

**Crowding in Crowdfunding:
Monetary Rewards Complement Prosocial Motivations in Online Social Lending
Communities**

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Abstract:

In this paper, we study the effect of different crowdlending models on the willingness to fund projects in developing countries. While for-profit crowdlending models usually serve Western borrowers, recipients in developing countries are funded through prosocial platforms which offer no interest to the lenders. The question is whether entrepreneurs in developing countries can benefit from a for-profit model as well. This is a particularly open and intriguing question in light of the mix of intrinsic prosocial vs. monetary motivations that a for-profit funding model offers. We study the willingness to crowdfund in the context of social lending in a donation model, a prosocial only model, and a model combining prosocial benefits with monetary returns. In the latter model, the literature suggests that funding should likely break down due to crowding-out of prosocial motivations. However, the results our analysis of data from an observational study (using data from crowdlending platforms Kiva.org and the defunct MyC4.com) and two lab experiments shows that a model combining the prosocial aspect with a monetary return (interest on crowd loans) yields the highest willingness to crowdfund. We contribute to the literature by revealing that extrinsic monetary motivations can complement intrinsic prosocial motivation in online social lending communities.

Keywords: crowdfunding, crowdfunded microfinance, lender motivations, willingness to fund, lab experiment.

Introduction

The ongoing digitization process has enabled the exchange of various resources—such as technologies, designs, ideas, or monetary funds—between crowds of connected individuals and organizations. A key development in this sphere is the emergence of platforms that connect seekers of funds with those willing to provide funds; this is known as crowdfunding (Agrawal et al., 2014, 2016; Burtch et al., 2013; Belleflamme et al., 2014; Mollick, 2014) and it helps to ease the obstacles of funding entrepreneurs, inventors, and small businesses (Yu et al., 2017; Sorenson et al., 2016; Mollick and Robb, 2016; Parker, 2014; Mollick and Nanda, 2016; Agrawal et al., 2014).

Among the different types of crowdfunding, the most prominent one in terms of volume is debt crowdfunding, also known as crowdlending or peer-to-peer lending. Platforms such as FundingCircle, Prosper, and LendingClub offer businesses and individuals the option of posting their loan applications online—allowing private lenders and institutional investors to fund these loans—in exchange for interest. Another version of crowdlending removes the interest from the model: on platforms such as Kiva, crowds provide interest-free loans to small businesses in developing countries. Crowds on Kiva showed a particularly salient intrinsically motivated prosocial behavior also dubbed as the “warm glow” effect, where the investment resembles a donation to the weakest party. However, a few attempts have been made at applying an interest-based model in platforms that serve entrepreneurs in developing countries¹, combining extrinsic motivation of the profit from the interest to the intrinsic prosocial motivation to help the poor.

The co-occurrence of extrinsic and intrinsic motivations could lead to different outcomes: on the one hand, the presence of extrinsic motivation for instance linked to a reward, could have a deteriorating

¹ Examples include MyC4 and Rang De.

effect on the intrinsic prosocial motivation, which is known as “crowding out”; on the other hand, the two motivations reinforce each other in what is known as “crowding in.” Previous work in psychology and behavioral economics theorized about the interaction between intrinsic and extrinsic motivations; it was argued that monetary rewards elicit extrinsic behaviors, but they undermine intrinsic behaviors that result from the inherent satisfaction of doing the activity (Frey, 1997; Lepper et al., 1973). However, if the same individual perceives the rewards as supportive or the outcome of a self-determined effort, the opposite effect could occur (i.e., a “crowding in” effect). Benabou and Tirole (2006) extended this theory by describing an overjustification effect; rewards, control, and punishments tend to reduce the willingness of individuals to make an effort or contribute money to causes of good deeds, hence crowding out prosocial behaviors, or crowding in if the intervention is perceived supportive or the action self-determined. In this paper, we study the tensions between intrinsic prosocial vs. extrinsic and self-interested behaviors in the context of social lending crowdfunding. In this context the crucial outcomes of crowding out of contributors’ prosocial motivation by the presence of a monetary reward (e.g., earnings from an interest) would result in lesser willingness to fund, while if a monetary reward could co-exist with prosocial motivations, and crowd in contributions, the effect would be an increase in willingness to fund.

In regard to crowdfunding, the interaction between intrinsic and extrinsic behaviors across different models remains unclear (Younkin & Kashkooli, 2016; Dushnitsky & Zunino, 2019). The literature on motivation and crowdfunding suggests an ample range of reasons for crowding out; lenders on prosocial platforms tend to fund ventures whose narratives suggest that they would help others rather than those that reflected business opportunities (Allison et al., 2015); these lenders funded loans taken to pay for necessities faster than loans for income-generating activities (Gafni et al., 2020). Contrariwise, the literature also offers a delicate set of conditions under which crowding in would occur (Chen et al., 2019; Cholakova & Clarysse, 2015). Therefore, whether allowing individual

fundors to make a profit on crowdfunded investments in crowdlending would undermine prosocial motivation is an important open question that still needs to be addressed.

The answer to this question can increase the understanding surrounding the effectiveness of the different crowdlending models in this context as well as which model would yield the strongest response from potential lenders. If both motivations could co-exist and be kept intact, then an opportunity is presented for drawing on both, potentially and simultaneously eliciting funding from individuals seeking a monetary reward (extrinsic) and individuals who are prosocially (intrinsically) motivated.

Our study addresses the research question with three studies:

In Study 1, we compared funding behavior on prosocial and for-profit platforms. We collected data from Kiva, the largest platform for prosocial lending, and compared it with a matched sample from MyC4, a platform that offered interests on the loans (Gafni & Jeppesen, 2021). We performed a conservative exact matching for both lenders and borrowers. The granularity of the data allowed us to compare similar lenders who made decisions about similar projects. Our results uncovered that comparable lenders have a higher willingness to fund comparable projects on the crowdfunding platform that elicited both intrinsic (via social loan) and extrinsic (via interest rates) motivated behaviors. The results are robust to the inclusion of the gender and age of the borrowers as well as the sector and size of the loan. However, the results of this study rely on the following assumptions: (a) individuals with similar attributes are comparable in their behaviors, and (b) individuals are aware of the existence of both platforms.

In Study 2, we relaxed the latter assumption. We designed an incentivized online experiment that targeted a representative sample of the UK population. Respondents evaluated a credible project of a

small business owner from a developing country in East Africa who sought funds to grow their business. The incentive of the experiment is consistent with previous literature about donation behavior in crowdfunding (Chen et al., 2019; Greenberg and Mollick 2017). Each respondent was given an extra endowment to fund a project, and they were randomly assigned to an experimental condition that approximated the specific funding model. To elicit intrinsically motivated prosocial behaviors, we ensured the participant that the sum was given to a real and similar project on an existing crowdfunding platform. In the first experimental condition, we considered a purely intrinsic prosocial component in which respondents simply donated the extra budget to the project. In the second experimental condition, or social lending, respondents were offered the opportunity to allocate the money for a loan while being informed about the risk of losing the sum (simulated in the experiment by the realistic situation of the loan being defaulted). Third experimental condition elicited an extrinsically motivated behavior via an interest payment to the respondents in case the funding was repaid (simulated in the experiment by the risk of losing the sum). Consistent with our analysis of observational data, we found that lenders prefer a model in which prosocial and monetary motivations—elicited via social loans and interest rates—coexist.

In Study 3, we ruled out the idea that respondents followed purely extrinsically motivated behaviors and completely neglected the intrinsic ones. We ran an additional experiment where the treatment group was required to make an investment decision similar to Study 2, where prosocial and monetary motivations co-exist; the treatment group was required to make an investment decision where the nature of the investment (i.e., to elicit only extrinsic motivation) was not specified. The results of Study 3 highlight the way in which extrinsic motivation can be seen to complement—and not replace—intrinsic ones; this makes the phenomenon of crowding out less likely in social lending. These results echo one of the mechanisms of crowding in via decision-making frames (Lieberman et al., 2004).

Our results contribute to the literature discussing crowdfunders' motivations. The results also show that monetary rewards do not necessarily crowd out prosocial drivers of funding. This finding has an implication to platform owners and independent fundraisers who wish to increase the crowd members' willingness to fund by offering a pecuniary return. The findings also contribute to the conversation regarding the tension between extrinsic and intrinsic motivation. Based on our findings, we suggest that extrinsically motivated behaviors can complement intrinsic ones in the context of online social lending. In our study, no evidence was found regarding the disappearance of intrinsic motivation by introducing an extrinsic monetary motivation.

Background and Literature

In this section we revisit the discussion about the relationship between rewards and motivations as it is relevant to the question about individual funders' decisions to engage in crowdfunding.

Literature on various digital crowd phenomena has raised the question of why individuals engage in activities that without pay, contributing to a public good, often finding that intrinsic motivation was key to the efforts and investment of time and resources into a community. Perhaps most notable, research has largely focused on the creation and maintenance of open-source software (Hars and Ou, 2003; Lakhani and von Hippel, 2003; Lakhani and Wolf, 2005), finding a prominent role of intrinsic motivation, that is, engaging in an activity for its inherent satisfactions rather than for some separable consequence (Ryan and Deci, 2000, p. 56). Still, the question remains whether participation of individuals in such systems can be increased with rewards coming from an external source. Research finds that extrinsic rewards in these systems tend to undermine contributors' intrinsic motivations (Osterloh and Rota, 2007), however, at the same time there is a growing understanding of the conditions under which extrinsic rewards may in fact enforce contributions depending on whether

they are ex-ante, ex-post, and expected or not (Gallus, 2017). In the following, we discuss the theories of crowding-out and crowding-in of motivations, and their application to crowdfunding.

Crowding out and crowding in motivations:

The interaction between extrinsic intervention and intrinsic motivation and hidden cost of rewards has addressed in two related ways (Frey, 1997). First, interventions that are imposed from the outside of the individual (e.g., monetary rewards and regulations) may affect intrinsic motivation. Second, interventions from the outside may either crowd-out or crowd-in intrinsic motivation, or leave it unaffected (Frey and Reto, 2000).

Researcher in psychology and behavioral economics studied the interaction between intrinsic and extrinsic motivation finding that external intervention resulting in the introduction of extrinsic motivations would often crowd out intrinsic motivation (Lepper & Greene, 1978; Deci and Ryan, 1985; Frey, 1997; Ariely et al., 2009), with especially, monetary and contingent rewards likely to crowd out intrinsic motivation (Frey, 1997; Pink, 2011): monetary rewards elicit extrinsically motivated behaviors but undermine intrinsic ones (Frey, 1997; Lepper et al., 1973). Deci and Ryan (2000) suggested that in the absence of incentives, an individual choosing to carry out a task, will attribute their efforts in carrying out a task to the joy of performing the task. However, when introducing an external reward (or punishment), the individual intrinsic motivation may be reduced because they ascribe the effort to the reward (Fehr & Falk, 2002) or perceive it to be controlling them (Deci & Ryan, 2000). Bénabou & Tirole (2003) explain such phenomenon by the effect on self-esteem of the individual acting on the incentive. If an individual finds the rewards controlling or incentivizing, this may result in lower engagement – the crowding out of their intrinsic motivation.

However, under certain conditions the interventions from the outside may lead to the opposite effect – crowding in of intrinsic motivation. If an individual perceives the rewards as the outcome of a self-determined effort or as supportive, the opposite effect could occur, namely a “crowding-in” effect (with the reward raising the individuals’ motivation to perform, while their intrinsic motivation to perform is raised too) (Frey and Reto, 2000). Many has viewed a less controlling environment and non-monetary rewards as potentially useful alternatives to hard incentives to preserve intrinsic motivation. Rewards may especially effective when they are implemented in order to recognize past behaviors. For instance, an unexpected retrospective award may provide positive re-inforcement instead of being seen as an incentive to engage in the behavior that is being rewarded (Gallus, 2017). In theory, such unexpected rewards may preserve the subject’s sense of autonomy and could potentially even reinforce intrinsic motivation (Bénabou & Tirole, 2003; Gallus & Frey, 2016). Under these conditions extrinsic motivation can co-exist and even increase intrinsic motivation.

Intrinsic motivations can be considered either as serving the joy of the focal individual (hedonistic preferences) or in an outward oriented form intended to improve others’ well-being: prosocial preferences, which induces a feeling of “warm glow” (Andreoni, 1990, Weibel et al., 2014). One such action that is impacted by prosocial motivation is the willingness to pay to a public good (Benabou & Tirole, 2006), which according to the ideas outlined above can either increase, decrease, or stay the same after the introduction of extrinsic rewards.

Prosocial and financial motivations among crowdfunders

Crowdfunding platforms rely on the willingness of members of the crowd to fund projects about which they have only limited information, either in return to future profit (equity crowdfunding), interest (debt crowdfunding, or crowdlending), perk (reward-based crowdfunding) or no reward at all (donation-based crowdfunding). In the latter two types of platforms, where no financial return is

promised, prosocial motivations are the main drivers of crowdfunders' activity, where funders enjoy supporting the applicants in reaching their fundraising goals and realize their projects (Boudreau et al., 2021, Cholakova & Clarysse, 2015; Giudici et al., 2018). This also extends to prosocial crowdlending platforms, where the lenders are not paid interest for their loans (Allison et al., 2014). In the cases where crowd-investors would like to support individuals and businesses based on the promise of a monetary external incentives such as in the cases of equity and debt crowdfunding the financial motivations become more salient (Cholakova & Clarysse, 2015; Collins & Pierrakis, 2012), and may crowd out the prosocial motivations.

Yet, it is unclear what the outcome of introducing a monetary reward would be in a setting of a crowdlending platform in which the recipients are small business owners and micro-entrepreneurs in developing countries and where prosocial motivations play a key role for contributors to begin with. One possibility is that providing monetary rewards will completely crowd out the prosocial motivations, as was the case with other platforms that offer financial rewards and where crowdfunding lenders treat their decision to contribute as a simple investment expecting a return. A second possible outcome would be a partial crowding out, in which the prosocial motivation to support small business owners and entrepreneurs in developing countries decreases – but is still salient - in the presence of the financial motive. The third option is that extrinsic motivations are additive, so that rewards combined with prosocial motivations increase the willingness of the crowdfunders to lend money to developing countries' small business owners and microentrepreneurs. Which of these three options dominate in the context of crowdfunding developing countries' small business owners and microentrepreneurs remains an empirical question, which we will address in the following sections.

Data and Empirical Strategy

Study 1

Data

To learn about for-profit crowdlending, we use proprietary data of a defunct platform named MyC4. Active between 2007 and 2010, MyC4 was a setting for an online marketplace for crowdfunded microfinance and connected lenders from various countries (mainly Denmark, where the platform was established) with borrowers (small business owners and micro entrepreneurs) from 14 developing countries (mainly Uganda and Kenya). Lenders were faced with a menu of campaigns that featured descriptions of the project or the business, details about the size and repayment schedule of the loans, and the maximum interest rate that the borrower is willing to pay. Lenders bid sums of money they wish to lend and interest rates they wish to receive for them, and the loan was successfully funded if the total sum of the loan was reached with a weighted-average interest that was equal to or below the maximum acceptable interest before the last day of the campaign. During its years of activity, 12.6 M Euro were raised via the platform, connecting 12 thousand lenders to six thousand successfully funded projects.

To learn about interest-free crowdlending platforms, we use data from Kiva, the world's leading pro-social crowdfunded microfinance platform. Founded in 2005, Kiva has linked more than 1.8 million lenders with 1.6 million loans, which sum to more than 1.3 billion US dollars. Unlike MyC4, lenders on Kiva do not receive any interest on the money that they lend. A loan request is funded once its funding goal is met if it does not reach its 30-day limit. The majority of lenders are located in North America, and virtually all lenders reside in developed countries. With the exception of a small

proportion of US-based borrowers, all borrowers are in developing countries. We obtain the data from the application program interface (API) of the website, which includes information about campaigns, lenders, and loans but does not specify the sums lent by each lender. In both platforms, lenders have the option to share information about themselves, such as their name, location, and occupation, which is made public on the website.

Matching strategy

In this subsection, we outline our matching methods, which will allow us to estimate direct effects. We aim to obtain a set of comparable lenders from the two platforms and determine if these lenders are more likely to offer loans on Kiva or MyC4. We apply an exact matching method of the lenders from both platforms according to their city, gender, and occupation, who made at least one loan on either platform between 31/5/07 and 19/6/10 (the timeframe of activity in MyC4). The genders of Kiva lenders are not available in the data. However, the first names of these lenders usually appear, and so we use the online database genderize.io to determine their genders. If there are n lenders on a platform of the same city, gender, and occupation with $n > 1$, then they are assigned random integer numbers between 1 and n , and matched based on them as well.

The number of matches is 300, which accounts for 2.5% of the population of registered MyC4 lenders. Note that very soft standardization is applied over the open text field of occupation, and keeping in mind the other dimensions of the matching, there is a considerable likelihood that some of these matches catch the same person. Of the matched lenders, 59% live in Denmark (and 48% in Copenhagen), 75% are male, and 37% are students. Comparing the average number of contributions between the platforms, lenders lent 9 times on Kiva and 17 times on MyC4 within the study period. This is valid not only for the Danish lenders (who might feel somewhat closer to MyC4) but also for the non-Danish lenders (although the difference is smaller—8 versus 12).

The next step is to create a pool of comparable loan campaigns from both platforms to avoid bias in certain project attributes, that may be featured more prominently in one platform. We create a pool of 480 matched cases, in which both campaigns originate from the same country, are led by a borrower of the same gender, operate in the same sector, and ask for approximately the same amount (rounded by 10s of US dollars). This number accounts for 8% of the total campaigns on the platform of MyC4. Similar to the lenders, if there were multiple campaigns with the same attributes, they were also matched by a random number. Approximately 90% of the campaigns are located in Uganda and Kenya, 53% of the campaigns were pledged by female borrowers, and the mean goal was \$256. The average age of the borrowers on MyC4 was 38.4, very similar to 38.3 on Kiva. Projects posted on Kiva were supported by 27 lenders on average, while on MyC4, 60 people bid on average, but only 18 people won the auction and made the loan.

Regression models

In the final step, we multiply the 300 matched-lenders pairs with the 480 campaigns from MyC4 and the 480 campaigns from Kiva. Matched lenders are treated as a single pair unit, which can choose to lend money to any of the 960 projects. Note that even though neither the lenders nor the projects comprise a random sample, they are not selected, but rather are the outcome of the matching process.

We run the following regression model:

$$Y = \alpha + \beta Kiva + \lambda Male + \delta Age + \zeta_i + \varepsilon,$$

where the dependent variable Y equals to 1 when the pair made a loan to the project, and 0 otherwise.

The main regressor $Kiva$ is a dummy that is equal to 1 when the campaign is presented in Kiva and 0 if on MyC4. A positive sign for β would indicate a preference of the lenders for a pro-social model.

In our analysis, we also consider the gender and age of the borrower. However, age is available to

only 323 borrowers of the 960 campaigns. In addition, we control for the amount of the loan and the sector. We also consider fixed effects for the lender-pair i , which is noted as ζ_i .

Results

Table 1 presents the regression results. The first column regresses the dependent variable over the main explanatory variable alone, while Column (2) adds additional regressors, and in Column (3) the age of the borrower is added, which reduces the sample size. The negative and significant coefficients of β across all specifications suggest that lenders have a preference for MyC4 projects. Lenders appear to have no preference for the gender or age of the borrower, as the magnitude of their coefficients are very small and insignificant across specifications.

[Insert Table 1 about Here]

The limitations of this study lie in the strength of its assumptions. It is assumed that lenders are aware of both platforms and choose the platform that fits them best, and that people of the same gender who live in the same city and practice the same occupation would have similar traits. In addition, we assume that the perceived quality of the matched campaigns is similar, controlling for observable attributes.

Study 2

In this study, we complement the archival data analysis with an incentivized online experiment. The reason for an experiment lies in the opportunity to relax the assumptions of Study 1. First, we assumed that matched lenders are aware of the two platforms, and they choose the platform that fits them best. This approach creates selection problems, and the variable that drives the selection may be unobservable. Second, our matching exercise at the project level was based on the observable characteristics of the projects. However, projects can differ in the unobservable characteristics, such

as the preference of the borrower's partner institution. An experiment allows us to release these assumptions, as we randomly assigned the funding model to the same representative sample of individuals who evaluated the same project.

Experimental Design

Design

We designed a completely randomized between-subjects experiment with a factorial design. The design has a $3 \times 2 \times 2$ structure. The main dimension that we varied refers to the model of crowdfunding for three experimental conditions. Respondents were randomly allocated to an incentive system. An incentive system was necessary to increase the representativeness of the choice of the respondents and prevent confirmation bias, where respondents made decisions to please the experimenters. We followed the incentive system of Greenberg and Mollick (2017), which was also employed in the crowdfunding literature for reward-based crowdfunding.

The baseline condition was a "pure donation" model, where the incentive system allows the possibility to allocate a part of an extra budget to the project that the respondents evaluated. We informed the respondents that the sum would have been given to a similar project on a major crowdfunding platform. In this way, we attempted to reproduce both the financial drivers (the decision is costly) and the social drivers (the donation benefits someone else). Within this decision, any money allocation would be driven only by intrinsic motivation to help the other person.

The "social lending" condition replicated the model on Kiva: rather than a pure donation, lenders could allocate part of the extra budget that they were given to fund the project, but there was the probability that the money could have been lost. Because of the high repayment rate on Kiva (95%), we opted for communicating just the uncertainty of losing the money rather than the risk, as it could have been assimilated close to certainty. This condition already differs from the donation condition

as we exogenously introduce extrinsic motivation, since the respondent now incorporates the opportunity to recoup the money and the associated risk.

In an additional treatment, we model the “impact investment” condition approximated the model on MyC4. Since it was costly to replicate the bidding system in an online experiment, we offered respondents the opportunity to consistently earn interest on the money allocated to the project (Chen et al., 2019). We have chosen to offer a 25% interest rate in the case that the sum was returned, which is the average interest rate charged by microfinance institutions.

Because of the small sums and the short time, we processed the extra payments after 7 days. Ideally, this sum would represent the interest in a situation in which a person could lend directly to borrowers via an online platform in absence of other intermediaries. In this condition, we approximated the additional extrinsic motivation that was derived by profiting from the money allocation.

We also varied exogenously the characteristics of the project. Specifically, we varied gender and age. We added these conditions to observe whether the gender of the borrower or their age was moderating the main effect of the model. For the gender condition, we varied the name of the borrower and the picture of the project. For the age condition, we varied the age reported by the borrower and the picture of the project. The pictures were taken by a partner in East Africa. The same photographer took a picture of two men—a man in his early twenties and a man who was older than thirty five—and a picture of two women—a woman in her early twenties and a woman who was older than thirty five. In each picture, the borrower was standing in front of their business with a similar pose to mitigate the influence of other factors. We chose a subtle age difference to better represent the population of microentrepreneurs who are in need of microfinance and represented on the platform. We included manipulation checks to conservatively screen people who have not perceived the difference.

Procedure

We recruited 600 participants on Prolific, an online platform for experimental studies (Peer et al., 2017). The demographic composition of the sample was representative of the UK population along the lines of age, gender, and ethnicity. We chose the UK population over the Danish population because of the larger sample size and the opportunity to extract a representative sample. The participants were asked to evaluate a business project from a developing country. We offered £1.25 for a 10-minute task.

Participants who accepted were informed about the overall nature of the experiment evaluation of a business project in a developing country on a crowdfunding platform. They were informed that the project in the study was “fictitious and anonymised”, but at the end of the study, the money that was allocated would be dedicated to a similar project. For the conditions of “prosocial lending” and “impact investment”, we also included the following sentence: “Since these loans take a long time to be repaid (at least 6 months), you will be paid immediately based on the risk estimation relevant to this project”.

After the introduction, the respondents underwent some training to ensure that they understood the incentive system to which they were allocated. They read an example and then answered some training questions. The respondents who were not answering correctly could not move to the next stage. We compared the time taken by each model: an analysis of variance (ANOVA) showed that the model significantly affected the time taken. Compared to the donation model, respondents took a significantly longer time for the “prosocial lending” condition ($d=112.30$ seconds, $s.d.=27.16$, $t=4.135$, $p\text{-value}=0.000$) and the “impact investment” condition ($d=109.63$ seconds, $s.d.=26.38$, $t=4.155$, $p\text{-value}=0.000$). The difference between “prosocial lending” and “impact investment” was not significantly different ($d=2.67$ seconds, $s.d.=28.43$, $t=0.094$, $p=0.925$).

The respondents were then presented with the project. The project is a retailing shop, which does not present particular stereotypes according to similar studies in other types of crowdfunding (Greenberg and Mollick, 2017). The project requested £500, which is a credible sum for a similar project. The text of the project was adapted from an existing project from Kiva, without references to age, gender and parenthood. We omitted information about the field partner to avoid distracting the attention of respondents and as it would have been unrealistic in the case of the pure donation. The pictures and the name of the founders varied by different experimental conditions, but all the pictures were shot in a similar position and with elements that clearly referred to the business selected. An ANOVA analysis showed that participants did not spend more time on the project by model ($F=1.58$, $p\text{-value}=0.201$).

After reading about the project, we informed the respondents about the extra £1 allocation and the opportunity to allocate part of the extra £1 to the project. For the “prosocial lending” and “impact investment” condition, we did not specify the risk of losing the money (it would have transformed the project into a lottery), but we left uncertainty about the results. We specified the following information: “Lending money is an uncertain activity, which involves the risk of not being paid back.”

After the allocation, the respondents completed a post-evaluation survey, where we measured the perception of the borrower’s characteristics along dimensions of authenticity, sincerity, reliability, physical attractiveness (Brooks et al., 2014), neediness, riskiness, and competence (Chen et al., 2019). The respondents evaluated each statement with a Likert scale that ranged from 1 to 7. At the end of this evaluation, we added the manipulation checks about the gender and age of the borrower.

Before exiting the study, we informed the participants in the “social lending” and “impact investment” studies about the outcome of their loans. For each study, we randomly allocated one number from 1 to 100. If the random number was higher than 95, then the loan would have not been repaid. By the

same week, we paid the sum to the respondents and the interest rates to those in the “impact investment” condition. In parallel, we notified the respondents that we allocated the funds designated by the respondents to four different projects on the Kiva platform.

Results

We compared the results across the incentive models. We utilised two outcome variables: an indicator variable for whether respondents allocated any of their extra budget, and a continuous variable, which indicates the share of the extra budget that was allocated.

We look at the decision to allocate the extra budget in Panel A of Table 2. For the donation condition, 71.5% respondents donated part of their extra budget. The percentage increased to 82.91% for the “social lending model” and to 90.82% for the “impact investment” model. An ANOVA confirmed that these differences were statistically significant ($F(2,599)=13.16$; $p\text{-value}=0.000$).

We look at the amount allocated in Panel b of Table 1. In the donation condition, the respondents donated on average £0.41, while they lent £0.53 under the “social lending model” and £0.62 under the “impact investment” model. An ANOVA confirmed that these differences were statistically significant ($F(2,599)=17.64$; $p\text{-value}=0.000$).

Figure 1 represents the kernel density estimation of the sum allocated by the model with a kernel bandwidth of 0.25. For the donation model (blue) line, the highest density is approximately £0.2. In the “social lending model,” there is a plateau between £0.3 and £0.6. In the “impact investment” model, the highest density is approximately £0.7.

We also looked at whether our manipulations of gender or age differences had different effects. Consistently with the archival analysis we found no effects in whether subjects allocated any amount of their extra budget for either gender ($F(2,599)=0.11$; $p\text{-value}=0.739$) or age ($F(2,599)=0.00$; $p\text{-}$

value=0.994) of the borrower, and no effects in the fraction of the extra budget the subjects allocated for either gender ($F(2,599)=0.87$; $p\text{-value}=0.350$) or age ($F(2,599)=0.05$; $p\text{-value}=0.826$) of the borrower.

We further looked at the characteristics of the lender to evaluate heterogeneous treatment effects. In a regression framework, we controlled for lender's gender, age, and nationality (UK/non-UK) and estimated boundary conditions with the three different methods. We reported the results in Table 2. Model 1 reports the main effects for the fraction of extra budget allocated. Male respondents tend to allocate 7.3p less than female respondents, which is 15% less than the baseline of 50p allocated on average. Older respondents tend to allocate more of their extra pound. A standard deviation in respondent's age is associated to an increase in the amount allocated of 4.6p, around 9% of the baseline. Non-UK respondents tend to allocate less resources, but the difference is statistically not significant. Model 2 evaluates how lenders of different genders respond to the different models. We observe that male respondents tend to allocate much less for what concerns the donation model, 14p less or 28% of the baseline. However, they tend to allocate 13p more than women for what concerns the impact investment condition, a difference of 26% of the baseline. In Model 3 we find no significant interaction between respondent's age and crowdfunding model, while in Model 4 we uncover an interesting pattern for what concerns non-UK nationals. Non-UK nationals tend to allocate 21p less or 42% of the baseline when it comes to donations, but they also tend to allocate 24p or 48% of the baseline when it comes to impact investment. We find consistent results using the binary variable for investment and non-investments, while we do not find evidence of homophily for neither gender nor age.

Study 3

In this study, we offer a complementary incentivized online experiment to address one important concern about our experimental results of Study 2. In Study 2, we observed that the presence of extrinsic rewards (the interest rate) together with intrinsic ones (helping others) does not reduce the willingness to invest and suggest a “crowding in” phenomenon. Individuals contribute more in presence of an interest rate and it does not look like “crowding out” occurs.

However, the results may suggest that extrinsic rewards do not complement but they substitute intrinsic ones. Individuals may feel less motivated by the drive of helping others and be only motivated by the extrinsic reward of the interest rate. If this were the case, results of Study 2 could suggest another form of crowding out that we cannot distinguish from the crowding in argument.

In order to address this important concern, we designed an additional experiment where we compare resource allocation in an incentivized scenario where extrinsic and intrinsic rewards co-exist with a scenario where only extrinsic rewards are present. If this alternative explanation of extrinsic rewards only as drivers of our results holds, respondents would only care about extrinsic rewards (interest rate) and disregard the value of intrinsic rewards (helping others) and be indifferent between investing in a microloan that helps a small business owner in East Africa and investing in a generic investment opportunity provided that they yield the same interest rate. This Study tests explicitly this proposition.

Experimental Design

Design

We designed a completely randomized between-subjects experiment with one treatment. The design of the experiment follows Study 2, whereas respondents have to evaluate allocating an extra

payment to an uncertain prospect. The main dimension that we varied refers to the rewards, and we randomly allocated respondents to two experimental conditions.

In the baseline condition, we use the “impact investment” model from Study 2. Respondents evaluate one project from a small business owner in East Africa, they are informed that the sum will be allocated to a similar project, and we determine the likelihood of repayment. If successful, respondents receive the money they allocated back and an extra payment in form of interest (25% of the sum allocated).

In the “extrinsic only” condition, we removed the intrinsic component of the resource allocation. Respondents evaluate the opportunity of investing in a generic asset that yields 25% of the amount allocated if successful. However, respondents had no information about the nature of the investment.

Because of the small sums and the short time, we determined the outcome of the investment at the end of the experiment and processed the extra payments within 7 days after completion for both conditions.

Procedure

We recruited 300 participants on Prolific. Similarly to Study 2, the demographic composition of the sample was representative of the UK population along the lines of age, gender, and ethnicity. We offered £1.25 for a 10-minute task.

After the introduction, the respondents underwent some training to ensure that they understood the incentive system to which they were allocated. They read an example and then answered some

training questions. The respondents who were not answering correctly could not move to the next stage.

In the “impact investment” condition, respondents evaluated a project similar to the ones of Study 2. In the “extrinsic only” condition, respondents moved immediately to the next step, where we informed respondents about the extra £1 allocation and the opportunity to allocate part of the extra £1 in an investment – the project for “impact investment,” and an unspecified opportunity for “extrinsic only.” For both conditions we did not communicate the probability of losing the money, but we left uncertainty about the results. Both opportunities offered a potential reward of 25% of the sum invested.

Before exiting the study, we informed the participants about the outcome of their loans. For each study, we randomly allocated one number from 1 to 100. If the random number was higher than 95, then the loan would have not been repaid. By the same week, we paid the sum to the respondents and the interest rates. In parallel, we notified the respondents in the “impact investment” condition that we allocated the funds designated by the respondents to four different projects on the Kiva platform.

Results

We compared the results across the incentive models. We utilized two outcome variables: an indicator variable for whether respondents allocated any of their extra budget, and a continuous variable, which indicates the share of the extra budget that was allocated.

We look at the decision to allocate the extra budget. For the “extrinsic only” condition, 84.5% respondents donated part of their extra budget. The percentage increased to 92.1% for the “impact

investment” model. The difference was statistically significant ($d=0.076$, $s.d.=0.037$, $t(1, 298)=2.031$, $p\text{-value}=0.043$).

We also look at the amount allocated. In the donation condition, the respondents invested on average £0.42 under the “extrinsic only” condition, while they invested £0.63 under the “impact investment” model. The difference was statistically significant ($d=0.106$, $s.d.=0.040$, $t(1, 298)=2.658$, $p\text{-value}=0.000$).

Discussion

Results from Study 3 rule out one important alternative explanation where extrinsic rewards substitute intrinsic rewards. If this were the case, respondents would be indifferent between investing in an unknown asset or help finance a small business owner in East Africa. We found out that this is not the case, and respondents tend to allocate more resources in projects where extrinsic and intrinsic rewards co-exist.

It is interesting to note that the experiment features the evaluation of a fictitious project.

Respondents only knew that we would have allocated resources to a similar project later on. For this reason, this experiment represents a lower bound estimation of the “intrinsic reward” treatment, yet sufficient to demonstrate significant differences between “impact investment” and “extrinsic only.”

Discussion

Crowdfunding to small business owners in developing countries has received some attention in previous research. However, as we suggested, the willingness to fund projects and the role of funders’ motivations still presented a gap in our understanding. This is especially relevant in light of the

different funding models and motivational responses they prompt. It is also relevant in relation to the potential crowding out or in of essential prosocial motivations in different models.

Our study of the willingness to crowdfund in the context of social lending in a donation model, a prosocial only model, and a model combining prosocial motivations with monetary returns shows that monetary rewards do not necessarily crowd out prosocial drivers. This finding has an implication to platform owners and independent fundraisers who can increase the crowd members' willingness to fund by offering a pecuniary return. Based on our findings, we suggest that extrinsic (monetary) motivations can complement intrinsic (prosocial) ones in the context of online social lending. Interestingly, no evidence was found regarding the disappearance of intrinsic motivation by introducing extrinsic motivation.

This study contributes to the conversation about the tension between extrinsic (monetary) and intrinsic (prosocial) motivations in crowdfunding (Younkin & Kashkooli, 2016; Dushnitsky & Zunino, 2019; Boudreau et al., 2021). The literature suggests an ample range of reasons for crowding out; lenders on prosocial platforms tend to fund ventures whose narratives suggest that they would help others, rather than those that reflect business opportunities (Allison et al., 2015); these lenders funded loans taken to pay for necessities faster than those of income-generating activities (Gafni et al., 2020). On the contrary, the literature also offers a delicate set of conditions under which crowding in would occur (Chen et al., 2019; Cholakova & Clarysse, 2015). Our study adds to the discussion about whether to present individuals with an opportunity to make a profit on crowdfunded investments in crowdlending might have undermined prosocial motivation; our results show that it does not seem to do so.

The results raise questions regarding relevance for practice; adding monetary rewards—such as an interest rate on crowdloans in the developing context where prosocial motivations are key—is a viable

way to increase willingness to fund. It also suggests avenues for platform business models for crowdlending in developing countries; this suggests the viability of the empirically-studied MyC4 model and its likelihood to result in a higher willingness to pay than existing alternatives (such as the existing well-known prosocial funding Kiva model).

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Table 1. Results of Study 1

	(1)	(2)	(3)
	DV: Made a loan		
Kiva=1, MyC4=0 = 1	-0.0010*** (0.0001)	-0.0010*** (0.0001)	-0.0022*** (0.0002)
Borrower is male		0.0000 (0.0001)	0.0003 (0.0002)
Age of borrower			0.0000 (0.0000)
Request amount \$ /10		0.0000*** (0.0000)	0.0000*** (0.0000)
Constant	0.0011*** (0.0001)	0.0002 (0.0001)	0.0008* (0.0005)
Observations	288,000	288,000	96,900
R-squared	0.0004	0.0009	0.0027
Number of lender-pairs	300	300	300

Notes: This table presents the results of Study 1. The dependent variable equals to 1 when the lender-pair unit made a loan to a project of either platform and 0 otherwise. The regression includes dummy variables for each sector of the applicant's business.

Table 2. Results of Experiment 1 (Study 2)

Panel A. Investment Decision

	Male Youth	Female Youth	Male Mature	Female Mature	Total
Donation	0.727 (0.451) [44]	0.745 (0.441) [47]	0.627 (0.488) [59]	0.772 (0.423) [57]	0.715 (0.453) [207]
Social Lending	0.788 (0.412) [52]	0.854 (0.357) [48]	0.917 (0.279) [48]	0.765 (0.428) [51]	0.829 (0.377) [199]
Interest Lending	0.907 (0.293) [54]	0.891 (0.315) [55]	0.932 (0.255) [44]	0.907 (0.294) [43]	0.908 (0.290) [196]

Panel B. Amount Allocated

	Male Youth	Female Youth	Male Mature	Female Mature	Total
Donation	0.426 (0.364) [44]	0.444 (0.410) [47]	0.364 (0.389) [59]	0.413 (0.349) [57]	0.409 (0.381) [207]
Social Lending	0.508 (0.375) [52]	0.536 (0.363) [48]	0.530 (0.342) [48]	0.536 (0.390) [51]	0.527 (0.366) [199]
Interest Lending	0.589 (0.340) [54]	0.641 (0.353) [55]	0.633 (0.324) [44]	0.633 (0.353) [43]	0.623 (0.341) [196]

Table 3. The Effect of Extrinsic Reward and Prosocial Behavior

	(1)	(2)	(3)	(4)
	Baseline	Lender Gender Interaction	Age Interaction	Non-UK Resident Interaction
Prosocial Lending	0.120** (0.037)	0.080 (0.052)	0.119** (0.037)	0.103** (0.039)
Impact Investment	0.206*** (0.037)	0.143** (0.049)	0.204*** (0.037)	0.183*** (0.039)
Male borrower	-0.038 (0.030)	-0.037 (0.030)	-0.040 (0.030)	-0.038 (0.030)
Mature borrower	-0.021 (0.030)	-0.018 (0.030)	-0.022 (0.030)	-0.024 (0.030)
Male lender	-0.073* (0.030)	-0.141** (0.052)	-0.072* (0.030)	-0.070* (0.030)
Lender age	0.046** (0.015)	0.047** (0.015)	0.053* (0.025)	0.046** (0.015)
Non-UK Resident	-0.070 (0.050)	-0.064 (0.050)	-0.072 (0.049)	-0.207** (0.076)
Prosocial × Male lender		0.077 (0.073)		
Impact × Male lender		0.131+ (0.073)		
Prosocial × Lender age			0.019 (0.036)	
Impact × Lender age			-0.040 (0.035)	
Prosocial × Non-UK				0.174 (0.112)
Impact × Non-UK				0.237* (0.113)
Constant	0.482*** (0.040)	0.514*** (0.046)	0.483*** (0.040)	0.495*** (0.041)
<i>N</i>	588	588	588	588
adj. <i>R</i> ²	0.076	0.078	0.077	0.079

Figure 1. Kernel Density estimation across models.

