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The Motivating Force of Carrot Versus Stick Incentives on Prosocial Behavior

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While “stick” incentives outperform “carrot” incentives in some domains due to loss aversion, we find the opposite pattern for incentives designed to motivate prosocial behavior. Seven studies demonstrate this effect and show that this effect is driven by the greater potential for carrot incentives to serve as self-signals of generosity.

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Incentives for Good Behavior and Good Behavior as Incentives

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Paper #1: The Motivating Force of Carrot versus Stick Incentives on Prosocial Behavior

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Paper #2: Contingent Match Incentives Increase One-Time and Recurring Donations

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Paper #3: Prosocial Incentives in the Field

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Paper #4: How Conventional Products Can Use Cause-Related Marketing Campaigns To Make Up for Not Being Organic

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SESSION OVERVIEW

Incentives can be extremely useful tools for encouraging desirable behaviors. Hence, incentives are often linked to prosocial behavior in two different ways: 1) Because people often lack the motivation to do good deeds on their own, incentives are employed to encourage prosocial behavior, including blood donations, volunteering, and pro-environmental acts (Gneezy, Meier, and Rey-Biel 2011). 2) Good deeds *themselves* can be employed as incentives to encourage other desirable behaviors (e.g., someone donates to charity for each pound that you lose; Imas 2014). Such “prosocial incentives” may be effective because people care deeply about a social cause or like to signal their virtue to themselves and others.

These connections point to the possibility of a virtuous cycle: incentives encourage good deeds, which in turn become the incentives themselves. The four papers in this session present a full picture of this relationship, illustrating boundary conditions and guidelines for implementation, both when incentives promote good behavior and when good behavior is the incentive. Across various contexts that cover a range of desirable behaviors, the presentations use a mixture of field studies and controlled laboratory experiments to demonstrate both consequential effects and their underlying mechanisms.

The first two papers identify characteristics of incentives that influence their effectiveness in encouraging good deeds. **Barasch and Small** investigate the relative effectiveness of carrot versus stick incentives in the prosocial domain. Although sticks are more successful for non-prosocial acts, carrots outperform sticks in motivating prosocial behavior due to their greater potential to serve as self-signals of generosity. **Anik, Norton, and Ariely** examine the use of contingent match incentives for non-profits (e.g., “if X% of others give, we will match all donations”) on donation behavior. A large-scale field study and two lab studies demonstrate the success of contingent percentages at middle values (around 75%) where both social proof and plausibility, the countervailing forces that influence donation behavior, are at work.

The second two papers focus on how good deeds can be used *as incentives* to motivate other behaviors. **Keenan, Imas, and Gneezy** examine whether “prosocial incentives” improve effort beyond standard incentives. Their field studies show that prosocial incentives

increase participation and effort both in a recycling program and a labor market, and work better in public than in private. Finally, **Müller, Mazar, and Fries** examine how companies can incentivize consumer purchase by offering donations to offset the negative externalities caused by their products. Companies benefit most from providing donations in product-unrelated domains, unless the product-related damage is personalized.

Because implementing incentives can be challenging, it is important to understand what features of incentives make them effective. Together, these papers highlight various novel intersections between incentives and prosocial behavior, helping point the way to a virtuous cycle of greater personal enjoyment and social good. Given the widespread applicability of the issues discussed, the session should attract researchers interested not only in prosocial behavior and incentives, but also crowding out, nudges, and field studies. We hope that the theoretical and practical implications of each presentation will generate a fruitful discussion.

The Motivating Force of Carrot versus Stick Incentives on Prosocial Behavior

EXTENDED ABSTRACT

Since 2010, dozens of major cities have started imposing a surcharge on disposable paper and plastic bags commonly used at grocery and retail stores. However, in the face of this tax, some retailers have turned the “stick” incentive into a “carrot” by giving shoppers a discount for each reusable bag they bring in. But which will be more effective at changing behavior, both at the point of purchase and subsequently in other environmental contexts? More generally, what is the relative effectiveness of carrot versus stick incentives on prosocial behavior?

While much is known about the effects of extrinsic rewards on individuals’ performance and actions (Deci, Koestner, and Ryan 1999), little work has directly compared *reward* incentives (carrots) to incentives that *penalize* people for poor behavior (sticks). Prior work has shown that due to loss aversion, stick incentives to avoid losses outperform carrot incentives to achieve gains (Goldsmith and Dhar 2013; Imas 2014). We hypothesize the opposite pattern when incentives are designed to motivate prosocial behavior.

People often look to their own prosocial behavior to signal to themselves that they are good people, and tend to act accordingly in the future (Gneezy et al. 2012). In the context of motivating consumers to perform good deeds, we predict that carrots will outperform sticks due to their greater potential to enable people to signal to themselves that they are indeed good. Negative framing has been shown to reduce the warm glow that individuals derive from engaging in prosocial behavior (Andreoni 1995). As such, we suggest that the controlling nature of sticks may impede people’s ability to make positive inferences about themselves. Thus, people acting to avoid a punishment may be less likely to infer they are doing good because they are truly charitable. We test these hypotheses in seven studies.

First, the results of two scenario studies testing people’s behavioral intentions provide initial evidence that carrots outperform sticks in real consumption situations. In these studies, participants were given a short description of a situation in which they would receive a carrot incentive for performing a prosocial act or a stick incentive for failing to perform a prosocial act. Then, they reported how likely they would be to engage in that act. In **Study 1**, people were

more likely to report that they would bring their own reusable bags to a grocery store if the store offered them a refund for every bag they brought than if the store charged them for every disposable bag they had to use ($t=2.92$; $p=.010$). In **Study 2**, people reported greater compliance when an energy company offered financial rewards for efficient energy use than when a company charged its consumers for excessive energy use ($t=3.54$; $p<.01$).

Next, five laboratory studies examining real behavior lend further support, finding that carrot incentives are more effective than stick incentives in actually motivating prosocial actions. In all these studies, participants performed real tasks for charity and were randomly assigned to receive either a monetary reward for each completed task, incur a monetary penalty for each unfinished task, or receive no incentive. We controlled for compensation amount by equating the minimum and maximum amount participants could receive in each incentive condition.

In **Study 3**, we found that relative to stick incentives, carrot incentives led individuals to commit to performing more charitable tasks in advance of the actual behavior ($t=3.66$; $p<.001$). In **Study 4**, carrot incentives induced individuals to perform more charitable tasks, even without pre-commitment ($t=2.58$; $p=.01$). In **Study 5**, when working for a carrot rather than a stick, participants performed more charitable tasks even after these incentives were removed ($t=3.12$; $p<.01$). In all three studies, the control condition was similar to the stick incentive condition. In addition, our results supported a self-signaling mechanism: relative to sticks, participants working for carrots rated themselves as more generous (Study 4; $t=2.74$; $p<.01$) and reported greater willingness to perform a separate task for charity in the future (Study 3; $\chi^2=6.98$; $p=.03$).

Two final studies provided additional support for a self-signaling process by directly comparing carrot and stick incentives between prosocial and non-prosocial domains. In a 2x2 between-subjects design, participants were randomly assigned to write words either for a charity's or a company's annual report, and to receive either a monetary reward for each word they wrote (carrot) or a monetary punishment for each word they did not write (stick).

Study 6 found a significant interaction, such that the effect of incentive type depended on whether the behavior affected prosocial inferences ($F=9.06$; $p=.003$). For those working for a company, stick incentives were more effective than carrots ($F=4.99$; $p=.02$), replicating work showing that loss aversion operates in non-prosocial domains. However, for those working for a charity (i.e., completing prosocial tasks), carrots outperformed sticks ($F=4.09$; $p=.04$), replicating our earlier findings that people work more for rewards than punishments when doing so better enables self-signals of virtue.

Study 7 replicated this interaction ($F=8.61$; $p=.004$), as well as the simple effects in the company domain ($F=3.73$; $p=.05$) and charity domain ($F=4.97$; $p=.03$). In addition, individuals in the charity-carrot condition predicted that they would have done more tasks in the absence of the incentive than individuals in the charity-stick condition ($F=4.45$; $p=.04$), reflecting greater perceptions of their own generosity. In the company condition with no prosocial implications, there were no differences between carrot and stick incentives on self-reported generosity predictions ($F=.13$; $p=.72$), and predictions of task completion were lower overall than in either charity condition, confirming the crucial role of charitable self-perceptions in altering how incentives affect behavior.

Across seven studies, we demonstrate that carrot incentives are more effective than stick incentives in prosocial domains. While loss aversion makes stick incentives more successful in non-prosocial domains, carrots have greater potential to allow consumer self-signals of generosity through the completion of prosocial actions. These

results underscore the importance of understanding which types of incentives are effective in different contexts.

Contingent Match Incentives Increase One-Time and Recurring Donations

EXTENDED ABSTRACT

Imagine that you are making an online donation; as you check out, you are given the option to upgrade to a recurring donation. If you are like many donors, you'd be unlikely to make such a commitment. Now imagine that you see a message, informing you that the charity will match all donations made that day, if – and only if – $X\%$ of donors agree to upgrade to a recurring donation. Would this type of matching incentive – what we term a contingent match – change your likelihood of upgrading? And if you were in this situation, what percentage would motivate you most? If the match were set to “kick in” if 25% of people upgraded, you might feel that while the match is likely to occur, the percentage being set so low indicates that very few people are expected to upgrade. In contrast, if the match were set at 100% of donors – sending a strong signal that many people are expected to upgrade – you might feel that it is unlikely that everyone will agree, such that the likelihood of the match occurring is low. Therefore, we suggest that upgrading to recurring donations will be highest for a middle value which signals both that many other people are likely to upgrade (offering social proof) and that hitting the match target remains plausible.

Decades of research suggest that people's behavior is shaped by the behavior of others (Asch 1956; Cialdini 1993; Griskevicius et al. 2006; Sherif 1936). Social proof has been shown to guide a diverse set of actions such as helping in emergencies, littering, and recycling (e.g., Buunk and Bakker 1995; Latané and Darley 1968). Previous research suggests that consumers are sensitive to social proof when deciding to make one-shot donations (e.g., Shearman and Yoo 2007); as a result, we expected that donors would also be sensitive to social proof when considering recurring donations.

Note, however, a critical difference between typical instantiations of social proof (“ $X\%$ of people have engaged in the behavior”) and contingent matches (“If $X\%$ of people engage in the behavior”); both suggest that many people have or are expected to engage in a behavior, but the latter has an element of uncertainty. As a result, we predicted an important role for another construct: plausibility. Certainly, individual motivation is strongly influenced by plausibility that goals can be reached (Bandura and Schunk 1981; Fishbach and Dhar 2005; Koo and Fishbach 2008; Zhang, Fishbach and Dhar 2007). Therefore, we expected donors' decisions to upgrade to recurring donations to be influenced not only by social proof (where a higher percentage is generally better) but also by plausibility (where a percentage that is too high may seem unreachable).

In three experiments, we assessed the impact of contingent match incentives. In Experiment 1, we partnered with Global Giving, a non-profit organization that connects donors with grassroots projects. After browsing the projects available on GlobalGiving.org, on the check-out page, donors ($N = 12,769$) viewed the project, the amount of donation they selected, and the frequency of the donation. It was optional to switch the frequency from one-time (the default) to a monthly recurring donation. Our dependent variable was the percent of people who converted from one-time to recurring donations. Donors were randomly assigned to one of seven conditions. Donors in the *control* condition had the opportunity to spontaneously upgrade one-time donations to monthly recurring donations. Those in the *prompt* condition were provided with a prompt that encouraged them to “help make a sustained impact by upgrading to a monthly

recurring donation.” Those in the *standard match* condition were told: “A generous anonymous donor has agreed to match 100% of new monthly donations today.” Finally, donors in one of the four *contingent match* conditions were told: “A generous anonymous donor has agreed to match 100% of new monthly donations today, but only if 25/50/75/100% of donors start a recurring donation today.”

We found that informing potential donors that their donations would be matched if and only if 75% of other donors agreed to upgrade led to the highest percent of upgrades. Most interestingly, two years after the completion of the field experiment, the follow-through rates on the seven different pledges revealed that donors in the 75% *contingent match* condition not only kept giving for the most number of months, but they also donated the highest total amount, suggesting that the 75% *contingent match* creates significantly higher value for the charities over the long term.

Next, we conducted a controlled experiment to assess social proof and plausibility as potential mechanisms. Participants ($N=275$) were asked to imagine taking part in Experiment 1 and indicate whether they would upgrade to recurring donations. We also measured *social proof* by asking participants “what percent of people who see this message would upgrade to a monthly recurring donation?” and *plausibility* by asking them “how likely do you think that the project would reach its goal?” Replicating our results from the field experiment, participants in the 75% *contingent match* condition indicated the highest willingness to upgrade to recurring donations. We also showed that *social proof* and *plausibility* mediated the effectiveness of contingent matches.

Finally, in Experiment 3, we examined whether the impact of contingent matches is specific to recurring donations, or extends to a simpler decision: one-time donations. In an online experiment, participants were randomly assigned to one of four conditions – *standard match*, *50% contingent match*, *75% contingent match*, or a *control* condition – and chose whether to keep a \$.50 payment or donate it to a charitable cause. Once again compliance peaked at 75%, and we found that the effect of contingent matches also hold for one-time donations as they do for recurring donations.

Across three experiments, we suggest and provide evidence that contingent match incentives are an effective and underutilized means of inducing people to become recurring donors. We are happy to share that Global Giving has integrated these incentives into their business model as the contingent matches allowed them to double the amount of money raised through recurring donations.

Prosocial Incentives in the Field

EXTENDED ABSTRACT

Designing incentive schemes to motivate performance is critical for organizations and individuals. Recent work demonstrates that prosocial incentives (i.e., connecting effort directly to charitable contributions) may be more effective than standard, self-benefiting incentives (Imas, 2014). Specifically, individuals exert more effort under a prosocial incentive compared to a self-benefiting scheme, though only at low incentive levels. When incentives are high, the two incentive schemes become equally effective. Individuals increase effort in the self-benefiting condition under high incentives compared to low, while those in the prosocial condition show insensitivity to incentive size—their effort does not increase with higher incentives.

While these results suggest prosocial incentives may at times provide stronger motivation than the commonly used self-benefiting ones, several open questions remain. First, although individuals often choose to behave prosocially when in a situation that requires

them to decide whether to do so, they may intentionally *avoid* such situations if possible (Andreoni, Rao & Trachtman, 2012; DellaVigna, List & Malmendier, 2012). Since prior work on prosocial incentives has only studied behavior after subjects were assigned an incentive scheme, it is important to examine whether individuals are more likely to opt-out of projects with prosocial incentives when given the opportunity.

Second, signaling models of prosocial behavior suggest giving is motivated by the desire to appear prosocial to both oneself and others (Bénabou & Tirole, 2006). In these models, individuals derive utility from a positive self and social image, and prosocial behavior acts as a signal that further bolsters that image. Consistent with signaling models, prosocial effort is greater in public than in private (Ariely, Bracha, & Meier, 2009). Since effort under prosocial incentive schemes is tied to charitable contributions, these results imply that making effort public could increase performance under prosocial incentives to a greater extent when compared to standard incentives.

Finally, the relevance of prosocial incentive schemes for organizational and policy applications critically depends on their effectiveness in the field. It is therefore important to demonstrate the usefulness of prosocial incentives outside of the lab in naturalistic contexts. In two field studies, we show that in addition to increasing effort, prosocial incentives encourage participation and are more effective in public versus private settings.

Study 1 was run in the context of recycling. We made announcements for an upcoming recycling drive in a total of 12 classrooms, and asked students ($N=846$) to indicate on a slip of paper their intention to participate. Those who indicated that they would like to participate also provided their email address and specified how many recyclables they planned to bring. All were told that individuals who opted-in to participate would receive a reminder email prior to the drive, including the number of recyclables they planned to bring.

Students saw one of two incentive schemes for bringing in recyclables (For Self or For Others), crossed with one of two levels of visibility (Private or Public). In the For Self condition, individuals expected to receive a direct payment of 0.05 cents per recyclable brought to the drive. In the For Others condition, 0.05 cents would be donated to the Make-A-Wish foundation per recyclable brought. In the Private condition, individuals opted-in to participate privately by marking a sheet of paper and slipping it into an envelope that was passed to the front of the class. In the Public condition, after marking the paper, individuals who opted-in were asked to raise their hands and bring the sheet to the front of the room. Students were told the procedure prior to making their decisions.

Results showed individuals were significantly more likely to participate in the recycling drive when money from recyclables went to charity rather than themselves. The prosocial incentive scheme had a significant main effect on participation, with 19.1% of students agreeing to participate in the For Others treatments compared to 7.4% in the For Self treatments ($p<.01$). Pairwise comparisons showed significantly more sign-ups in both the public and private For Others treatments (23.9% and 15.1%, respectively), compared to sign-ups in the public and private For Self treatments (6.79% and 8.09%, respectively), though the difference between private For Others and private For Self was marginally significant ($p=.06$). Making participation public had a significant effect on sign-ups, but only in the prosocial treatment: 23.9% signed up in the For Others public treatment compared to 15.1% in the private treatment ($p<.05$). In contrast, making the act public had no significant effect on participation in the For Self treatments (6.79% vs. 8.09%, n.s.).

In Study 2, we aimed to replicate the results of Study 1 in a different domain—an online labor spot-market. We used Amazon Mechanical Turk's spot-market to advertise a task requiring workers to populate an image database with pictures in a particular domain (e.g., wildlife). The advertisement featured the basic details of how these images should be collected, as well as the flat fee for completing the task, which entailed collecting ten links to images from the web. It also included a link to learn more information and to sign up. Once workers ($N=872$) clicked on the link, they were randomized into one of four conditions, which varied the incentive (Low/\$0.01 per 10 images vs. High/\$0.05 per 10 images) and the beneficiary (For Self vs. For Others, where the Others is one of six charities). The flat participation fee was the same in each of the four treatments. This design allowed us to test how many workers opted-in to working under the incentive scheme, as measured by the ratio of those who finished the task to those who clicked on the link, as well as effort of workers conditional on opting-in.

Results revealed that when incentives were Low, workers were more likely to opt-in to the prosocial incentive scheme (62% For Others) than in the standard incentive scheme (53% For Self, $p=.04$). As incentives increased, however, workers were just as likely to complete the task under the prosocial incentive scheme (64% For Others) as under the standard one (61% For Self, $p=.45$).

How Conventional Products Can Use Cause-Related Marketing Campaigns To Make Up for Not Being Organic

EXTENDED ABSTRACT

The production and consumption of products can cause various damages to the environment (e.g., air pollution) and society (e.g., unfair trade). As consumers are becoming increasingly attentive to social and ethical considerations – in part due to the offering of fair trade or organic products – and thus, more aware of products' negative externalities, the purchase and consumption of conventional products may become increasingly associated with guilt (Dahl, Honea, & Manchanda, 2003). To alleviate potential guilt so that consumers continue buying conventional products, some companies use cause-related marketing (CM) campaigns in which they promise a donation to a cause every time a consumer purchases their product. The idea behind this approach is related to moral regulation (Mazar & Zhong, 2010): if customers' moral self-concept is threatened by the purchase or consumption of a product that is associated with negative externalities, a morally good act such as a donation can "save" it.

The challenge when designing such CM campaigns is that companies can offer a donation to fight a problem caused by their products (*same domain-donation*) – for example, a donation to offset water pollution when buying coffee – or they can offer a donation to fight a problem unrelated to their products (*other domain-donation*) – such as a donation to fight illiteracy. However, little is known about which type of donation would be more beneficial for companies and why.

Research on moral regulation simply suggests that licensing and compensation-mechanisms can be successful regardless of whether the two counterbalancing behaviors are in the same domain (Monin & Miller, 2001) or in differing domains (Mazar & Zhong, 2010), but does not compare the effectiveness of both types to each other. Intuition suggests that a *same domain-donation* has the advantage of directly reducing a product's specific negative externalities, potentially making the product and thus the consumption appear less harmful – which should translate into less guilt and increased

demand for the conventional product. Yet, a same domain-donation might increase the saliency of the damage supported by one's consumption and thus make oneself feel hypocritical. Consequently, the consumer's guilt might be promoted rather than reduced, such that the consumer might choose a less harmful product instead. An *other domain-donation* avoids emphasizing the product's negative externalities and subsequent feelings of hypocrisy and thus could provide a better guilt-reduction mechanism or simply a good feeling.

In one field and one laboratory study, both with incentive-compatible, consequential purchases, we show that consumers are more likely to buy a conventional product (rather than an organic product) when coupled with an *other domain* CM campaign than when coupled with a *same domain* CM campaign – unless the *same domain* CM campaign is personalized.

In our first experiment, we operated a coffee stand during a music festival on a European university campus, where we sold conventional and organic coffee at Euro 1.20 each and varied between subjects ($N = 290$) the sign accompanying the conventional coffee. A pre-test within the same population revealed that water pollution was an environmental damage that was highly associated with the production of conventional coffee. Another pre-test revealed that fighting illiteracy was viewed as equally important as fighting water pollution, and both causes were viewed to fit equally well with the product category coffee. Thus, in one condition (*same domain*) the sign read that for each purchase of a cup of conventional coffee, 10 cents would be donated toward offsetting water pollution caused by the production of coffee. In another condition (*same domain-personalized*), the sign read that for each purchase of a cup of conventional coffee, 10 cents would be donated toward offsetting water pollution caused by the production of the consumer's ("your") coffee. In a third condition (*other domain*), the sign read that for each purchase of a cup of conventional coffee, 10 cents would be donated toward offsetting the educational disadvantages caused by illiteracy. We added two control conditions without any donation: one in which both coffees were offered at the same price (Euro 1.20; *control + equal price*) and one in which the conventional coffee cost 10 cents less (i.e. Euro 1.10) than the organic coffee (*control*).

We found that when both coffees were offered without a donation and at the same price (*control + equal price*), only 17.9% purchased the conventional coffee. Not surprisingly, this market share increased (up to 28.1%) when the price of conventional coffee was decreased by 10 cents (*control condition*). More importantly, demand for conventional coffee significantly increased when instead of lowering the price, the product was coupled with a donation in an other domain (28.1% vs. 58.3%; $p < .001$), while a same domain-donation failed to significantly increase purchases (28.13% vs. 36.8%; $p = .31$). Interestingly, however, the same domain-donation did significantly boost the purchase of conventional coffee when it was personalized (28.1% vs. 66.4%; $p < .001$).

We replicated our findings in an incentive-compatible laboratory experiment, in which we offered participants the possibility to purchase coffee before taking part in an unrelated study. In contrast to the field experiment, this setting also allowed us to observe decisions to abandon the purchase of coffee (no matter if conventional or organic) altogether. Further, it allowed us to examine the underlying process. The results of this laboratory experiment revealed that the positive effects of a personalized same domain-donation as well as of an other domain-donation on the purchase of conventional coffee were fully mediated by the relative guilt associated with the purchase of conventional versus organic coffee.

Our findings are particularly interesting for companies intending to use CM for conventional products that have less harmful com-

petitors. We show that offering the right type of donation can allow such products to increase their market share without giving up profit – the customers are willing to pick up the tab.

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