The Completion Effect in Charitable Crowdfunding

Nichole Argo[a], David Klinowski[b,*], Tamar Krishnamurti[a,c], and Sarah Smith[d]

[a] Department of Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, USA. [b] Santiago Centre for Experimental Social Sciences, Nuffield College, University of Oxford, and Department of Economics, Universidad de Santiago de Chile, Santiago, Chile. [c] Department of Medicine, University of Pittsburgh, Pittsburgh, USA. [d] Department of Economics, University of Bristol, Bristol, UK.

[*] Corresponding author. Email: dklinowski@gmail.com. Address: Concha y Toro 32C, Santiago, Chile.

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Abstract

We analyze data from two charitable crowdfunding platforms and find that donors make significantly larger donations, more frequently, and at a faster pace, in order to personally reach fundraising targets. This 'completion effect' occurs even when the target is of no consequence for provision, and even within donors who make multiple contributions on a platform. While the majority of donors follow suggested gift amounts at other points of the campaign, they deviate upwards in order to personally reach targets. We provide evidence that the effect is not driven by uncertainty about the recipient's ability to reach the fundraising goal; rather, it appears to be driven by a private benefit to the donor from personally completing campaigns.

Keywords: charitable giving, crowdfunding, threshold public goods
JEL codes: D64, D90, H41

1. Introduction

Crowdfunding is the practice of financing a project by raising many small amounts of money from a large number of people, typically via the Internet. Projects range from art initiatives to technological gadgets to humanitarian causes. What funders may get in return also varies. Some crowdfunding markets are lending-based, where backers make loans and expect an interest return. Some are equity-based, where funders are investors who receive equity stakes on the venture or shares of future profits. Others are reward-based, where funders obtain benefits such as early access to a product or special acknowledgements. Finally, there is charitable crowdfunding, where backers are donors who receive no material rewards (Mollick, 2014; Belleflamme, Omrani, and Peitz, 2015).

Crowdfunding is an increasingly popular alternative to regular financing (Burtch, Ghose, and Wattal, 2013), as online technologies now allow millions of users to interact and collaborate with one another instantaneously at virtually no cost. Crowdfunded projects raised 6.1 billion USD in 2013, 16.2 billion USD in 2014, and 34.4 billion USD in 2015 worldwide (Massolution, 2015). Despite this growth, crowdfunding is a relatively recent and developing phenomenon, with research only beginning to examine behavior of creators, funders, and hosting platforms.[1]

In this paper, we analyze donor behavior in two distinct charitable crowdfunding platforms: Benevolent and JustGiving. Benevolent <www.benevolent.net> is a US-based market where funders donate money to low-income individuals living in the US,[2] to help them finance specific goals. The goals typically involve purchases intended to improve the recipient's education, employment, health, or housing conditions, such as buying tools for work, books or a computer

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[1] Work on charitable crowdfunding includes Wash (2013) and Meer (2014) on DonorsChoose.org, and Smith, Windmijer, and Wright (2015) and Raihani and Smith (2015) and Payne, Scharf, and Smith (2017) on JustGiving.

[2] Since the time of this study, Benevolent has expanded to serve recipients outside the US as well.

for school, or furniture for newly-acquired housing. Recipients set a fundraising target, and Benevolent operates a provision-point mechanism, where the target must be raised within 90 days, or else the recipient receives no money and Benevolent transfers any partial funds to a different project of its choosing. On the other hand, JustGiving `<www.justgiving.com>` is a UK-based market where individuals fundraise for charities and other organizations in the UK. Typical charities include local hospitals, schools, and research and community centers. Fundraisers may choose to set a fundraising target, but any funds raised on the page always go to the recipient, independently of whether the funds reach the target (if a target was set). A campaign can remain active on the platform indefinitely, provided the charity remains a member of JustGiving.

Despite differences in their fundraising mechanisms, both platforms exhibit a robust and sizable pattern, that we call the *completion effect*: donors contribute significantly more money in order to reach exactly the fundraising target, and they make these completion donations significantly more frequently than donations that reach any other given fraction of the target. Our results suggest the effect is different from "goal gradient helping," i.e., a gradual increase in contribution size and donation propensity as funds accumulate (Cryder, Loewenstein, and Seltman, 2013).[3] Results also suggest the effect is not driven by donor uncertainty about the recipient's ability to reach its target, or by a subset of donors that dedicate themselves to completing projects (i.e., a "completer" type). We interpret our evidence as suggestive of an inherent donor preference for personally completing projects, whereby donors derive a private benefit from hitting the fundraising target. Possible sources of this private benefit may be an enhanced feeling of impact over the recipient (occurring, for example, if the donor believes that reaching the target is psychologically rewarding to the recipient, even if the target is immaterial), or a sense of

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[3] Crowdfunded support to a project tends to increase in size and frequency as funds accumulate (Zhang and Liu, 2012; Burtch, Ghose, and Wattal, 2013; and Agrawal, Catalini, and Goldfarb, 2015.

accomplishment from achieving goals more generally. As part of the completion effect, we also observe donors deviating upward from default amounts in order to reach the targets. Moreover, when data on timing of donations is available, we find in addition that donors make completion donations significantly faster than donations at any other point of the fundraising campaign.

Although the literature on charitable crowdfunding is relatively small, Wash (2013) has previously analyzed another crowdfunding platform that employs a provision-point mechanism, <DonorsChoose.org>, finding that donations completing a project are significantly larger than other donations, and that donors that complete are more likely to return to the platform to donate again. Our work continues this literature and contributes to the understanding of the completion effect, first by documenting it on two separate platforms. We also show, perhaps surprisingly, that a provision point (i.e., a target that is consequential for provision) is not necessary for a completion effect to occur. This raises potential implications for fundraising design, regarding possible ways to leverage the completion effect, as we discuss in the conclusion. By exploiting data on timing of donations and on default gift sizes, as well as differences across platforms, we also contribute to understanding the mechanisms behind the completion effect. We find that uncertainty about the likelihood of fundraising success cannot explain the results. Rather, our preferred interpretation is that donors derive a private benefit from making the completion donation.

Our findings contribute to the understanding of what motivates giving in general (Vesterlund, 2006) and in crowdfunding platforms in particular. Our results are consistent with the theory of impact philanthropy (Duncan, 2004), in which donors derive a private benefit if their donation 'makes a difference.' One source of this sense of making a difference may be the opportunity to personally complete someone's campaign, even if the target is irrelevant for provision. Thus, having a target may be beneficial in a way that is currently underappreciated in

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the literature on public-good provision, as we propose in the conclusion. The opportunity to personally complete a campaign appears to be a powerful incentive, when compared to other factors we can observe in the data. By performing content analysis of the text and images that make up requests on Benevolent (the only platform for which we can link data to campaign web pages), we find that demand-side factors such as references to a crisis or a difficult circumstance for the recipient (e.g., incarceration, physical or mental disability, and substance abuse) do not positively correlate with gift size or speed of donations to a campaign. Neither do physically attractive male or female recipients receive faster or larger gifts.[4] We find that days in which Benevolent offered a 1:1 contribution match are associated with faster-paced donations, but also with *smaller*-than-average donations.[5] In a possible link to religiosity, we also find that donations in Benevolent are larger on Sundays than on any other day, but Sundays are not correlated with speed of donations to a campaign.[6] Unlike all of these factors, the opportunity to complete someone's campaign is associated with an increase in both the gift size and the speed of donations.

In the remaining of the paper, Section 2 provides an overview of Benevolent and JustGiving, Section 3 describes the data, Section 4 presents the results, and Section 5 closes with a discussion. The Appendix presents a simple theoretical model illustrating how both a private completion benefit to the donor, as well as uncertainty about the likelihood of completion success, can lead to a completion effect in equilibrium.

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[4] Landry et al. (2006) find that physically attractive female (but not male) solicitors receive larger donations in a door-to-door fundraising experiment, while Soetevent (2011) find a positive effect of attractiveness for both male and female solicitors.

[5] Chen, Li, and MacKie-Mason (2006) find no effect of matching contributions on gift size in an online fundraising experiment. Karlan and List (2007) find no effect of matching contributions on gift size (conditional on giving) in a direct mail solicitation experiment. Huck and Rasul (2011) find that a linear match partially crowds out donations given to the charity (excluding the match) in a direct mail solicitation experiment.

[6] Bekkers and Wiepking (2011) review numerous studies that find a positive link between charitable giving and religious involvement.

2. Overview of the crowdfunding platforms

2.1. Benevolent

Benevolent is a US-based online platform where low-income individuals solicit donations to purchase one-time, specific items for their own use. Typical items requested on the site include uniforms or tools for a new job, books or a computer for school, and healthcare items such as eyeglasses, dentures, or a wheelchair.

For a request to be posted on Benevolent's website, a validating organization must first certify the recipient and the request. Validating organizations are social work organizations or other nonprofits that have partnered with Benevolent in advance. In addition to validating the recipients, these organizations serve as intermediaries between Benevolent and the recipients. Recipients start the request process by contacting a validating organization, which approves the request and posts it on Benevolent's website. If the request raises its goal, Benevolent sends the funds to the organization, which then makes the purchase for the recipient. This ensures the money is used for its intended purpose.

Benevolent's recipients can only make one request at a time, and their request cannot exceed 1,600 USD.[7] The request stays active on the website for 90 days, or until it reaches its target, whichever happens first. If the target is not reached by day 90, the request expires; it is taken off the website, and the recipient receives no money. In this case, Benevolent gives any partial funds raised to a different recipient with a similar request, as determined by Benevolent.

Benevolent's fundraising success rate is exceptionally high during the period of study: 85 percent of campaigns obtain full funding. On average, successful campaigns receive their first

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[7] Near the end of the period of study, Benevolent lowered this limit to 700 USD. Nevertheless, in practice, requested amounts rarely get close to the original cap, as more than 99 percent of campaigns request an amount smaller than 900 USD.

donation in less than 13 days after being posted on the platform, and reach their target 37 days before their expiration date. Benevolent strongly promotes a personal connection between donors and recipients. On its website, it stresses that donors "can step into the story of a person striving to reach important goals," and lists as one of its organizational values a belief that "when we truly see one another, empathy trumps misperception." Consistent with this, most requests on the website include a picture of the recipient, text describing the recipient's need for funds, and a video in which the recipient narrates his or her circumstances and goals related to the request. Donors, in turn, are allowed to accompany their gifts with written messages for the recipient. We find this point noteworthy because, by making donations more personal, Benevolent may have helped to stimulate in donors a desire to have a direct impact on the recipients, and this motivation, we argue, may play a central role in driving the completion effect.

Before making a donation on Benevolent's website, donors see a list of suggested donation amounts.[8] Donors may select an amount from this list, or enter any other value. As we describe in Section 4, we exploit this feature to examine whether the rate of compliance with these suggestions changes in response to the opportunity to complete a project. Figure 1 shows a request page on Benevolent, which includes information on the target amount, the number of donations and amount raised so far, the days remaining to expiration, information about the recipient and the validating organization, and a dropdown list of suggested donation amounts.

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[8] In an effort to increase donation amounts, during the period of analysis Benevolent changed the suggested amounts from 5, 10, 25, 50, and 100 USD (with a default of 25 USD) to 10, 20, 35, 50, 100, and 200 USD (with a default of 35 USD).

Figure 1: Example of a campaign page on Benevolent

Figure 2: Example of a campaign page on JustGiving

2.2. JustGiving

JustGiving is UK's biggest charitable fundraising platform. On this site, an individual can raise money for a charity of their choice by setting up a personal fundraising campaign page. The campaign typically involves the individual engaging in some activity (usually sports-related, such as running a marathon, or walking or cycling certain distance) as a way to motivate donations. For a charity to be an eligible recipient of the money raised by the individual, the charity must be registered with JustGiving (which involves paying JustGiving a monthly fee). Figure 2 shows an example of an individual fundraising page on JustGiving.

Thus, unlike Benevolent, the individual soliciting donations is not the recipient of the money. Most fundraising on JustGiving is done for very large charities (e.g., Cancer Research UK, which has an annual fundraising income of over 300 million GBP). This is an important distinction because it suggests that it is unlikely that donors see an individual's campaign fundraising target as being critical for the charity's success.

As in Benevolent, personal relationships are important to the fundraising. But the way in which they matter is different on JustGiving: individual fundraisers exploit their existing social networks (friends, family, and colleagues) to raise donations for the charity. Donors give because they care about the fundraiser and the cause the fundraiser is raising money for, not because the fundraiser is in need (see Scharf and Smith, 2016, and Castillo, Petrie, and Wardell, 2017 for work on online fundraising via networks of friends).

Table 1: Key features of the two crowdfunding platforms

	Benevolent	JustGiving
Donors	Individuals	Individuals
Recipients	Individuals	Registered charities
Fundraisers	Recipients themselves	Individuals on behalf of charities
Targets	Linked to a specific need; binding for provision	Not linked to a specific need or item; not binding for provision
Campaign duration	90 days or upon completion	No limit
Suggested donation size	5, 10, 20, 25, 35, 50, 100, 200 USD	10, 20, 30, 50, 100 GBP

When creating a campaign, fundraisers must choose whether to set a target (we observe that 85 percent of campaigns have a target). In most cases, targets are purely notional: they are not linked to specific needs or items to be purchased. Neither are the targets binding, since charities receive any funds raised even if the target is not reached, and the campaign can remain live indefinitely, even after the target is reached (as long as the charity remains registered on the platform). This implies that the completion donation does not have any greater impact for provision than any other donation.[9] We take advantage of the difference in the provision structure between JustGiving and Benevolent to explore possible motivations behind the completion effect. As in Benevolent, donors see a list of suggested amounts during payment: 10, 20, 30, 50, and 100 GBP. Table 1 contrasts key features across Benevolent and JustGiving.

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[9] One may ask whether donors in JustGiving understand that the target is immaterial for provision. For the results presented below, we see no difference in behavior across different types of charities, indicating that behavior that happens around large charities also happens around smaller charities (where there may be more of a perception that the funding is mission-critical). Moreover, fundraising via JustGiving is very common in the UK, and there is likely common awareness of how it works (approximately 3 million people take part in the biggest 20 fundraising events annually in the UK, and around one-third sponsor a campaign).

3. Data and sample construction

3.1. Benevolent

We obtain data on all donations made on Benevolent between November 2011 and June 2014, via restricted agreement with Benevolent. In the analysis, we restrict the sample to donations to successfully-funded projects (90 percent of donations the sample). These were 3,161 donations made by 1,558 different donors to 368 recipients, totaling 180,791.23 USD. Each donation is time-stamped on a scale of seconds, and linked to their corresponding donor and recipient via individual identifiers. Each observation includes the amount requested by the fundraiser, the date and time the request is posted on the platform, and the size of the donation. The average fundraising target is 529.52 USD, and the average donation size is 57.19 USD.

Benevolent also provided us with demographic and other information that recipients self-report to the validating organizations when applying for their requests to be posted on the platform. This information includes gender, race, ZIP code of residence, personal and household income level, and status as veteran, senior, homeless, immigrant, disabled, and criminal ex-offender. The vast majority of recipients are urban poor.

Independently, we also conducted content analysis of the campaign pages. We analyzed the text describing the recipient's needs and goals to identify the type of request (education, employment, healthcare, home repair, household, technology, and transportation). We also identified whether the text made reference to previous incarceration, history of substance abuse, homelessness, physical or mental disability, having children, religion, employment status, and receipt of government assistance. Since each recipient employs their own framing of their situation in these texts, we assessed whether they framed their situation as a crisis, how they projected their ability to resolve the crisis, and whether their message included gratitude. Finally, evaluating the

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campaign pictures, we rated the recipient's physical attractiveness and the effort they put into their physical appearance.[10]

The Benevolent data contain little information about the donors, and none directly gathered by Benevolent. Benevolent contracted an external marketing organization that provided information on age, gender, household income, level of education, and occupation of the donors based on their email addresses. This information was only available for a non-random subset of donors, and could not be independently verified. Thus, we use these data only at specific instances in the analysis, and interpret the results more cautiously at those points.

3.2. JustGiving

For JustGiving, we obtain data on all donations to individual campaigns that set and reach a fundraising target. These are 510,786 donations made by 441,504 different donors to 23,622 individuals, totaling 19,527,350 USD.[11] We are able to track donors and campaigns via individual identifiers. While we have no information on timing of donations, we do observe the chronological order of donations within a campaign, which allows us to identify the completion donation. The average fundraising target is 652.46 USD, and the average donation size is 38.23 USD.

The data also include information about the gender of the fundraiser, and the type of activity the fundraiser is engaged in as part of the campaign (running, cycling, walking, or other). Regarding donors, we observe gender only for individuals that disclose it during registration on the platform (73 percent of the sample). Table 2 presents summary statistics of the data.

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[10] The analysis of the text and pictures was done individually and separately by four research assistants. For some fundraising campaigns, the recipient's attractiveness and effort put into their appearance could not be assessed, as Benevolent intentionally blurred the recipient's picture to protect their identity.
[11] To help comparisons across platforms, we present JustGiving amounts in USD rather than GBP (unless noted otherwise), at the mid-2014 conversion rate of 1 GBP = 1.68 USD.

Table 2: Descriptive statistics

	Benevolent	JustGiving
Donation size (USD)		
Mean	57.19 (86.86)	38.23 (95.48)
Min	0.01	1.68
1st pctile	5.00	4.20
10th pctile	10.00	8.40
Median	25.00	16.80
90th pctile	100.00	84.00
99th pctile	500.00	252.00
Max	780.00	27,214.59
Target size (USD)		
Mean	539.52 (180.84)	652.46 (877.14)
Min	15.00	1.68
1st pctile	115.00	84.00
10th pctile	280.00	168.00
Median	525.00	420.00
90th pctile	780.00	1,680.00
99th pctile	900.00	3,360.00
Max	970.00	16,800.00
Number of donations to reach target	7.99 (5.21)	10.34 (8.60)
Number of donors	1,631	441,504
Number of campaigns	407	23,622
Amount transacted (USD)	191,251.23	19,527,350.00
Gender of donor		
Male	0.24	0.32
Female	0.63	0.41
Missing	0.13	0.27

Notes: Mean values are accompanied by standard deviations in parentheses. Gender of donor displays the fraction of the sample.

4. Results

4.1. Size of completion donations

To begin exploring donation behavior in Benevolent and JustGiving, we first compute the cumulative percentage of the recipient's goal reached by each donation, for each platform separately. For example, suppose a campaign has a fundraising target of 400 USD. A donation of size X that brings the cumulative total raised for the campaign to exactly 200 USD would be reaching a cumulative percentage of exactly 50 percent of the target. We examine the average donation size X across cumulative percentages. A completion effect implies that donations that reach exactly 100 cumulative percent will be distinctly larger than donations that reach other cumulative percentages.

Figure 3a plots the results for Benevolent, and Figure 3b for JustGiving. Note that the range of percentages stops at 100 percent for Benevolent, as campaigns on this platform terminate once they reach their goal. For JustGiving, on the other hand, the range of percentages extends beyond 100 percent, as projects on this platform can continue to raise funds after reaching their goal. We see for both panels that the average donation size trends upward as the cumulative percentage of the goal reached increases, due to the mechanical effect that larger donations tend to reach larger cumulative percentages of the goal. Yet at 100 percent of the target we see a clear upward discontinuity for both Benevolent and JustGiving. This discontinuity suggests that donors increase the amount they donate deliberately in order to reach exactly the recipient's target, with no such discontinuous behavior at other stages of the fundraising campaign.

a. Benevolent
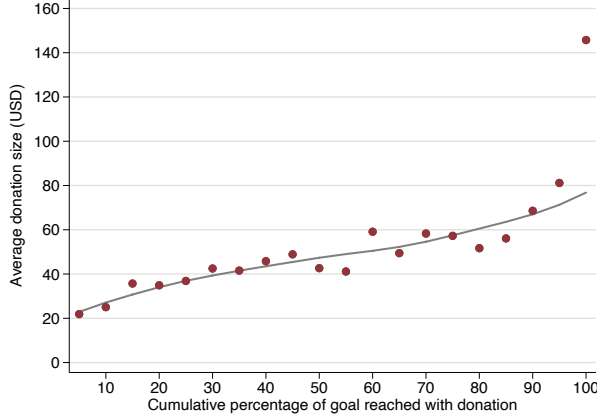
b. JustGiving
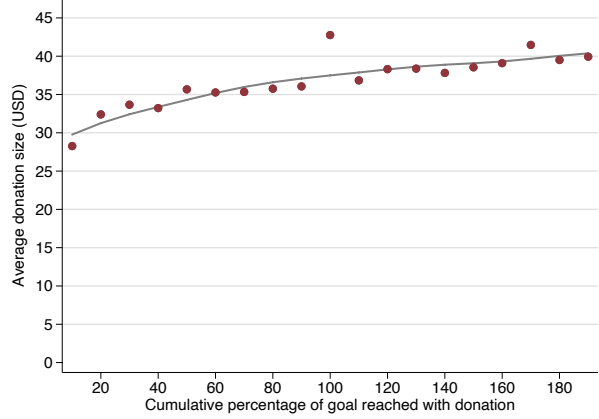
Figure 3: Average donation size by cumulative percentage of the goal reached

Notes: Percentages grouped in bins of plus/minus 2.5 percentage points for Benevolent, and plus/minus 5 percentage points for JustGiving. The line shows the lowess fit. For ease of visualization, in Panel a the lowess fit is obtained assuming a value for the 100-percent bin equal to the projection from the linear fit of all other percentage bins, rather than the actual value.

To estimate the effect of completion on donation size more precisely, we conduct regression analysis. We estimate the donation size from linear regressions, separately for Benevolent and JustGiving, controlling for observed and unobserved recipient heterogeneity by considering recipient fixed effects. In particular, we estimate the equation

$$g_{in} = \alpha + \beta D_{in} + z'_{in}\delta + \eta_i + u_{in}$$

where g_{in} is the size in USD of the nth donation to recipient i, D_{in} is an indicator for a completion donation (i.e., the donation reaches exactly 100 cumulative percent of i's goal), z_{in} is a vector of donation-specific controls, η_i are recipient fixed effects, and u_{in} is an idiosyncratic error term. We estimate this equation separately for Benevolent and JustGiving, controlling for the donor's gender,[12] and an indicator for the donation being the first one made to the recipient. For

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[12] For Benevolent, we obtain donor gender information from an independent agency based on email addresses. For JustGiving, donors may disclose their gender during registration on the platform. In both cases, gender may be male, female, or missing, and we include all three values in the analysis.

Benevolent, we also control for whether the donation occurred during a 1:1 match campaign, which Benevolent offered during certain times, and for month-year effects (we have no information on date and time of donations for JustGiving). We consider several specifications: (i) a *Baseline* specification without controls, (ii) a *Baseline Controls* specification that includes the controls described previously, (iii) a *Narrow Window* specification that restricts the sample to completion donations and the four preceding donations to the recipient, and (iv) a *Repeat Donors* specification that restricts the sample to observations from donors who make multiple donations on the platform, at least one of which is a completion donation, and at least one of which is not. The purpose of (iii) is to begin examining whether the completion effect is due to donors attempting to resolve completion uncertainty: If a donor is unsure that her intended recipient will reach the goal, she may give a larger amount in order to reach the goal herself and ensure completion. Thus, if it is relatively more clear that a campaign will be successful when it is close to completion, we may expect a smaller (or no) completion effect in the narrow-window specification, if the completion effect is due to resolution of uncertainty. The purpose of (iv) is to examine whether the completion effect is driven by a donor "type" that dedicates herself to completing projects.

Results appear in Table 3. The first row shows the marginal effect of completion, and the second row the estimated average size of non-completion donations. We focus first on Benevolent, on the left panel. Under the *Baseline* specification, we estimate that completion donations are on average 85.58 USD ($p<0.001$) larger than other donations, or, equivalently, 171 percent larger. Including the controls decreases the effect to 78.10 USD ($p<0.001$), i.e., an effect of a 154 percent increase. The *Narrow Window* specification continues to find a completion effect, of 72.55 USD ($p<0.001$), equivalent to an increase of 110 percent relative to other donations. This suggests that

the effect is not due to donors making larger donations in order to resolve completion uncertainty. Finally, the *Repeat Donors* specification also finds a significant effect, of 31.24 USD (p=0.058), equivalent to an increase of 34 percent relative to other donations made by the same donors, which suggests that the effect is not (entirely) due to a "completer" type, since donors who give multiple times, making both completion and non-completion donations, still tend to increase their gifts in order to complete.

Table 3: Completion effect on donation size (in USD)

	Benevolent				JustGiving			
	Baseline	Baseline Controls	Narrow Window	Repeat Donors	Baseline	Baseline Controls	Narrow Window	Repeat Donors
Completion	85.578***	78.095***	72.551***	31.240*	12.276***	12.152***	31.556***	7.803***
	(9.371)	(9.305)	(9.953)	(16.413)	(0.686)	(0.686)	(2.114)	(2.321)
Mean no completion	50.020***	50.647***	65.681***	90.98***	38.033***	38.035***	47.187***	20.005***
	(0.786)	(0.780)	(1.641)	(5.048)	(0.011)	(0.011)	(0.047)	(0.237)
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	3161	3161	1547	504	510786	510786	94078	17035

Notes: Marginal effects of a completion donation on the donation size. From linear regressions, separately for Benevolent and JustGiving, with campaigns as fixed effects. *Completion* indicates that the donation reached exactly 100 cumulative percent of the fundraising target. Controls for Benevolent are indicators of the donor's gender, of whether the donation occurred during a 1:1 match offered by Benevolent, and of whether the donation is the first to a campaign, and year-month effects. Controls for JustGiving include indicators of the donor's gender and of whether the donation is the first to a campaign. The *Controls* and *Baseline Controls* specifications use the full sample The *Narrow Window* specification restricts the sample to the completion donation and the four preceding donations. The *Repeat Donors* specification restricts the sample to donations from donors who give multiple times on the platform, at least one of which is a non-completion donation and at least one of which is a completion donation. Robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

We find similar effects for JustGiving, although smaller in absolute and relative magnitude. Without controls, we estimate that donations that reach exactly 100 cumulative percent of the goal are on average 12.28 USD (p<0.001) larger than other donations, or 32 percent larger. Including the controls, the estimated effect is 12.15 USD (p<0.001), equivalent to an increase of 32 percent. The *Narrow Window* specification finds an effect of 31.56 USD (p<0.001), or a 67 percent

increase. Finally, as in Benevolent, the effect does not seem to be driven by a type of donor who only completes projects, since the *Repeat Donors* specification continues to estimate an effect of 7.80 USD (p=0.001), equivalent to a 39 percent increase.

Thus, we observe a robust pattern in which donations that reach exactly 100 cumulative percent of the fundraising goal tend to be larger than donations that reach any other cumulative fraction of the goal. The result is not due to a mechanical effect,[13] nor does it appear to be driven by uncertainty about whether the goal will be reached, or driven by a few donors who systematically seek to complete projects. Rather, our favored interpretation is that donors change their behavior by contributing more than they otherwise would, in order to personally reach the fundraising goal. In the next sections, we explore this effect and the potential driving mechanisms in more detail.

4.2. Compliance with suggested amounts

On both platforms, donors are shown a list of suggested gift amounts before indicating the size of their donations. They can choose an amount from the list, or type in any other value. We exploit this feature to obtain additional evidence on whether donors change their behavior in order to personally hit fundraising goals. In particular, we examine the rate at which donations equal a suggested amount. If this rate is significantly lower for completion donations than for other donations, this would indicate, in combination with the previous finding that completion donations

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[13] By mechanical effect we mean that larger donations are more likely to reach any given fraction of the goal, including 100 percent. To prevent this from driving our result, we define completion donations as those that reach exactly 100 cumulative percent of the goal (rather than those that reach *or exceed* 100 cumulative percent), and compare the size of these donations to donations that reach all other cumulative percentages of the goal.

tend to be larger on average than other donations, that donors deviate from suggestions and purposely make larger gifts in order to reach the target.

a. Benevolent
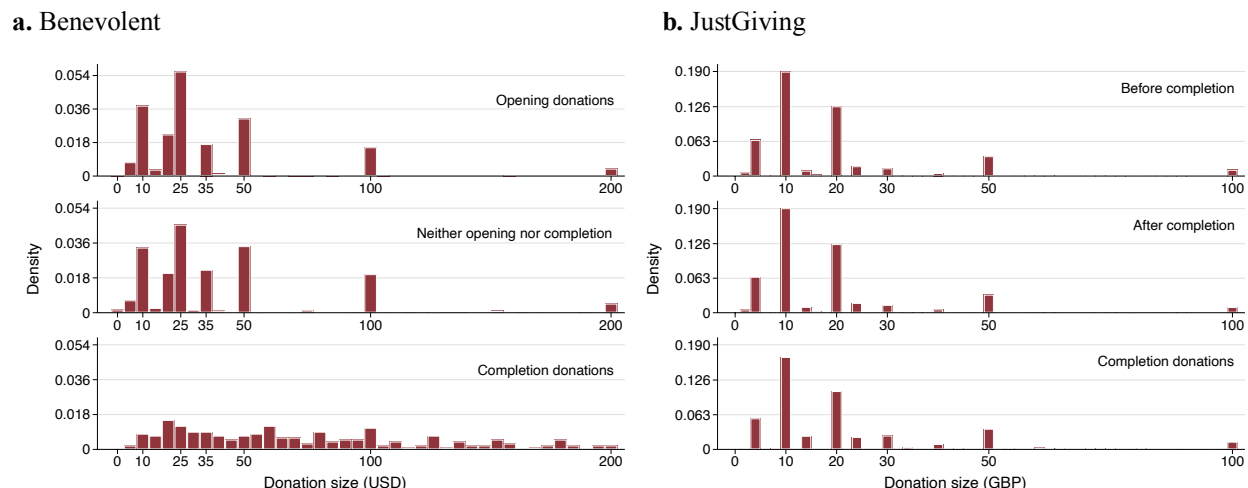
b. JustGiving

Figure 4: Distribution of donation sizes at different stages of the fundraising campaign

Notes: Sample restricted to donations equal to or smaller than the largest suggested amount (200 USD for Benevolent and 100 GBP for JustGiving). *Completion donations* are donations that reach exactly 100 cumulative percent of the fundraising target. For Benevolent, *Opening donations* are the first donation to a campaign. For JustGiving, *Before completion* refers to donations preceding the completion donation, and *After completion* refers to donations received after the completion donation.

Figure 4 plots the distribution of donation sizes. We restrict the sample to donations smaller than or equal to the largest suggested amount (200 USD for Benevolent and 100 GBP for JustGiving). For Benevolent, we observe that opening donations (i.e., the initial donation to a recipient) equal a suggested amount 88 percent of the time, and donations that are neither opening nor completion donations equal a suggested amount 87 percent of the time (see Table 4). But for completion donations, the mass shifts to larger, non-suggestion values, and the rate at which donations equal a suggested amount is only 26 percent. One may argue that a drop in the rate of compliance is expected, simply because as funds accumulate, the remaining amount needed to reach the goal is likely to be a value different from a suggested amount, thus the completion donation will depart from the suggested values. However, as we found earlier, completion

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donations are *larger* on average than other donations, suggesting that the mechanism behind the

result is that donors *increase* their gifts relative to what they normally would contribute in order

to reach the exact target.

Table 4: Compliance rate with suggested donation amounts

Benevolent				JustGiving			
Opening	In-between	50 percent	Completion	Before	After	50 percent	Completion
88.25	87.14	84.62	26.40	75.25	74.11	77.12	70.42

Notes: Fraction of donations that follow a suggestion. *Opening* refers to first donations to a recipient, *In-between* refers to donations that are neither opening nor completion donations, *50 percent* refers to donations that reach exactly 50 cumulative percent of the fundraising target, *Before* refers to donations preceding the completion donation, *After* refers to donations received after the completion donation, and *Completion* refers to donations that reach exactly 100 cumulative percent of the fundraising target.

Additional evidence for this mechanism comes from JustGiving. On this platform, it would

be more surprising to see a drop in the rate of compliance with suggested amounts for donations

that reach the target, since the target is not linked to a specific item to be purchased, and the target

is not a threshold for provision. Yet, we find a similar, though smaller, drop in the compliance rate.

In JustGiving, donations preceding the completion donation equal a suggested amount 75 percent

of the time, and donations that come after the completion donation equal a suggested amount 74

percent of the time. Completion donations equal a suggested amount 70 percent of the time. This

is a smaller effect than that for Benevolent, but a measurable effect.

To estimate the effect precisely, we conduct regressions similar to those in Table 3, but

change the outcome of interest to an indicator of whether the donation equals a suggested amount.

Results are shown in Table 5. For Benevolent, we estimate a decrease in the compliance rate of 63

percentage points ($p<0.001$) with the *Baseline Controls* specification, of 64 percentage points

($p<0.001$) with the *Narrow Window* specification, and of 46 percentage points ($p<0.001$)

restricting the sample to *Repeat Donors*. As a robustness test, in *Baseline Controls (2)* we replicate the *Baseline Controls* specification but instead of examining the effect on the compliance rate for completion donations, we examine the effect on this rate for donations that reach exactly 50 cumulative percent of the goal. We find no significant change in the compliance rate for these donations, consistent with the idea that donors disregard suggestions specifically in order to complete projects.

Table 5: Probability that the donation equals a suggested amount

	Benevolent				JustGiving			
	Baseline Controls (1)	Narrow Window	Repeat Donors	Baseline Controls (2)	Baseline Controls	Narrow Window	Repeat Donors	Baseline Controls (2)
Completion	-0.628*** (0.029)	-0.636*** (0.032)	-0.459*** (0.079)	-	-0.068*** (0.005)	-0.077*** (0.012)	-0.084*** (0.016)	-
Half-goal completion	-	-	-	0.008 (0.110)	-	-	-	0.039*** (0.005)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3161	1547	504	3161	510786	94078	17035	510786

Notes: Marginal effects on the probability that the donation equals a suggested donation amount. From linear regressions, separately for Benevolent and JustGiving, with campaigns as fixed effects. *Completion* indicates that the donation reached exactly 100 cumulative percent of the fundraising target, and *Half-goal completion* indicates that the donation reached exactly 50 cumulative percent of the fundraising target. Controls for Benevolent are indicators of the donor's gender, of whether the donation occurred during a 1:1 match offered by Benevolent, and of whether the donation is the first to a campaign, and year-month effects. Controls for JustGiving include indicators of the donor's gender and of whether the donation is the first to a campaign. The *Baseline Controls* specifications use the full sample. The *Narrow Window* specification restricts the sample to the completion donation and four preceding donations. The *Repeat Donors* specification restricts the sample to donations from donors who give multiple times on the platform, at least one of which is a non-completion donation and at least one of which is a completion donation. Robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

For JustGiving, we estimate a similar but smaller drop, of 7 percentage points (p<0.001) under the *Baseline Controls* specification, and 8 percentage points (p<0.001) under both the *Narrow Window* and *Repeat Donors* specifications. Donations that reach exactly 50 cumulative percent of the goal are on average 4 percentage points (p<0.001) *more* likely than other donations

to equal a suggested amount. Thus, even when the target is of no consequence for provision, donors are more likely to ignore suggested amounts and increase their gift size in order to personally reach the target.[14]

4.3. Likelihood of completion

Another pattern one might expect to see if donors have a preference for making completion donations is for these donations to be more frequent than donations that reach any other cumulative percentage of the fundraising goal. If we observe this in Benevolent, it may indeed be the result of a preference for completion, but it may also be a consequence of the provision mechanism in Benevolent. This is because a completion donation is always observed for a successful campaign in Benevolent, since the campaign terminates when it reaches its goal. On the other hand, completion donations need not be observed in JustGiving, since for this platform the provision of the project and the continuation of the campaign do not depend on funds reaching the target. Observing relatively frequent completion donations in JustGiving would thus be a cleaner indication of a donor preference for making completion donations.

To explore this, in Figure 5 we plot the observed frequency of donations as a function of the cumulative percentage of the goal reached. For Benevolent, we observe completion donations

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[14] The result that the rate of compliance with a suggestion increases in JustGiving for donations that reach exactly 50 percent of the target appears to be a consequence of the fact that a large fraction of targets in JustGiving equal a relatively small, round number. In our JustGiving data, 62 percent of the campaigns set a target equal to either 50, 100, 150, or 200 GBP. Thus, donations are likely to hit exactly the 50-percent mark simply by following suggested amounts (i.e., 10, 20, 30, 50, 100 GBP). By the same, mechanical effect, we would expect donations to be more likely to equal a suggested amount when they reach exactly 100 percent of the target. This makes it all the more noteworthy that we instead observe that completion donations are less likely to equal a suggested amount. Note also that, unlike JustGiving, targets in Benevolent are not concentrated on round numbers; rather, they are more smoothly distributed across the range of values (since targets are determined by the cost of the item to be purchased, not arbitrarily by the fundraiser). This explains why we do not observe a significant effect at the 50-percent mark for Benevolent.

9 percent of the time, while we observe donations that reach other given cumulative percentages no more than 2 percent of the time. As previously mentioned, it is unclear whether this large discontinuity reflects a preference for completion, a mechanical effect of Benevolent's provision function, or a combination of the two. Results from JustGiving suggest a preference for completion may be playing a role. For this platform, we observe completion donations 1.9 percent of the time, a value 67 percent larger than the 1.1 percent suggested by the trend in the data. Thus, at least in JustGiving, and potentially also in Benevolent, donors appear to purposely modify the amounts they would otherwise give, in order to reach the target. This leads completion donations to be significantly more frequent than would be expected under no preference for completion.
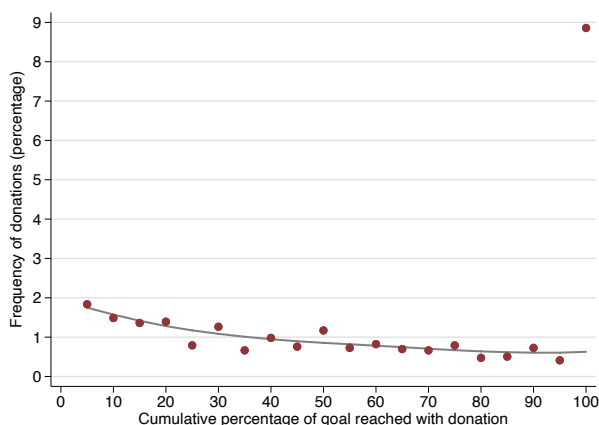
a. Benevolent   **b.** JustGiving

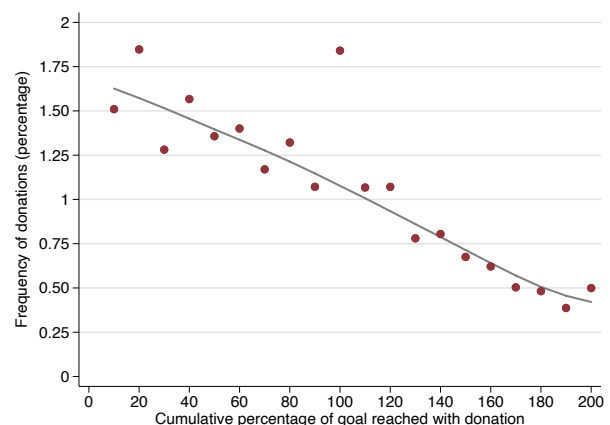**Figure 5:** Frequency of donations by cumulative percentage of the goal reached

Notes: Percentages grouped in bins that collect plus/minus five percentage points of the value labeled. The line shows the lowess fit. For ease of visualization, in Panel a the lowess fit is obtained assuming a value for the 100-percent bin equal to the projection from the linear fit of all other percentage bins, rather than the observed value.

4.4. Time to completion in Benevolent

Up to now we showed that donors increase their gift size and ignore suggested amounts in order to personally reach fundraising targets. This leads completion donations to be relatively frequent in the data. While these patterns are more marked in Benevolent, they also appear in JustGiving, where the fundraising target is purely notional and irrelevant for provision. This feature of JustGiving allows us to argue that the patterns we describe are driven at least partly by a donor preference for making completion donations. Now, in this section, we take a different approach and look exclusively at data from Benevolent to build further support for this explanation.

For Benevolent only, we observe the date and time at which each donation is made, as well as the date and time at which each campaign is posted on the platform (both on a scale of milliseconds). We can therefore compute the time elapsed between any two donations to a given campaign, the time elapsed between the posting of the campaign on the platform and receipt of each donation, and the time remaining for the campaign to expire at the moment of receipt of each donation. This information allows us to test some potential mechanisms for the completion effect in Benevolent. If donors have no preference for making completion donations, we expect completion donations to be no quicker or slower on average than other donations. If donors make completion donations that are larger and less likely to equal a suggested amount because they seek to resolve completion uncertainty, we expect projects to complete on average relatively close to their expiration date, since this is when uncertainty about the recipient's ability to reach the goal is highest. We might also expect completion donations to increase in size for completions that occur close to the expiration date. On the other hand, if the completion effect is due to an inherent donor preference for personally reaching the goal, we may expect donors to make these completion donations faster than other donations, regardless of how much time remains to expiration.

Table 6: Time elapsed between donations, and donation size in Benevolent

	a. Time between donations (days)				b. Donation size (USD)			
	Baseline	Baseline Controls	Narrow Window	Repeat Donor	Baseline	Baseline Controls	Narrow Window	Repeat Donor
Completion	-4.252***	-2.509***	-2.241***	-3.502***	79.667***	72.418***	65.447***	23.086
	(0.470)	(0.497)	(0.504)	(0.946)	(9.701)	(9.713)	(10.524)	(17.096)
Last day to expiration	-	-	-	-	41.887***	34.799***	90.168***	43.436
					(12.886)	(13.081)	(25.606)	(42.025)
Completion x Last day	-	-	-	-	24.177	32.701	28.405	42.073
					(32.148)	(30.965)	(30.910)	(39.997)
Constant	5.335***	-5.718	7.185	-11.483	48.795***	89.180***	183.34***	-62.498
	(0.039)	(4.559)	(10.288)	(10.607)	(0.897)	(26.805)	(72.356)	(97.852)
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	3161	3161	1547	504	3161	3161	1547	504

Notes: Marginal effects of a completion donation on the time elapsed (in days) between donations in panel a, and on the donation size in panel b. From linear regressions restricting the sample to data from Benevolent, with campaigns as fixed effects. *Completion* indicates that the donation reached exactly 100 cumulative percent of the fundraising target. *Last day to expiration* is an indicator of whether the donation was made within the last 24 hours of the campaign (which lasts 90 days). Controls are indicators of the donor's gender, of whether the donation occurred during a 1:1 match offered by Benevolent, and of whether the donation is the first to a campaign, and year-month effects. The *Narrow Window* specification restricts the sample to the completion donation and four preceding donations. The *Repeat Donor* specification restricts the sample to donations from donors who give multiple times on the platform, at least one of which is a non-completion donation and at least one of which is a completion donation. Robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

We explore these explanations with regressions presented in Table 6. On the left panel, we predict the time elapsed between a donation and the preceding donation to a given campaign (or between the donation and the posting of the campaign, for the initial donation), using otherwise identical specifications to those presented in Tables 3 and 4. We estimate that completion donations happen significantly faster on average than other donations: 4.3 days faster (p<0.001) under the *Baseline* specification, 2.5 days faster (p<0.001) under the *Baseline Controls* specification, 2.2 days faster (p<0.001) if we restrict the sample to completion donations and their four preceding donations, and 3.5 days faster (p<0.001) if we restrict the sample to repeat donors (non-completion donations take on average 5.3, 5.2, 4.4, and 5.9 days under each specification,

respectively). Thus, consistently, donors make completion donations faster than other donations, which may indicate a preference for completion.[15]

It is also worth noting that successfully-funded campaigns on Benevolent reach their goal, on average, 37 days before their expiration date. Seventy-nine percent of these campaigns reach their goal at least one week before their expiration date. Due to Benevolent's remarkably high success rate, it seems unlikely that the reason why completion donations are larger in size than other donations is that donors worry about projects failing to reach their goals on time.

To explore this further, on the right panel of Table 6 we predict the donation size in Benevolent, using similar specifications to Table 3, but now adding an indicator for the donation occurring within the last 24 hours before the project's expiration date, as well as the interaction between this indicator and the completion donation indicator. This interaction examines whether completion donations are relatively larger when completion occurs near the expiration date, which would suggest that donors increase their contributions to finalize a project in order to resolve completion uncertainty. Though the interaction effect is positive, it is not significant, suggesting a small (if any at all) role for the resolution of uncertainty as an underlying mechanism for the completion effect.[16]

4.5. Comparison to demand-side factors in Benevolent

To give context to the completion effect, we compare the effect to several demand-side factors we observe in the data and that have been explored in the charitable giving literature.[17] For Benevolent

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[15] Since we do not observe how donors may be interacting with their social networks, we cannot rule out that the observed increase in the speed of completion donations in Benevolent is driven by donors inviting and/or reminding their friends to donate when the campaign is close to completion.

[16] Results are similar if we look instead at completion within 2 or 5 days to expiration, rather than 1 day.

[17] Thus, a minor contribution in this section is to examine demand-side factors of giving, which, as Andreoni (2006) and Karlan and List (2007) note, are relatively understudied in the literature.

only, we are able to link donation data to campaign web pages. We perform content analysis of these pages, as described in Section 3, and identify whether the text made reference to previous incarceration, history of substance abuse, homelessness, physical or mental disability, having children, religious affiliation, employment status, receipt of government assistance, and gratitude for the campaign donations.[18] We also rate the physical attractiveness of the recipient based on their campaign picture, on a scale from 1 to 4 (where 4 is extremely attractive). We also identify whether the donation was made during a 1:1 contribution match offered by Benevolent, and on a Sunday (which may indicate religious affiliation of the donor).

In Table 7 we estimate the effect of these factors on the gift size and the speed of donations. In the *Panel* columns, we look at the effect of the donation falling on a match offer day and on a Sunday. Since these vary within campaigns, we can estimate their effects in a campaign fixed-effects model. We control in addition for the gender of the donor, month effects, and whether the donation is a completion donation or an opening donation. We estimate that donations on Sundays are 13.40 USD (p=0.074) larger than on other days, perhaps suggesting that religious sentiment motivates larger donations. But, donations on Sundays are not significantly faster than donations on other days. On the other hand, donations made on days in which Benevolent offered a 1:1 gift match are made at a faster pace than average (8.1 fewer days, p<0.001), but are also smaller than average (by 11.79 USD, p=0.069), making it unclear whether the match is related to an overall increase or decrease in revenue (and, of course, the association would not be causal since the match offer is not exogenous). Contrast these estimates to the completion effect, which is unambiguously positive. In the same model, we estimate that completion donations are on average 78.03 USD (p<0.001) larger than other donations, and arrive 2.59 days faster (p<0.001) than other donations.

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[18] See Samek and Longfield (2019) and Andreoni and Serra-García (2019) for studies of the effect of expressions of gratitude on donation behavior.

Table 7: Donation amount and speed of donations for other demand-side factors in Benevolent

	Panel		Campaign average	
	Donation amount (USD)	Time between donations (days)	Donation amount (USD)	Time to completion (days)
Completion	78.029*** (9.322)	-2.594*** (0.497)		
Sunday	13.339* (7.452)	-0.474 (0.920)		
1:1 Match	-11.786* (6.451)	-8.104*** (1.795)		
Request size			0.084*** (0.024)	0.063*** (0.008)
Female recipient			27.102** (11.183)	4.005 (3.669)
Attractive recipient			-13.185 (24.380)	-6.445 (7.998)
Female x Attractive			-5.296 (30.020)	0.585 (9.849)
Reference to homelessness			-0.156 (10.971)	3.937 (3.599)
Reference to disability			-27.736* (16.130)	-5.775 (5.292)
Reference to gov. aid			2.234 (13.054)	-0.047 (4.283)
Reference to crisis			15.404 (13.448)	-11.542*** (4.412)
Reference to kids			-20.283** (10.172)	3.778 (3.337)
Reference to gratitude			-24.387** (12.152)	11.948*** (3.987)
Constant	93.202*** (26.768)	-5.675 (4.550)	45.436*** (13.213)	8.408* (4.335)
N	3161	3161	338	338

Notes: Marginal effects from linear regressions, with campaigns as fixed effects for *Panel* columns, and OLS for *Campaign average* columns. Observations at the donation level for *Panel* columns and campaign averages for *Campaign average* columns. *Completion* indicates that the donation reached 100 cumulative percent of the fundraising target. *Sunday* indicates that the donation occurred on a Sunday. *1:1 Match* indicates that the donation occurred on a day in which Benevolent offered a 1:1 contribution match. Additional controls for *Panel* columns are indicators for the donor's gender and the first donation to a campaign, and year-month effects. Robust standard errors in parentheses for *Panel,* and regular standard errors for *Campaign average*. *p<0.1, **p<0.05, ***p<0.01.

In the *Campaign average* columns in Table 7, we look at the effect of the references made on the campaign page, the physical attractiveness of the recipient, and other characteristics of the campaign such as the amount requested and the gender of the recipient. Since these are time-invariant, a campaign fixed-effects model cannot estimate their effects. To estimate their correlation with the donation size and speed of donations across campaigns, we take as outcomes the average donation size to a campaign and the length of the entire campaign in days. Thus, we have one observation per campaign. We estimate that females receive larger donations than males on average (27.10 USD larger, p=0.016), but that time to complete a campaign is not associated with the gender of the recipient. Physical attractiveness is not associated with larger donations or faster campaign completion for either male of female recipients. Of the references made on the campaign page, we find some significant effects, but not necessarily in the expected direction. Making reference to disability is associated with donations that are 27.75 USD smaller (p=0.086) than donations to other campaigns. Making reference to having children is associated with donations that are 20.28 USD smaller (p=0.047) than donations to other campaigns. Making reference to a crisis that can be resolved is associated with completing the campaign in 11.54 fewer days (p=0.009) than average. And expressing gratitude (in advance) is associated with donations that are 24.39 USD smaller (p=0.046) than donations to other campaigns and to completing the campaign in 11.95 more days (p=0.003) than average. Perhaps expectedly, requesting an additional 1 USD is associated with receiving larger donations (by 0.08 USD, p<0.001) and taking more time to complete the campaign (by 0.06 days, p<0.001). Thus, overall, we find no factor that simultaneously increases donation size and speed of donations, other than the opportunity to personally complete a campaign.

4.*6. Gender Differences in Completion across Platforms*

We conclude this section by documenting a significant gender difference in the completion effect across platforms. We re-run regressions that estimate the donation size, following the specifications presented in Table 3, but this time showing donor's gender effects explicitly, and interacting the donor's gender with the completion indicator. For Benevolent, we obtain donor gender data from an external organization that gathers data on individuals based on their email addresses. Gender could not be determined for 10.7 percent of donors. For JustGiving, donors choose whether to disclose their gender during registration on the platform. A total of 27.1 percent of donors decide not to disclose their gender. Thus, in both platforms, gender data is missing for a nontrivial fraction of donors. Rather than attempt an imputation, we take an agnostic approach and treat missing information as an extra category of the gender indicator.

Results appear in Table 8. For Benevolent, donors whose gender we can identify make larger donations when they complete a campaign than when they contribute at other stages, but the increase is significantly larger for females (except for repeat donors, for which we see no gender heterogeneity). We estimate that females increase their donations more than males when they complete by 44.78 USD (p=0.020) under the *Baseline* specification, by 44.43 USD (p=0.021) under the *Baseline Controls* specification, and by 47.03 USD (p=0.031) under the *Narrow Window* specification. Thus, we see that males and females give similar amounts for non-completion donations, and both genders increase substantially their gifts when making completion donations. However, the increase tends to be significantly larger for females.

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Table 8: Gender and size of the completion effect (USD)

	Benevolent				JustGiving			
	Baseline	Baseline controls	Narrow window	Repeat donor	Baseline	Baseline controls	Narrow window	Repeat donor
Completion	59.514***	51.499***	45.961***	16.690	17.495***	17.586***	38.528***	8.435
	(12.619)	(12.664)	(14.364)	(16.216)	(1.667)	(1.666)	(4.713)	(5.857)
Gender								
Female	-0.706	-1.178	-2.879	3.445	-8.567***	-8.570***	-10.45***	-11.669
	(2.951)	(2.976)	(6.646)	(18.193)	(0.386)	(0.386)	(1.422)	(10.354)
Missing	17.694***	16.329***	34.576***	95.266**	-4.018***	-4.009***	-5.288***	-34.721***
	(6.021)	(6.026)	(13.125)	(44.182)	(0.439)	(0.439)	(1.877)	(8.944)
Completion x Female	44.779**	44.425**	47.030**	-2.146	-8.794***	-8.751***	-12.052**	-2.203
	(19.221)	(19.178)	(21.661)	(29.671)	(1.840)	(1.838)	(5.429)	(6.551)
Completion x Missing	69.644*	64.882*	51.031	181.985	-6.642***	-6.625***	-8.138	0.689
	(39.444)	(39.147)	(46.630)	(118.79)	(2.072)	(2.069)	(6.225)	(6.657)
Constant	48.407***	102.73***	181.44**	-60.485	42.658***	42.559***	54.004***	47.610***
	(2.462)	(29.961)	(71.198)	(90.561)	(0.259)	(0.255)	(1.057)	(8.130)
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	3161	3161	1547	504	510786	510786	94078	17035

Notes: Marginal effects of a completion donation on the donation size. From linear regressions, separately for Benevolent and JustGiving, with campaigns as fixed effects. *Completion* indicates that the donation reached exactly 100 cumulative percent of the fundraising target. Controls for Benevolent are indicators of the donor's gender, of whether the donation occurred during a 1:1 match offered by Benevolent, and of whether the donation is the first to a campaign, and year-month effects. Controls for JustGiving include indicators of the donor's gender and of whether the donation is the first to a campaign. The *Narrow Window* specification restricts the sample to the completion donation and four preceding donations. The *Repeat Donor* specification restricts the sample to donations from donors who give multiple times on the platform, at least one of which is a non-completion donation and at least one of which is a completion donation. Robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

The pattern changes for JustGiving. Among donors who disclose their gender, male and female donors make larger donations when completing a campaign than at other stages, but now the increase is significantly larger for males (except for repeat donors, for which we see no gender heterogeneity). We estimate a difference in the increase for females relative to males of -8.79 USD (p<0.001) under the *Baseline* specification, -8.75 USD (p<0.001) under the *Baseline Controls* specification, and -12.05 USD (p=0.026) under the *Narrow Window* specification. We see that males make larger non-completion donations than females on average, and both genders increase

their gift size when they make completion donations. But this increase is now significantly larger for males.

Thus, it appears that making completion donations is differentially more appealing to women on Benevolent, and to men on JustGiving. Unable to control for the various differences across platforms, we can only speculate about why we observe this. One possibility is that the difference relates to whether the goal is consequential for provision of the project, since this is a key distinction between platforms. If females care more than males about the recipient's welfare,[19] they may find it more appealing than males to complete a project in Benevolent, as completion in this platform has a large, discrete positive impact on the recipient. Thus, one interpretation of these results might be gender differences in altruistic preferences. Alternatively, if the completion effect is motivated by a desire to resolve uncertainty about the recipient's ability to reach their goal, one might interpret the relatively larger completion effect for women in Benevolent as suggestive of greater risk aversion for women.[20] However, as seen above, there seems to be little evidence that completion uncertainty plays a large role in driving donations in Benevolent. Further research is clearly needed to draw more definite interpretations regarding the gender differences we observe.

5. Discussion

Worldwide donations made on charitable crowdfunding platforms grew from 406 million USD in 2010, to 4 billion USD in 2014 (Massolution, 2015). As more charities turn to the web to raise funds, it is increasingly important to understand what features of the crowdfunding environment influence donors' motivations to give. In a laboratory experiment, Corazzini, Cotton, and

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[19] Evidence that females are more altruistic than males is mixed; see for instance Andreoni and Vesterlund (2001), Niederle (2016), and Klinowski (2018).
[20] Evidence that females are more risk averse than males is also mixed, and sensitive to the environment; see Niederle (2016).

Valbonesi (2015) show that as the number of projects soliciting contributions in a market grows, coordination among participants becomes more difficult, leading to a decrease in both total donations and the number of projects successfully funded. Thus, understanding how to effectively incentivize giving may be particularly crucial for the crowdfunding sector.

This paper provides evidence of a preference by charitable crowdfunding donors for personally reaching fundraising targets, regardless of whether the target matters for provision. Using several strategies, including exploiting data on default sizes and timing of donations, doing content analysis of fundraising campaign pages, and contrasting provision mechanisms across platforms, we show that the completion effect is robust, both across platforms and within donors who make multiple gifts on a given platform. Unlike other incentives studied in the literature that we can examine in our data, the incentive to complete increases both the size and speed of donations, making it a powerful incentive. We also show that the effect is not explained by uncertainty about whether the campaign will reach its target. Rather, we hypothesize that donors derive a private benefit from making completion donations. This benefit may stem from a sense of personally making a difference on the recipient (Duncan, 2004), pride from accomplishing production goals (Gómez-Miñambres, 2012), or a motivation to reach perceived completion points more generally (Barasz et al., 2017).

Our results give rise to potentially interesting questions for future research. Given that only one donation per campaign can be a completion donation, a natural question to ask is whether fundraisers can design mechanisms around the completion effect to increase donations. One obvious way to do so may be to set fundraising targets, which not all fundraisers do. While we conjecture that setting fundraising targets will increase revenue, our current data does not allow us to establish this. Some exogenous variation in the existence of a fundraising target—for example,

with an experiment that manipulates the existence of a target—would be helpful to explore this further. Another question is whether fundraisers can increase revenue by defining fundraising milestones at different stages of the campaign, or by dividing the campaign into rounds of funding, each with a target amount, rather than having a single completion goal. To the extent that such milestones are perceived as (or do represent meaningful) targets, they may elicit a completion effect. This seems particularly worth examining—again, possibly in an experiment—given that we find that the target need not be consequential for provision in order for it to produce a completion effect.

Finally, and more speculatively, research has examined whether sequential giving raises more funds than simultaneous giving, and has shown theoretically that this is the case if a discrete "extra benefit" is realized upon completion (Marx and Matthews, 2000). This extra benefit is typically understood as an instrumental benefit derived from provision of the project. For instance, Duffy, Ocks, and Vesterlund (2007) give as an example of how this extra benefit might arise, that "contributions to the homeless may have some immediate beneficial effect, but a substantial and discrete increase in benefit from contributions may not be achieved until sufficient funds have been collected to build a homeless shelter." In light of our results, it seems plausible that an additional source of extra benefit realized upon completion might be an inherent donor preference for completing projects, independent of the instrumental benefit of completion for provision. Thus, it may be interesting to examine whether the presence of a target itself can provide the theoretically necessary extra payoff identified in the literature as crucial for the superiority of sequential fundraising over simultaneous fundraising, even in the absence of a provision-point mechanism. Overall, our findings add to the literature that targets and completion play an important role in encouraging individual contributions to crowdfunding efforts.

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Appendix to: The Completion Effect in Charitable Crowdfunding

Nichole Argo, David Klinowski, Tamar Krishnamurti, and Sarah Smith

(For online publication)

This document presents a simple descriptive model of how uncertainty about the likelihood of fundraising success, and a donor benefit from personally achieving completion, can both lead in equilibrium to completion donations being larger than preceding donations. The purpose of this model is simply to illustrate theoretically that these mechanisms can lead to a completion effect.

A1. Basic Setup

The model is a modification of Admati and Perry (1991). N donors, indexed by $i \in \{1, \dots, N\}$, decide sequentially and one at a time how much to contribute toward a charitable project. In period $t \in \{1, \dots, N\}$, donor $i = t$ chooses her level of contribution g_i. Contributions are fully observable. Denote the aggregate contribution up to and including period t by $G(t) = \sum_{i=1}^{t} g_i$, and define $G_{-i}(t) = G(t) - g_i$.[1]

The charitable project is carried out only if it raises the target amount $\bar{G}$, which is exogenous and commonly known. Donors derive utility from the project only if it gets carried out. Donor i's utility is

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[1] Vesterlund (2003) and Romano and Yildirim (2005) note that this move structure incorrectly assumes that donors are unable to contribute more than once to any given campaign. However, this assumption is not too unreasonable in our case, as only 7 percent of donations in Benevolent and 9 percent of donations in JustGiving are repeated donations by the same donor to the same campaign.

$$U_i = \begin{cases} -g_i & \text{if } G(N) < \bar{G} \\ V_i - g_i & \text{if } G(N) \geq \bar{G} \end{cases}$$

where V_i is the value donor i gets if the project is carried out.[2] For simplicity, we assume values are common knowledge.[3]

A2. Completion Uncertainty

We explore the role of uncertainty about the recipient's ability to reach the fundraising goal in a simple, parametric case as follows. Let there be a commonly-known probability $p \in (0,1)$ that $N = 2$, and probability $1 - p$ that $N = 3$. Thus, donors 1 and 2 are certain to participate in the fundraising campaign (although they may decide to give zero). With probability p, donor 2 will be the last to participate, while with probability $1 - p$ donor 3 will be the last to participate.

Finally, assume that $0 < V_i < \bar{G} < V_i + V_j$ for any $i \neq j$. This implies that no donor wants to single-handedly fund the project, but it is efficient that the project is carried out even when only two donors participate in the fundraising campaign.

In solving this game, it is helpful to consider first the degenerate cases $p = 1$ and $p = 0$. In the former, two donors participate in the fundraising with certainty, and donor 2's best-response function is

$$g_2^*(g_1) = \begin{cases} 0 & \text{if } \bar{G} - g_1 > V_2 \\ \bar{G} - g_1 & \text{if } \bar{G} - g_1 \leq V_2 \end{cases}$$

That is, given donor 1's contribution, donor 2 is willing to donate enough to raise cumulative funds to 100 percent of the goal if she can do so with a donation smaller than or equal

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[2] This is the binary benefit function in Marx and Matthews' (2000) comparison of dynamic versus static contributions to public goods.

[3] Alternatively, we can allow for private values, but this complicates the model without providing much additional insight.

to her value from the project's completion. The Subgame-Perfect Nash Equilibrium (SPNE) achieves completion at $t = 2$, with donations $(g_1 = \bar{G} - V_2, g_2 = V_2)$. In this case, donor 1 uses her first-mover advantage to partially free ride on donor 2, who contributes her entire value.

In the case where $p = 0$, three donors participate in the fundraising with certainty, and the SPNE also achieves completion, at $t = 3$. Donor 1 fully free rides on donors 2 and 3, and the game at $t = 2$ is identical to the 2-donor case. The SPNE outcome is $(g_1 = 0, g_2 = \bar{G} - V_3, g_3 = V_3)$.

Moving away from the degenerate cases, when $p \in (0,1)$, we get the interesting question of whether donor 2 completes in the SPNE. To answer this, not that, if called to participate, donor 3 follows the best-response function

$$g_3^*(G_{-3}(3)) = \begin{cases} 0 & \text{if } \bar{G} - G_{-3}(3) > V_3 \\ \bar{G} - G_{-3}(3) & \text{if } \bar{G} - G_{-3}(3) \leq V_3 \end{cases}$$

Taking this reaction function as given, donor 2 may give either $g_2 = 0$ or $g_2 = \bar{G} - g_1 - V_3$, in either case not reaching the goal and leaving the project open for potential completion by donor 3. Alternatively, she may decide to complete the project by giving $g_2 = \bar{G} - g_1$. For donor 2 to decide to give the latter amount, it must be that $\bar{G} - g_1 > V_2$. Moreover, it must be that $V_2 > V_3$ for donor 2 not to prefer to partially free ride on the potential contribution from donor 3.[4] If these two conditions hold, donor 2 prefers to complete the project at $t = 2$ rather than to make a smaller donation and wait for potential completion by donor 3, only if the expected utility from

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[4] Donor 2's best-response function is

$$g_2^*(g_1) = \begin{cases} 0 & \text{if } \bar{G} - g_1 > V_2 \text{ and } p > \dfrac{V_3}{V_2} \\ \bar{G} - g_1 & \text{if } \bar{G} - g_1 \leq V_2 \text{ and } p > \dfrac{V_3}{V_2} \\ \bar{G} - V_3 - g_1 & \text{if } p < \dfrac{V_3}{V_2} \end{cases}$$

completing at $t = 2$ exceeds the expected utility from leaving the project incomplete at $t = 2$.
That is, only if

$$V_2 - \bar{G} + g_1 > p \cdot (V_3 - \bar{G} + g_1) + (1 - p) \cdot (V_3 + V_2 - \bar{G} + g_1)$$

which reduces to $p > \frac{V_3}{V_2}$.

As this result indicates, large enough uncertainty about the arrival of a donation after $t = 2$
leads to a completion effect: a larger contribution and completion of the project at $t = 2$. When
$p > \frac{V_3}{V_2}$, the SPNE outcome is $(g_1 = \bar{G} - V_2, g_2 = V_2, g_3 = 0)$, whereas when $p < \frac{V_3}{V_2}$, the SPNE
outcome is $(g_1 = 0, g_2 = \bar{G} - V_3, g_3 = V_3)$.

A3. Private benefit from personally making a difference

As proposed by Duncan's (2004) theory of impact philanthropy, donors may care about personally
making a difference on the recipient with their contributions. If donors derive a sense of making a
difference by making the completion donation, the addition of this private benefit term could give
rise to a completion effect in equilibrium. To illustrate this, we continue to use the setup above,
but now add to the donor's utility function a term that reflects an extra benefit from personally
reaching the fundraising goal. In particular, let donor i's utility now be

$$U_i = \begin{cases} -g_i & \text{if } G(n) < \bar{G} \\ V_i - g_i & \text{if } G(n) < \bar{G} \text{ and } i \neq T \\ V_i - g_i + b_i & \text{if } G(n) < \bar{G} \text{ and } i = T \end{cases}$$

where b_i is the private benefit from personally completing the project, and T is the period at which
completion is achieved.

Following the previous derivation, it can be verified that, when $p \in (0,1)$, the condition
for observing a completion effect at $t = 2$ becomes $p > \frac{V_3 - b_2}{V_2}$. Thus, a large enough private benefit

for donor 2 from personally reaching the fundraising goal can obtain a completion effect at $t = 2$, independently of how small p gets.

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