]
		Recipient-benefiting	28.22%[b]	16.91%[b]	4.77%[b]
Study 3	MTurk Scenario Experiment N = 816	Sender-benefiting/ Referral Role	82.21%[a†]		
		Recipient-benefiting/ Referral Role	88.83%[a†]		
		Sender-benefiting/ Recipient Role		51.74%[a]	
		Recipient-benefiting/ Recipient Role		62.19%[b]	
Study 4A	Incentivized Lab Experiment N = 369	Control	26.37%[a]	24.00%[a]	6.52%[a]
		Sender-benefiting	64.84%[b]	28.07%[a]	17.58%[b]
		Recipient-benefiting	58.06%[b]	69.81%[b]	39.79%[c]
		Shared	56.99%[b]	64.71%[b]	35.48%[c]
Study 4B	MTurk Scenario Experiment N = 805	Sender-benefiting/ Named	85.29%[a]		
		Recipient-benefiting/ Named	87.32%[a]		
		Sender-benefiting/ Anonymous	86.50%[a]		
		Recipient-benefiting/ Anonymous	74.49%[b]		
Study 4C	MTurk Scenario Experiment N = 583 *Average likelihood (not %)*	Sender-benefiting	5.22 (1.97)		
		Recipient-benefiting	5.42 (1.79)		
Study 5A	MTurk Scenario Experiment N = 824	Sender-benefiting/ Low Cost	73.63 [a†bc†]		
		Recipient-benefiting/ Low Cost	63.82 [c†]		
		Sender-benefiting/ High Cost	72.38 [a†bc†]		
		Recipient-benefiting/ High Cost	81.52 [a†]		
Study 5B	MTurk Scenario Experiment N = 740	Sender-benefiting/ Low Cost		15.59%[a]	
		Recipient-benefiting/ Low Cost		32.20%[b]	
		Sender-benefiting/ High Cost		54.40%[c]	
		Recipient-benefiting/ High Cost		55.90%[c]	

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.

1

WEB APPENDIX A: STUDY MATERIAS

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!

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

For each friend that downloads the GiftAMeal app with your invitation code, you will receive a $5 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 $20 gift card.

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, and I'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!

2

Recipient-benefiting referral condition:

GiftAMeal

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.com gift card a
$5

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:

GiftAMeal

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.com gift card a

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!

3

Donation referral condition:

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!

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

Spread the love!

The GiftAMeal Team
Andrew, Aidan, 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!

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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]

5

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]

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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]

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STUDY 3:

Referrer role/Sender-benefiting referral

Please imagine the following scenario.

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

Please imagine the following scenario.

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:

8

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

Please imagine the following scenario.

You receive the following email stating that your friend, [Friend] referred you to try a new food delivery app called 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 $50. **Download the app using this link and [Friend] will receive a free year of Food2Me deliveries!**

Recipient role/Recipient-benefiting referral

Please imagine the following scenario.

You receive the following email stating that your friend, [Friend] referred you to try a new food delivery app called Food2Me.

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!**

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:

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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-benefiting 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 _____.

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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.

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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*** and entering this code _____.

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

STUDY 5B

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 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>

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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. 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.

WEB APPENDIX B: ADDITIONAL ANALYSES

STUDY 4A:

Referral Results:

Condition	N	Referral Choice	Reputational Benefits	Psychological Costs	Social Impositon
Control	93	26.37%	3.56 (1.26)	2.43 (1.27)	3.49 (1.43)
Sender-Benefiting	91	64.84%	3.69 (1.34)	2.48 (1.32)	2.98 (1.34)
Recipient-Benefiting	93	58.06%	4.41 (1.33)	1.75 (1.17)	2.65 (1.36)
Shared	93	56.99%	4.14 (1.33)	2.07 (1.20)	2.71 (1.34)

Control vs. Sender-benefiting referral results:

There was a non-significant difference in reputational benefits between the control, no incentive condition ($M_{Control}$ = 3.56, SD = 1.26) and the sender-benefiting condition (M_{Sender} = 3.69, SD = 1.34; t(181) = -.70, p = .49). Participants also reported no difference in the psychological costs in the sender-benefiting condition (M_{Sender} = 2.48, SD = 1.32) compared to the control condition ($M_{Control}$ = 2.43, SD = 1.27; t(181) = -.26, p =.79). Interestingly, participants reported a greater social imposition when sending a referral with no reward ($M_{Control}$ = 3.49, SD = 1.43) as opposed to a sender-benefiting referral (M_{Sender} = 2.98, SD = 1.34; t(181) = 2.48, p = .01). 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 social imposition mediates the effect of referral type on referral choice. We found a statistically significant indirect effect of social imposition (.29; 95% CI [.07, .66]). The indirect effect of psychological costs was not significant (.01; 95% CI [-.06, .14]) nor was the indirect effect of reputational benefits (.03; 95% CI [-.05, .22]).

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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 ($M_{Shared} = 4.14$, SD = 1.33) than the sender-benefiting condition ($M_{Sender} = 3.69$, SD = 1.34; t(182) = 2.29, p = .023). Participants also reported higher psychological costs in the sender-benefiting condition ($M_{Sender} = 2.48$, SD = 1.32) compared to the shared condition ($M_{Shared} = 2.07$, SD = 1.20; t(182) = 2.21, p =.029). There was a non-significant difference in reported social imposition for the two conditions ($M_{Sender} = 2.98$, SD = 1.34) compared to the shared condition ($M_{Shared} = 2.71$, 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:

Condition	N	Recipient Uptake	Imposing	Annoyed	Enjoy
Control	6	24%	2.83 (2.32)	2 (1.27)	3.8 (1.30)
Sender-benefiting	16	28.07%	1.56 (1.50)	1.5 (1.51)	4.38 (1.31)
Recipient-benefiting	37	69.81%	1.48 (.91)	1.45 (1.06)	4.41 (1.38)
Shared	33	64.71%	1.35 (.63)	1.23 (.59)	4.81 (1.27)

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)

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- 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)

Study 5A

Full results of manipulation check:

As expected, the high cost condition was perceived as having higher action costs than the low cost condition (F(1, 823) = 53.28, $p < .001$). Further, 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$_{Recipient-benefiting}$ = 3.76, SD = 1.75) than the sender-benefiting referral (M$_{Sender-benefiting}$ = 3.48, 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$_{Sender-benefiting}$ = 2.96, SD = 1.85 vs. M$_{Recipient-benefiting}$ = 2.50, SD = 1.61; t(414) = 2.68, $p = .008$).

Moderated mediation:

We additionally conducted a moderated mediation analysis (Hayes 2013-model 8) to test the relationship of reward type on referral choice when action costs are high or low. We tested the significance by calculating standardized indirect effects for 10,000 bootstrapped samples. Reputational benefits mediated the effect of reward type on referral choice when action costs are low (indirect effect = 0.64 (95% CI [0.34, 0.99])), and when action costs are high (indirect effect = 1.03 (95% CI [0.71, 1.38])). 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 (Index = .38 (90% CI [0.03, 0.75]). This provides some evidence that

reputational benefits play an even stronger role in the choice to refer for a recipient-benefiting

(vs. sender-benefiting) incentive when action costs are high. However, this does not translate to a

higher referral rate, likely due to the higher personal cost.

Study 5B

Full results of manipulation check:

As expected, 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 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 ($M_{Recipient-benefiting} = 4.53$, SD = 1.35)

than the sender-benefiting referral ($M_{Sender-benefiting} = 4.83$, 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, $p = .20$).

Moderated mediation:

We additionally conducted a moderated mediation analysis (Hayes 2013-model 8) to test

the predicted relationship of reward type on uptake choice when action costs are high or low. We

tested the significance by calculating standardized indirect effects for 10,000 bootstrapped

samples. Reputational benefits mediated the effect of reward type on uptake choice when action

costs are low (indirect effect = -0.18 (95% CI [-0.34, -0.04])), but not when action costs are high

(indirect effect = -0.02 (95% CI [-0.18, 0.13])). This provides some evidence that anticipated

reputational benefits drive the increased performance of the other-benefiting incentive (as

compared to the self-benefiting incentive) at the uptake stage, but more so when action costs are

low. However, the index of moderated mediation was not significant (Index = .16 (95% CI [-

0.04, 0.40]).

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WEB APPENDIX C: 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; $M_{Age} = 36.90$, 66.29% 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 incentives (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 INCENITVE (SELF-BENEFITING/OTHER-BENEFITING) AND ROLE (REFERRER/RECIPIENT)
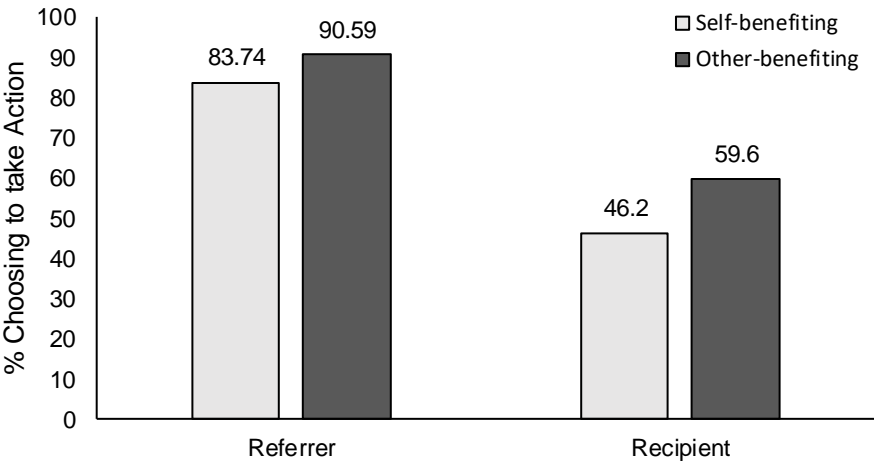
Action Costs. We observed a main effect of incentive type on ratings of action cost; other-benefiting incentives were viewed as a lower cost than self-benefiting incentives ($F(1, 791) = 13.41$, $p < .001$). Participant role also has a main effect; taking action in the recipient role was perceived as 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 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 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 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 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) =

23

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%; $\chi^2 (1) = 15.54, p < .001$).

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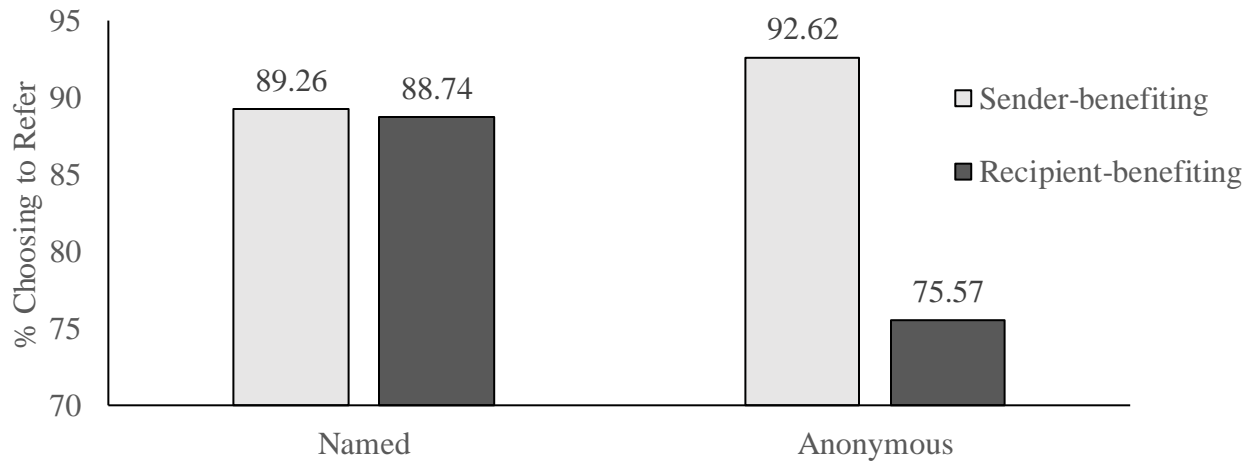
APPENDIX TABLE 2

Anonymity Condition	Referral Reward Condition	Relationship Benefits (1-7)	Psychological Costs (1-7)	Social Obligations (1-7)
Named	Sender-benefiting	4.15 (.69)	2.42 (1.56)	3.08 (1.67)
	Recipient-benefiting	4.41** (.89)	1.67*** (.95)	2.59** (1.59)
Anonymous	Sender-benefiting	4.11 (.72)	2.23 (1.47)	2.83 (1.73)
	Recipient-benefiting	4.33* (.77)	1.89* (1.28)	2.81 (1.67)

† 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.
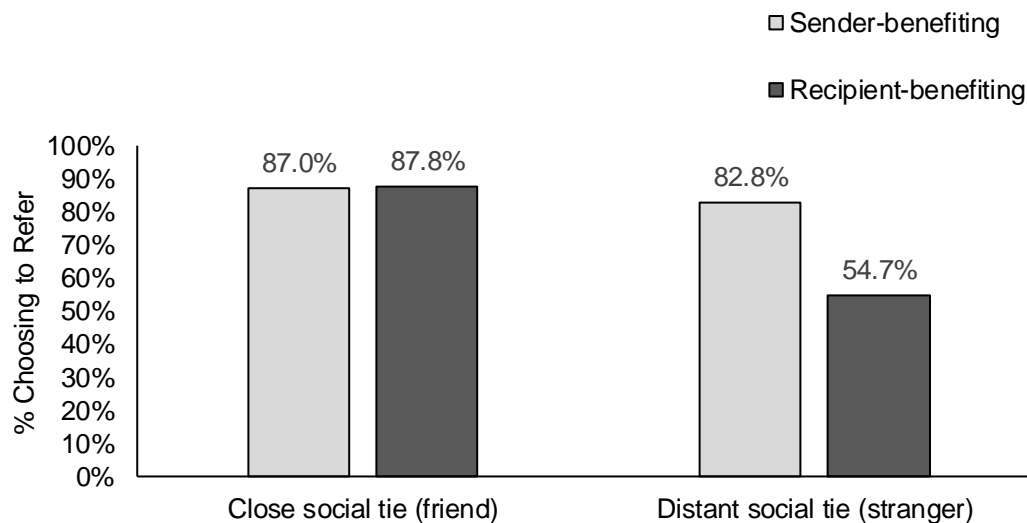
Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2V0j1De), we recruited 800 MTurk participants (810 participants completed the study; M_{Age} = 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

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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 (χ^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%, χ^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%, χ^2 (1) =35.78, p < .001), consistent with standard incentivized

behavior.

APPENDIX STUDY 3: REFERRAL CHOICE BY REWARD AND RECIPIENT

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

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before making their uptake choice. Finally, as a manipulation check, we measured action costs (α

= .78).

Results

Manipulation Check. As expected, the high cost condition was perceived as having

higher action costs than the low cost condition ($M_{High-Cost}$ = 3.83, SD = 1.39 vs. $M_{Low-Cost}$ = 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 (χ^2 (1) = 5.49, *p* =

.019). 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%, (χ^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%, χ^2(1) = .004, *p* = .95).

APPENDIX STUDY 4: UPTAKE CHOICE BY ACTION COST (HIGH/LOW) AND

INCENITVE (SENDER-BENEFITING/RECIPIENT-BENEFITING)

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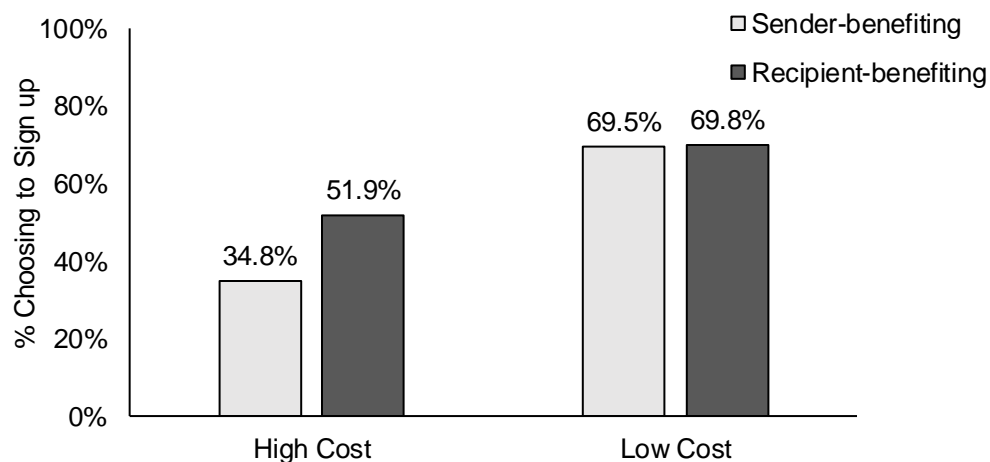
APPENDIX STUDY 5

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]) 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

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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; α = .92).

Results

Manipulation Check. As expected, Lyft was viewed more positively than Uber (M_{Lyft}=

5.18, SD = 1.33 vs. M_{Uber}= 3.79, SD = 1.50; t(911) = 14.87, p < .001).

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 (χ^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
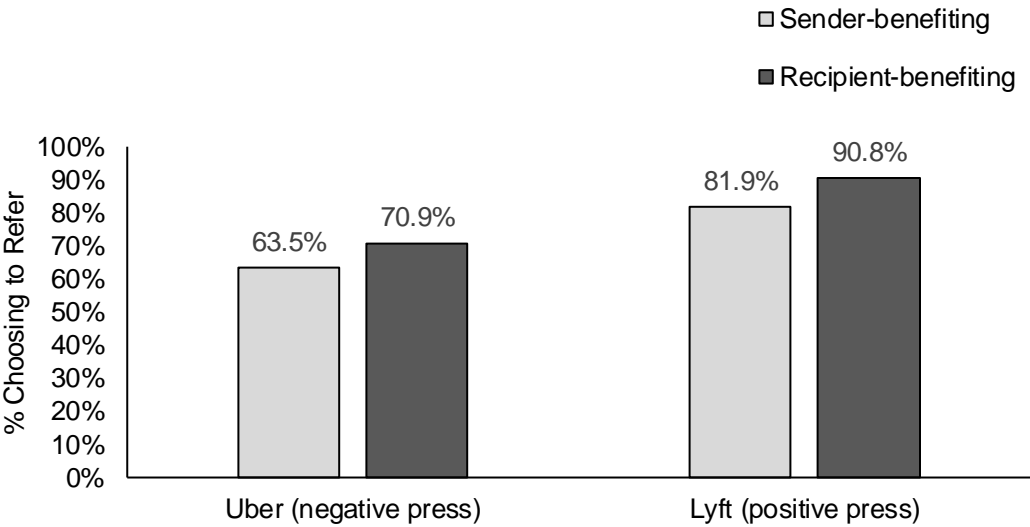
Discussion

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?

Why Prosocial Referral Incentives Work: The Interplay of Reputational Benefits and Action Costs

Dear Review Team,

Thank you very much for the opportunity to revise our manuscript, "Why Prosocial Referral Incentives Work: The Interplay of Reputational Benefits and Action Costs" for resubmission to the *Journal of Marketing Research*. We closely followed all suggestions from the review team.

The Editor and Associate Editor highlighted the following two issues as the most important to address:
1. Clarify the contribution and how it extends and relates to other work.
2. Address reviewer comments about empirical evidence.

For the first point, we heeded the AE's helpful suggestion to focus on the distinctive contribution of our paper – that is, to spend "more time highlighting the process via theoretically-relevant moderators and mediators." We added three new experiments that provide process evidence and reframed the paper to emphasize when and why recipient-benefiting referral programs outperform (i.e., bring in more new customers than) sender-benefiting referral programs. Specifically, we focus on 1) the two-stage referral process and 2) our proposed mechanisms: reputational benefits, asymmetric action costs, and the interplay between these two constructs. In this letter, we also summarize each relevant paper that Reviewer 3 brought to our attention, and explain what our research contributes beyond this work.

To address the second point, we made many updates to the manuscript and focused on empirical issues in the design of three new experiments. Please see details in the response below.

In addition, per the review team's recommendation, we relabeled the incentive conditions as recipient-benefiting (previously "prosocial referral") and sender-benefiting (previously "selfish referral"). The one exception is Study 3, where we manipulate both incentive and recipient role, so use the terms "self-benefiting" and "other-benefiting" for clarity (we have also noted this in the manuscript).

Finally, we reorganized the paper based on the review team's suggestions. In total, the empirical package consists of two field experiments, one fully incentivized lab experiment, and five scenario experiments (plus five additional scenario experiments in the appendix). To orient you, the revision consists of:

> Study 1: Field experiment (n = 6,364) showing recipient-benefiting incentives increase conversion rates relative to sender-benefiting incentives.
> Study 2: (n = 1,500) Field experiment showing that recipient-benefiting incentives result in higher than expected referral rates and conversion rates relative to sender-benefiting incentives.
> Study 3: (n = 816) Scenario experiment demonstrating that the basic effect – that recipient-benefiting incentives outperform sender-benefiting incentives – holds when participants are randomly assigned to be either referrers or recipients.
> Study 4A: (n = 369) Incentive compatible lab experiment showing that recipient-benefiting incentives increase referral rates relative to self-benefiting referrals, and that this effect is mediated by referrers' reputational concerns (formerly Study 3).
> Studies 4B & 4C: (n's = 805 & 583) Scenario experiments showing that the capacity for recipient-benefiting incentives to induce referrals is moderated by reputational concerns, whether situationally induced (study 4B) or based on individual differences (study 4C *NEW*).
> Studies 5A & 5B: (n's = 824 and 740) Scenario experiments showing that the effectiveness of recipient-benefiting incentives is moderated by action costs, both at the referral stage (Study 5A *NEW*), as well as the uptake stage (Study 5B *NEW*).

Thank you again for your feedback; the manuscript has benefited greatly from it and we are appreciative. Sincerely, The Authors

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AE Report

Contribution and Conceptualization

The first call from me is to think very carefully about how you intend to build a contribution given the existence of some of the work that has been mentioned by the reviewers. First, Reviewer 3 identifies a number of papers that are outlining studies that are very similar to your own. These papers are largely not cited by you, which makes it difficult to pinpoint what the contribution might be over-and-above this past work. This is tricky, however, because while some of the previous works cited by Reviewer 3 are already published, not all of them are published. In addition, another reviewer has pointed to a paper that is in the review process at JMR and it also has significant overlap with you paper: "Spend Less, Gain More! The Effectiveness and Motivational Mechanism of Prosocial Rewarding Referrals." My sense is that you need to move forward with an eye towards building a contribution over-and-above the articles that are published and those that are close to being published. I do not think it is fair to hold you back based on research that has only been presented at conference presentations or workshops. Thus, while I agree with Reviewer 3 that you are going to have to incorporate some of this existing work into your conceptualization and be very explicit about where you show a contribution over-and-above past research, I do not agree that the unpublished manuscripts are reason to reject the current manuscript...

Author response: We have taken these suggestions to heart. We now describe our unique contribution to the growing body of empirical work on referral rewards in particular, and to the literature on prosocial behavior and incentive design more generally . We are grateful to Reviewer 3 for bringing Hong et al. (2017) as well as the related unpublished manuscripts and conference proceedings to our attention. Like several of these papers, we provide evidence that recipient-benefiting incentives can yield more new customers relative to sender-benefiting ones. However, most of these papers stop there – i.e., they do not provide evidence of the explanation for this effect. As such, they typically focus on either the referral stage OR the overall conversion rate. One notable exception is the Gao et al. manuscript, which, like our paper, appears to look at both stages of the referral process. However, the two manuscripts invoke different process accounts. In our revision, and per your advice, we therefore focused on strengthening the evidence in support of our process account.

Given the centrality of the contribution issue, below we describe how we provide a distinct contribution relative to each paper that Reviewer 3 kindly brought to our attention. We also provide a table appended to this revision letter outlining the unique features of our paper relative to the others. In the revised introduction, we clarify our novel contribution relative to this literature as a whole, but do not stress the contribution relative to each working paper due to space constraints. If the review team thinks it would be helpful to outline the distinctions relative to the working papers described below in the manuscript as well, we would be more than happy to do so.

PUBLISHED ARTICLES

Ryu, G. and Feick, L. (2007). "A Penny for your Thoughts: Referral Reward Programs and Referral Likelihood." *Journal of Marketing.*

Finding: Self-benefiting incentives (compared to no incentive or recipient-benefiting) increase the hypothetical likelihood of referring weak social ties, but not strong ties (i.e., close friends). The authors provide a hint as to why this might be the case, showing that when given selfish incentives to refer a strong tie, people wonder how the referral might affect their friend's view of them.

What our research contributes beyond this research: Ryu & Feick (2007) focus primarily on testing selfish incentives versus no incentives looking only at the first stage of the 2-stage referral process; these studies also rely exclusively on hypothetical scenarios. By contrast, we compare the effectiveness of selfish incentives relative to other-benefiting incentives and we do so across both stages of the referral process and within multiple real-behavior contexts. Our approach not only allows us to see real behavior

across referral stages, it also allows us to study other-benefiting incentives more in depth and to distill the processes underlying our effects.

Hong, Yili, Paul A. Pavlou, Kanliang Wang, and Nan Shi (2017). "On the Role of Fairness and Social Distance in Designing Effective Social Referral Systems," *Management Information Systems Quarterly, 41(3), 787-809*

Finding: This article explores the effectiveness of an even-split shared referral incentive (i.e., $5 to sender, $5 to recipient) compared to uneven split shared incentives (e.g., $3 to sender, $7 to recipient; or $7 to sender, $3 to recipient; these two conditions are pooled in all analyses). The finding is that relative to uneven-split shared referral incentives, even splits are more effective at inducing referrals to weak ties (no difference was observed for strong ties).

What our research contributes beyond this research: Our research primarily focuses on incentives that are entirely sender-benefiting or recipient benefiting rather than those that are shared. Further, in Hong et al.'s analyses, they do not distinguish between different types of uneven splits (i.e., those that favor the sender versus the recipient). As a result, our primary contribution above Hong et al. (2017) is to study purely sender- and recipient- benefiting incentives, and in addition, to clearly distinguish behavioral patterns at referral, uptake, and conversion stages. We find that while sender-benefiting versus recipient-benefiting referral rewards produce similar referral rates, they have patently different uptake rates: specifically, recipient-benefiting rewards (somewhat akin to Hong et al.'s $3 sender/$7 recipient condition) outperform sender-benefiting rewards at the uptake stage, in turn yielding higher conversion rates.

CONFERENCE PROCEEDINGS

Bapna, Ravi, Alok Gupta, J. Jung, and Soumya Sen (2014). "Analyzing the Impact of Incentive Structure on The Diffusion of Mobile Social Games: A Randomized Field Experiment," In Workshop on Information Systems and Economics (WISE).

Finding: A field experiment shows that recipient-benefiting incentives yield higher conversion rates relative to sender-benefiting incentives.

What our research contributes beyond this research: Like Bapna et al. (2014), we document that recipient-benefiting incentives increase conversion rates relative to sender-benefiting incentives; however, we also have data on both the referral and uptake stages, as well as the processes underlying decisions at both stages. In so doing, we answer Bapna et al. (2014)'s call for future work to examine consumers' underlying psychological motives in referral choice (Bapna et al., pg. 32).

WORKING PAPERS

Gao, Fei, Xitong Li, and Paul Pavlou (2018). "Spend Less, Gain More: The Role of Altruism in Prosocial Rewarding Referrals," HEC Paris.

Finding: This working paper was not available online and although we reached out to the authors, they did not feel ready to share their current draft with us. We are therefore unable to respond to the current state of this paper as thoroughly as we would like to. However, in communication with the authors, they stated that their paper focused on the comparison between the recipient-benefiting and shared incentives and that they therefore felt our two papers have markedly different contributions. Our understanding from a conference abstract and the review team's comments is that these authors find that: 1) Recipient-benefiting incentives yield the same conversion rate as shared incentives and higher rates than sender-benefiting incentives and, 2) This effect is driven in part by altruistic motivations.

What our research contributes beyond this research: We invoke a different mechanism for the surprising effectiveness of recipient-benefiting referrals. Specifically, we focus on a kind of selfish mechanism (concern for one's reputation) whereas Gao et al. appear to focus on pure altruism.

Importantly, we think these process accounts could be complementary as opposed to mutually exclusive. It is almost certainly true that altruism accounts for some choices to refer when offered recipient-benefiting incentives. Indeed, this is consistent with previous work showing that prosocial incentives lead to some effort, albeit less effort than do selfish incentives (e.g., DellaVigna and Pope 2016; Schwarz et al. 2019). However, at the referral stage, prosocial incentives show the consistent and *unusual pattern of inducing equal action* compared to selfish incentives. Therefore, it seems that a process beyond altruism is needed to understand this unique pattern. It is for this reason that we focus on the role of reputational benefits, which are unique to the context of referral rewards compared to other prosocial versus selfish incentive contexts that have been studied before. In addition, we show that when there is potential for reputational benefits, recipient-benefiting referrals perform as well as sender-benefiting referrals at the referral stage, however, when there is no potential for reputational benefits, recipient-benefiting referrals perform worse. We decided to focus on this approach because the notion that reputational benefits can drive real prosocial behavior is important not just within the referral context, but also in the prosocial literature in general.

In addition to focusing on documenting the important role of reputational concerns in the referral process, we have also taken care to highlight evidence that is not easily accounted for by a pure altruism account alone. For example, we discuss how a pure altruism account alone does not easily account for the moderation by anonymity effects observed in Study 4B (please see pg. 26-27).

Jung, JaeHwuen, Ravi Bapna, Joseph Golden, and Tianshu Sun (2018). "Words Matter! Towards Pro-social Call-to-Action for Online Referral: Evidence from Two Field Experiments.

Finding: Two field experiments show that framing an evenly split reward – i.e., 70% off for both the sender *and* recipient – as prosocial (i.e., "give your friend 70% off") leads to a greater conversion rate than describing the same reward as either egoistic (i.e. "you receive 70% off") or equitable (i.e., "70% off for both you and your friend")

What our research contributes beyond this research: Unlike our research and that of Bapna et al. and Gao et al., Jung et al. show that merely *framing* a reward as recipient-benefiting can increase referral and uptake rates. Thus, we consider Jung et al. to be an interesting existence proof of the power of recipient-benefiting referral incentives. In contrast to Jung et al., we provide a comprehensive process account for the effectiveness of recipient-benefiting incentives (i.e., Jung et al., do not offer evidence of an explanation for their observed framing effect).

As suggested by Reviewer 2, a nice way to build your contribution might be to focus on the notion that there are two pieces to the decision outcome (i.e., the decision to refer and decision to accept the referral), the differential costs of those two decisions ("asymmetric action costs"), and the forces that differentially influence those two decisions. ... I agree with Reviewer 2 that Study 4B might be better positioned to highlight this aspect of the process than Study 4A... It is also worth thinking more about how you might demonstrate the second piece of your process given that Study 5A, is not so much a test of the underlying mechanism, but more of another demonstration of the basic effect (Reviewer 1) and the moderator in Study 5B of cost of participation is also used in the other JMR paper.

Author response: Thank you for these very helpful insights. In the revision, we now build our contribution by focusing on the following:
1. The two stages of the referral process (the decision to refer and the decision to follow-through on the referral at the uptake stage)
2. The pattern of reputational benefits at each of these stages
3. The differential action costs at each of these stages (i.e., asymmetric action costs)

To address point 1, we moved Study 5B earlier in the paper (now Study 3), to establish the importance of the two-stage process to this paper's contribution.

To address point 2, we created a stronger argument for the role of reputational benefits by showing convergent evidence across three studies:

1. A lab experiment with process measurements (now Study 4A) demonstrating the mediating role of reputational benefits on referral rates
2. The moderation study that you and Reviewer 2 preferred (Study 4B)
3. A new study pointing to the moderating role of individuals' reputational concerns (Study 4C).

We also moved the study on social distance (formerly Study 4A) to the appendix.

To address point 3, we ran two new experiments. First, we ran a new study focusing on action costs at the uptake stage with a cleaner manipulation of action costs (Study 5B). Second, we ran a version of this study on the referral side (now Study 5A), providing additional evidence that the non-significant effect of incentive type at the referral stage hinges upon the low cost of taking action at that stage. When we increase the cost of making a referral, the effectiveness of selfish incentives increases, mimicking patterns at the uptake stage where action costs are higher. These two studies, in addition to the measured action costs in Study 3, provide converging evidence for the differential costs of taking action at the two decision stages, and how this asymmetry contributes to the effectiveness of recipient-benefiting incentives for overall conversions.

Empirical Evidence

In terms of the studies themselves, why is Study 2 using percentage as the DV when the measure taken was the number of referrals made? What happens if the data are analyzed in terms of the number of referrals made?

Author response: We now report the results of Study 2 in two ways: the referral rate (# of referrals made / # of referrals requested) and the proportion of customers who chose to make any referrals (pg. 13). The results are substantively equivalent. We have also clarified the key outcome measures we use to evaluate the effectiveness of different referral incentives at the various stages of the referral process (See Figure 1).

Studies 5a and 5b – I agree with Reviewer 1, that it might make sense to re-label the conditions so that they make more intuitive sense to the reader. I also was not clear on exactly action costs were measured. How was this done?

Author response: We revised labeling throughout the paper from prosocial and selfish referrals to "recipient-benefiting" and "sender-benefiting" referrals. We also clarified measurement of action costs via the items: "*effortful, burdensome, and costly*" in all studies in which they are measured (Studies 3, 5A, and 5B). For example, in Study 3: "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)."

I agree with Reviewer 1, that Study 5A does more to demonstrate the basic effect (albeit in a nicely controlled way), rather than showing what the mechanism is for the uptake of the referral.

Author response: We agree and have moved Study 5A to be earlier in the paper (it is now Study 3).

In addition, it is worth noting that you do vary elements of the stimuli across the studies. For example, in Study 2 you ask about the number of people referred, but in other studies you ask about the likelihood of referring one person (Studies 3, 4A, 4B, 5A). In addition, sometimes providing a reward just for referring (study 4A, 4B) versus only when the recipient actually signs up or joins (study 1, 2, 3, 5A, 5B). Do these variations make a systematic differences? Theoretically and practically, would it be interesting to think

about how these might influence the results? Perhaps this could be a source of thinking about boundary conditions, or perhaps this could be a point of discussion in the General Discussion section.

Author response: In all studies that examined referral choice, we assessed whether consumers chose to make a referral (yes or no). As you mention, Study 2 also looks at the number of people that customers chose to refer. We now report both referral rate and choice to refer (yes/no) and the findings are substantively equivalent for Study 2. Note: Only one scenario study deviates from using the binary choice to refer and that is the new Study 4C which measures referral likelihood on a 1-7 scale. We modified the DV in this study in order to maximize statistical power for the moderation analysis.

Regarding the issue of how referrers earned a reward – in fact, in all studies in which we examine referrer behavior, the referral must be *successful* (i.e., the recipient must take up the offer) for the referrer to earn the reward in the sender-benefiting conditions. We clarified this point in the revision. More broadly, while referral reward programs typically offer rewards conditional on a successful referral, you raise an interesting point: might the effectiveness of referral programs depend on whether the rewards are conditional versus unconditional? As you suggested, in the GD, we note this as a topic for future research (pg. 38).

Thank you for outlining the central issues of the paper with such clarity. We hope that you find the revision responsive to your suggestions. Given the preference for brevity for JMR revision response letters, below we respond to reviewer comments that were not already addressed in this section (as opposed to re-producing the reviewer comments in their entirety).

Additional Reviewer Comments

Reviewer 1:

How does the attractiveness of the service itself moderate these effects? For instance, in Study 3a, would these results change if the survey was not enjoyable?

Author response: Thank you for raising this question. Curious to find out the answer, we ran a 2x2 between-subjects experiment (N = 915) in which we measured referral rates to a rideshare company. We manipulated a) incentive type (sender-benefiting vs. recipient-benefiting); and b) desirability of the company (relatively desirable vs. undesirable). For the latter manipulation, we varied the rideshare company: it was either Lyft (i.e., the desirable company, reinforced by telling participants, truthfully, that the company had received widespread positive press) or Uber (i.e., the undesirable company, reinforced by telling participants, truthfully, that the company had received widespread negative press). While there was a main effect of this manipulation on referrals (referral rates were higher for Lyft than for Uber), and a main effect of incentive type (referral rates were higher in the recipient-benefiting condition than the sender-benefiting condition), there was no interaction. This suggests that, even if the customer has a negative attitude towards the company, they still expect to receive greater reputational benefits for making a recipient-benefiting (vs. sender-benefiting) referral, boosting the performance of a recipient-benefiting incentive (reputational benefit measures support this explanation). We added this study to the appendix (Appendix C – Study 5) and added a note about it as a potential area for future research in the GD (see pg. 39).

Similarly, as Imas (2014) points out, large selfish incentives are more motivating than large prosocial incentives. If the incentive were larger, would the authors expect selfish incentives to outperform prosocial incentives at the referral stage, thereby reducing the effectiveness of prosocial incentives? If so, then does the article simply present a proof of concept that prosocial incentives can outperform selfish incentives when incentives are small?

Author response: This is an excellent question. To your point, Imas (2014) found that when the stakes are very low (i.e., $0.05), other-benefiting incentives are more effective at spurring action (in this case

performing an effortful task) than self-benefiting incentives. However, when the stakes are high (i.e., $2.00+), self-benefiting incentives are more effective than other-benefiting incentives. Thus, based on Imas (2014), our incentives, which range from $3 to $50 in cash equivalence, are actually quite large. Yet, unlike Imas (2014), we find that (large) recipient-benefiting incentives induce just as much compliance (i.e. referrals) relative to self-benefiting incentives.

What might account for the discrepancy? In Imas 2014, the (large) other-benefiting incentives are given anonymously. As a result, in this set-up, there are no reputational benefits for compliance. Consistent with our account of referral behavior, we would not expect people to be particularly motivated to comply in the case of anonymous referrals, just as in our Study 4B, *anonymous* other-benefiting rewards induce fewer referrals than self-benefiting rewards. That being said, we acknowledge that there are likely limits to our finding; that is, there may be a point where the incentive amount overpowers anticipated reputational benefits of recipient-benefiting referrals, resulting in dominance of sender-benefiting referrals at the referral stage. We have added this point to our General Discussion (pg. 38).

How does this research interact with the work by Daylain Cain and colleagues on perverse effects of disclosure on behavior (e.g., Sah, Loewenstein & Cain, 2013)? In these cases, exposing a selfish incentive by an advisor can increase associated uptake by an advisee, because the advisee does not want to be responsible for denying benefits to the advisor, thereby causing greater uptake than when selfish incentives are not exposed.

Author response: This is an interesting point. As you mention, Sah, Loewenstein, and Cain (2013) find that exposing a selfish incentive increases uptake because individuals do not want to deny benefits to their advisor. However, they also find that this increased pressure to comply is reduced when participants are able to make their decision in private (Experiment 5). While it is true that referrals are sometimes made in person, we would argue that 1) making a referral in person is still relatively low-cost and 2) the majority of uptake decisions are made in private, which may decrease the choice to follow through on a sender-benefiting referral, consistent with moderation findings from Sah et al. If the uptake choice was made in person, it is quite possible that reputational benefits would outweigh action costs, and recipient uptake would increase for sender-benefiting referrals. The relationships and motivations present in this work is certainly interesting and relevant to our research and we thank you for bringing it to our attention.

Finally, I applaud the authors for their methodological transparency, and for pre-registering three of their studies. However, I have a couple of concerns. First, it would be beneficial to have access to the data to be able to conduct my own analysis if need be. Second, when I clicked on the pre-registered plans, I was taken to the OSF page and was not allowed to proceed. Rather, I was told that I needed to gain approval. I clicked to request approval, but immediately regretted doing so, as it would likely reveal my identity to the authors. That is a big no no, and actually pissed me off, as it threatens the integrity of the review process. If the authors want to have these pieces be part of the final product, they need to make a publicly available copy of their pre-registration during the review process that maintains full double-blind anonymity.

Author response: We are truly sorry for this mistake. We have corrected the error, adding special anonymous links for the review process. In addition, links to all data files are now available.

Additional Concerns

The authors may want to be more clear in their write up on what these percentages mean and clarify that new customer conversions refers to a percentage of the total e-mail sent.

Author response: In the new Figure 1, we have clarified what we mean by "referral rate," "uptake rate," and "conversion rate."

Study 5a: I found the description and write-up of this study to be quite difficult to parse. ... I would be more explicit about the labelling of these conditions and the results (or changing the condition names as mentioned above), so one can more easily grasp what this refers to.

Author response: We agree that the results of Study 5A (now Study 3) are difficult to follow. Throughout the paper, we revised condition labels to describe "sender-benefiting" and "recipient-benefiting" incentives and hope that this improves clarity. However, as described in the manuscript for Study 3 only (and its appendix replication), we use the labels "self-benefiting" and "other-benefiting" to describe the incentives from the participant's perspective within a given role, because we manipulate role. We welcome any additional suggestions to improve clarity on this point.

While the authors measure costs associated with sign up, one would expect that when you break down the action costs by condition, those who receive an incentive for signing up (e.g., those in the prosocial-recipient condition) would report less costs than those who do not. Yet the authors do not display this data.

Author response: Due to space constraints and the fact that the key purpose of measuring action costs was to see if the manipulation worked, we only report the main effect of action costs in the main text. However, in the online appendix, we have now added the full results of the manipulation check (see pg. 17-18 of Web Appendix B). At the referral stage (Study 5A), when action costs are high, we find directionally (though not significantly) higher perceived action costs for the other-benefiting (vs. self-benefiting) incentive, but surprisingly, when action costs are low, we find higher perceived action costs for the self-benefiting incentive. At the uptake stage (Study 5B), when action costs are high, the other-benefiting incentive was seen as more costly than the self-benefiting incentive, but when action costs are low, there was a non-significant difference in perceived action costs between the incentive conditions.

Study 5b: I also found this study to be underwhelming for a couple reasons. First, it's unclear exactly what the authors exactly mean by "action costs" and whether cost of the service corresponds to action costs. Second, the authors are manipulating multiple things at once. In particular, they are manipulating the costs of the services ($2 / $100), who gets the benefit (the self or other), and the size of the benefit to the self or other ($2 / $100). As a result, it is hard to know what is driving the effect here.

Author response: We have clarified how we define action costs, specifically as: "the monetary or non-monetary (i.e., effort or time) costs necessary to complete a task or request. For the referrer, this is the cost of making the referral, and for the recipient, this is the cost of following through on the referral." We also have removed the previous Study 5B and replaced it with a new study (now Study 5A) in which we manipulate action costs independently from benefit size.

More generally, the authors are trying to argue that with prosocial incentives, the reputational benefits to the sender are large and in some sense equal to the material benefit that they would receive. In contrast, the reputational benefit for the receiver of the referral to sign up is small (the positive regard they would receive from the sender conditional on them signing up for a service is small), and the selfish incentive for receiving the proceeds of the incentive is high. Another way of putting this is that senders are more motivated by their reputation in relation to recipients while recipients are much less motivated by their reputation in relation to senders. While Study 5a examines the consequences of this, it does not examine the process, and Study 5b only examines the second half of the equation.

Author response: Thank you for this astute observation; it was instrumental in helping us to refine our account. We ran another new experiment (Study 5A in the revision) in which we find that, if we increase action costs at the referral stage, participants are somewhat *more* likely to send a sender-benefiting referral relative to a recipient-benefiting referral, mimicking patterns at the uptake stage where action costs are naturally high. Taken together, Studies 5A and 5B show that, consistent with our account, when

action is costly, regardless of whether participants are acting as referrers or recipients, people are less driven by reputational benefits and more likely to prefer a self-benefiting incentive.

It may be interesting to show that when the benefits of the referral to the sender are transparent, recipients care more about the benefits to the self than the reputational incentives for helping their friend, and thus, at the uptake stage, are more motivated by selfish rather than prosocial actions, whereas for senders, they are equally motivated by both.

Author response: We thank you for this comment and hope that the new study 5A and new version of Study 5B together better illustrates the role of both reputational benefits and action costs at the uptake stage.

Finally, I found that a good number of the graphs were unnecessary… Figures 2, 3 & 4 seem particularly unnecessary since the data is spelled out simply and straightforwardly in the results section, and these results do not include any interaction effects (which can be hard to visualize when reading a results section and thereby interaction studies provide greater justification for graphs).

Author response: Thank you for this note; we agree and have pruned the figures in the manuscript.

Additional Minor Comments:

Abstract: My initial reading of the abstract (particularly the sentence begins with "First, at the referral stage…") lead me to assume that at the referral stage, prosocial incentives would outperform selfish incentives. Even though the authors are not misleading in their language, I wonder if re-wording this sentence could help stave off misreading this.

Author response: Thank you for this comment. We have revised the abstract to clarify our meaning.

Page 5. The sentence "Therefore, while some companies use purely prosocial referrals, fifteen times as many use rewards that solely benefit the referrer" feels a bit like overclaiming to me.

Author response: We have revised this sentence to say: "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."

Top of page 7. I found the paragraph that begins "We predict that action costs will play an important role…" to be confusing.

Author response: We have revised this paragraph to make it clearer.

Page 16, results, referral stage: Technically, the data does not support that referrals were equally likely, but, rather, that there was not significant difference detected. In other words, absence of evidence is not the same as evidence of absence.

Author response: We have changed the wording to be more precise; thank you for pointing this out.

Page 18. It would additionally be nice to report the "shared" condition results, as that is also quite effective.

Author response: We agree that this would be a good addition. We now report the referral and uptake results for the shared condition in the manuscript.

Page 25: I found the intro to studies 5a & 5b a bit difficult to understand.

Author response: Thank you for letting us know; we have revised this section and hope that the new wording is clearer.

Page 46: I found the label for figure 7 a bit misleading, since the authors do not find consistent evidence leads to marginally higher referral choice. Rather, something like "Prosocial incentives have a greater positive impact on uptake than referrals" seems more appropriate here.

Author response: We agree and have changed the label accordingly.

Finally, I'd like to offer a few references that may that came across my mind when reading this, and may be of help.

Author response: Thank you for bringing these relevant papers to our attention; we now cite them all.

Reviewer 2

1) *Improve the treatment of reputational benefits.*
a. *I found Study 4B, which looks at anonymous referrals vs. named referrals, to be nicely designed to support conclusions about reputation. However, I did not feel the same way about Study 4A, which manipulates whether one is referring a friend or a stranger…*

Author response: We agree and have therefore removed Study 4A from the manuscript (and moved it to the Web appendix). In addition, we conducted a new experiment (Study 4C) that offers further evidence of the role of reputational benefits. Specifically, this new study shows that recipient-benefiting incentives are particularly effective at inducing referrals for referrers who are high in trait concern for reputation.

b. *I found the process items asked of participants in Study 3 to be questionable. (See p. 16 of the manuscript—the questions are on reputational benefits, psychological costs, and social obligations.) Participants in the selfish condition are likely to recognize that this referral would not make the friend view them as particularly generous, helpful, friendly, well-intentioned, etc., EVEN IF they don't really believe that the friend's view of them would change with their action. The approach the authors use in Study 4A and 4B (notwithstanding my concerns about the design of 4A above), where the evidence is in the choice the participants make, strikes me as a better way to go.*

Author response: We agree that the direct manipulation of reputational benefits in Studies 4A (now Web appendix study 3) and 4B is stronger evidence for the role of reputational benefits than the measured process items, which is why we offer both pieces of converging evidence. We have retained Study 4A (formerly Study 3) because despite its weakness that you point out, we think it brings some unique merits to the paper: it is an incentive compatible lab experiment (whereas the other studies that assess process are online experiments that are not incentive compatible), and it also attests to the uniqueness of our reputational benefits account by showing that our measure of reputational benefits mediates the effect of referral structure on propensity to refer. However, we now more clearly acknowledge the limits of the self-reported mediation measure in the manuscript: "While this self-reported mediation study shows initial support for the role of anticipated reputational benefits in our account, we seek stronger evidence via moderation in Studies 4B and 4C" (see pg. 24-25).

Tighten up the front material on pages 2-8.

Author response: Thank you for this request; we have revised this section to be more concise.

In sum, I think the observation about the two decisions and the asymmetric action costs is a nice framing of this question of referral program design. I think the authors need stronger evidence for the conclusions about reputation.

Author response: Thank you again for your helpful comments. We have continued to highlight the role of asymmetric action costs throughout the paper and we hope that the new Study 4C helps to more effectively demonstrate the role of reputational benefits.

Reviewer 3

...the observed effects from Experiment 1 (based on the experimental design) could come from the pro-social context, but not the incentive design itself. That is to say, the effect of prosocial incentive design is highly dependent on the context, and sender-receiver relationships. Authors need to clearly define the boundaries of the findings and seek to identify the boundary conditions.

Author response: We shared your concerns about context, which is why we intentionally did not use additional "prosocial contexts" after the first field experiment and sought to cover a range of consumer contexts – from an Amazon loyalty program to a video games rental service to a food delivery service. We do acknowledge, however, that this paper does not cover all consumer contexts, and we therefore added a note in the GD suggesting that future research may further study the effect of incentive types on the referral process in additional contexts (pg. 39). Thank you again for your very helpful feedback.

We also very much appreciate your feedback about the contribution of this manuscript. More clearly establishing our contribution was a major focus of this revision as we discuss in response to the AE report and in the appendix to this letter. We have you to thank in large part for pointing us toward this effort.

Appendix
Contribution Table

Feature	Ryu and Feick (2007)	Bapna et al.	Hong et al. (2017)	Gao et al.	Jung et al.	Current Manuscript
Stage of Referral Process Evaluated						
Referral Stage	✓		✓	✓	✓	✓
Uptake Stage			✓	✓	✓	✓
Overall effectiveness (i.e., new customer conversions)		✓	✓	✓	✓	✓
Type of Incentives Studied						
Recipient-benefiting vs. No incentive	✓	✓		▓▓▓		✓
Recipient-benefiting vs. Referrer-benefiting	✓	✓		▓▓▓		✓
Recipient-benefiting vs. Shared incentive	✓	✓		✓		✓
Methodological Features						
Incentive Compatible Behavior		✓	✓	✓	✓	✓
Field Data		✓	✓	✓	✓	✓
Process Evidence	✓		✓	✓		✓
Process Evidence – Reputational Benefits						✓
Randomize both roles				▓▓▓		✓
Published	✓		✓			

▓▓▓ Indicates that this information is not available to us