

# **A NEW WAY OF ENGAGING WITH STAKEHOLDERS: CROWDFUNDING AND THE ADVANTAGE OF SOCIAL VENTURES**

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## **ABSTRACT**

Technologies such as crowdfunding are changing the way that entrepreneurial firms interact and transact with important stakeholders. Focusing on rewards-based crowdfunding, we describe two stakeholder types that have emerged which are distinct from their traditional counterparts. Applying topic modeling to Kickstarter rewards from 2009-2016, we categorize rewards into types and examine the conditions under which these new stakeholder types choose different types of rewards, resulting in more successful projects. Using a machine learning method to label all Kickstarter projects as socially oriented or not, we demonstrate that social ventures have characteristics that create value for both types of stakeholders, and shed light on the boundary conditions of the benefits of social orientation. This paper has implications for scholarship on entrepreneurship, and social entrepreneurship more specifically, as well as for scholarship on the “new economy” of organizing production.

## INTRODUCTION

How the firm organizes production activities and engages with key stakeholders has been evolving over time, particularly in response to changes in technology. The “Nikefication” and “uberization” of the firm, referring to the outsourcing of production/distribution and labor, respectively, are examples of how technology has changed the boundaries of the firm and how key stakeholders engage with the firm (Davis, 2017). Technologies such as crowdfunding are not only influencing the relative importance of different stakeholders to firms (for example, diminishing the role of traditional capital providers by providing an alternate source of raising capital), but are also changing the way that entrepreneurial firms interact and transact with important stakeholders. At the same time, the relative importance and nature of how stakeholders engage with socially oriented ventures in particular has been changing. This is in part due to social changes that have created new opportunities for socially-oriented stakeholders to engage with firms (Hiatt, Sine, & Tolbert, 2009; Gehman & Grimes, 2016), and the blurring of not-profit and for-profit stakeholders (Brau, Hiatt, & Woodworth, 2009; Kaul & Luo, 2017).

We focus on rewards-based crowdfunding, and describe two stakeholder types that have emerged because of these new ways of transacting: 1) the *uncertainty-bearing consumer* and 2) the *donating financier*. The way that the firm engages with these stakeholders is distinct from how it engages with the traditional consumer (who bears little financial uncertainty) and the traditional financier (who does not “donate” money to for-profit ventures). As a result, existing theory does not adequately describe what motivates these stakeholders; an understanding of which is critical for entrepreneurial firms looking to succeed on these platforms. Applying topic modeling, a machine learning methodology broadly used in natural language processing (NLP) and computer science, to Kickstarter – the largest rewards-based platform – rewards, we

apply a new lens through which to examine stakeholder choices, and thus, preferences, on rewards-based crowdfunding platforms. We use this methodology to categorize Kickstarter rewards and then examine the conditions under which uncertainty-bearing consumers and donating financiers prefer different types of rewards.

We show that the nature of the firm-stakeholder interaction on crowdfunding platforms creates advantages for socially oriented ventures. First, social ventures have characteristics that create value for uncertainty-bearing consumers. Trust in the firm and characteristics that signal quality are critical for the uncertainty-bearing consumer. Similarly to how donating to charity can serve as a signal of quality in contexts with high information asymmetry about firm quality (Burbano, 2016; Elfenbein, Fisman, & Mcmanus, 2012), a venture's social orientation increases trust amongst crowdfunding customers that the venture will act in good faith and provide a quality product. As we would expect, the benefit of being a social venture thus decreases as asymmetric information about the firm decreases. Second, crowdfunding has opened up an avenue for profit-seeking socially oriented ventures to reach consumers willing to donate to for-profit firms; an option that did not previously exist (Belleflamme, Lambert, & Schwienbacher, 2014). As donating financiers that donate to social ventures are driven by motivations similar to those of nonprofit donors, social ventures that offer rewards similar to those typically given to nonprofit donors benefit disproportionately (are more successful) than non-social ventures.

We contribute to scholarship on the “new economy” of organizing production, and show that not only has technology changed the organization of labor (Davis, 2017), it has also transformed the firm-customer/financer dynamic. Crowdfunding has created a new organization-stakeholder dynamic (Bundy et al., 2017), with consumers bearing more risk and financiers donating to for-profit, not just nonprofit, enterprises. We show that this new firm-stakeholder

dynamic has direct implications for what drives performance, and in particular demonstrate that this dynamic enables socially oriented ventures to be more successful. In part, our contribution is enabled through the use of new machine learning techniques to classify approximately 127,000 Kickstarter projects from 2009-2016 as socially oriented or non-socially oriented ventures (using gradient boosting classifiers)<sup>1</sup> and to uncover the latent structure of rewards offered by ventures using crowdfunding platforms (using LDA to identify the types of rewards). We also contribute to the growing body of work on determinants of success on crowdfunding platforms (Mollick, 2014) and on the potential advantages that social ventures may have in this setting (Calic & Mosakowski, 2016).

## **THEORY DEVELOPMENT**

The ways in which the firm organizes production activities has been changing, with technology playing an important role in this shift. Technological innovations such as online markets, for example, have reduced the transaction costs which underlie a rationale for the existence of the traditional corporation or firm (Coase, 1937). Coase (1937) noted that the main cost of organizing production through the market was the cost associated with discovering what the relevant market prices are. When online markets reduce the cost of using the price mechanism, alternatives to the formation of the traditional corporation become more cost-effective.<sup>2</sup>

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<sup>1</sup> By applying a machine learning method to label the universe of approximately 127,000 Kickstarter projects from 2009-2016 as social or non-social, we are able to apply subjective labels to a larger dataset than would otherwise be possible and significantly expand the sample of Kickstarter projects used in our analysis. Using a subset of [~2500?] projects as a training set which RA's manually categorized as sustainable (social and/or environmentally-oriented) at the product-level or the organization-level, we employed a machine learning approach to identify patterns based on this labeled subset and label the remaining [~127,000] projects.

<sup>2</sup> This likely helps to explain why the number of public corporations in the US has been in decline for the past twenty years; dropping, for example, 55% between 1997 and 2012 (Davis, 2017). While some of this is due to consolidation, much of this is due to corporations going bankrupt or liquidating, as well as splitting up and buying

Technological advances are also changing the ways that firms interact with key internal and external stakeholders. The stakeholder view of the firm has highlighted the importance of a broad set of stakeholders to the firm (beyond just shareholders) (Freeman, 1984; Mitchell et al., 1997).<sup>3</sup> These include customers, employees, and the broader community, as well as subsets of these groups which might have distinct interests (Jones, 1995). Stakeholder theory casts the role of the firm as creating value broadly for stakeholders, with shareholders being one of, but not the only, stakeholders for whom value creation is relevant (Freeman et al., 2004). In line with this stream of literature, we can consider the firm's process of production as comprised of a set of stakeholders who are engaged in and whose preferences influence the production and consumption of goods and services; that is, who are involved in the production process.

### **Online Platform Markets as Facilitating New Ways of Interacting and Transacting with Stakeholders**

Technological innovations such as online platform markets are changing the way that firms can create value for, and capture value from, critical stakeholders. Online labor markets have decreased costs of discovering the market price for labor and related activities, as well as costs of transacting for labor and related activities, for example, with implications for how firms create value for and capture value from labor-providing stakeholders. Because the set of stakeholders with whom the firm transacts on a given online platform market varies, it is important to specify the type of online platform market of interest. In what follows we focus on one type of online platform market – crowdfunding – which has influenced how the firm engages

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back their own stock to go private, without being replaced by new publicly-owned entrants (Davis, 2017). Firms that are going public are increasingly doing so with unequal voting rights favoring the founders and internal shareholders, such that non-internal shareholders exert less influence (Davis, 2017).

<sup>3</sup> The primacy of the capital shareholder view of the objective of the firm has come under debate as a result of stakeholder theory (Freeman et al., 2004; Sundaram & Inkpen, 2004a, 2004b).

with important stakeholders: consumers and financiers. Furthermore, we focus on rewards-based crowdfunding, wherein “rewards,” but no equity, can be provided in exchange for funds raised.<sup>4</sup>

**Rewards-based Online Crowdfunding Markets.** Rewards-based online crowdfunding markets include such platforms as Kickstarter, Indiegogo, Rockethub, and GoFundMe. Rewards-based crowdfunding technologies have resulted in new ways of interacting and transacting which allow individuals to engage differently in the creation and production process. As a result, early stage firms are able to capture value in new ways. By serving as a platform on which individuals can give money to a venture (either in exchange for a future product or not), consumers/financers signal their preferences to the firm at early stages. Early stage ventures can thus alter their products and services without a commitment of capital to production, as well as the direction of the firm more broadly, in response to these signals. This helps firms overcome traditional challenges of information asymmetry and uncertainty about consumer preferences (Phelps, Nowak, & Ferrell, 2000; Murray, 1991; Hobbs & Plunkett, 1999; Cyert, Kumar, & Williams, 1993). Additionally, these platforms enable early stage ventures to access a larger pool of individuals who can become interested and potentially emotionally invested in their products and organization at an early stage than was available prior to the advent of these platforms.

These platforms have created fundamentally new ways of interacting and transacting with stakeholders that have traditionally been described as consumers or financiers. Though the organizations raising funds on these rewards-based online crowdfunding markets tend to be product or service providers, the traditional firm-consumer exchange of a product or service for a

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<sup>4</sup> Equity crowdsourcing platforms such as Crowdcube which have decreased the transaction costs associated with reaching and security equity funding for firms are not our object of focus here. In 2017, on one of the largest rewards-based crowdfunding platforms, Kickstarter, 372,656 projects were launched and 3.3 billion dollars were pledged.

price is not the mechanism through which the firm interacts with its “consumers” on these platforms. Instead, a product or service may be provided to the consumer at some future date (if and when the goal fundraising amount is achieved) in exchange for the “price” paid. Unlike in the traditional consumer-firm relationship, however, the *consumer* bears the risk that the fundraising goal will not be achieved and/or that no product or service will be received. In other cases, individuals behave more like donors on these platforms and make donations to the firm without any expectation of a product or service exchange. They may choose to donate without receiving anything in return, or choose to donate and receive a non-product/service “reward” such as a shout-out on Facebook, a written thank you letter, or an informational update on the venture’s progress. This is a sharp distinction from the way in which firms or entrepreneurial ventures engaged with funding providers prior to the advent of crowdfunding. Indeed, pure donations are not traditionally made to for-profit firms outside the context of these platforms.

### **New Ways of Transacting and Engaging with Distinct Stakeholder Types**

As a result of these new ways of transacting and engaging, new groups of stakeholders of relevance to the firm have emerged, which derive value in different ways from their traditional counterparts. Understanding how and under what circumstances these new stakeholder types generate value is critical for the success of the firm on these new platforms. We identify two new stakeholder groups as the focal stakeholders with whom firms interact on these platforms: the uncertainty-bearing consumer and the donating financier.

***The Uncertainty-Bearing Consumer.*** The uncertainty-bearing consumer seeks to obtain a product or service, but bears the risk of the venture failing or the fundraising goal not being

obtained (in which case, he or she does obtain the product or service it paid for).<sup>5</sup> In these cases, the value gained by the consumer is the expected future value of the product or service (incorporating the probability of failure and not receiving the product or service), in addition to any non-pecuniary benefits obtained outside of the value of the product or service. Traditionally shareholders or private investors, not consumers, bear the financial risk of firm failure; the fact that the consumer bears the risk on these platforms is a stark contrast from risk-bearing in the traditional firm-consumer transaction.

Trust in the firm or brand has been shown to be critical in generating firm value and engendering consumer loyalty (Geyskens, Steenkamp, & Kumar, 1998; Mayer, Davis, & Schoorman, 1995; Du, Bhattacharya, & Sen, 2011). As the certainty that the good promised in exchange for the agreed upon price will be delivered and/or be of the expected quality decreases, consumer trust becomes more important, since consumer trust toward a firm reduces the perceived riskiness of a transaction (Dowling & Staelin, 1994; Elfenbein et al., 2012; Taylor, 1974). For example, trust has been shown to be a key driver of consumer purchase behavior online, where certainty of product delivery and quality is lower than for in-store purchases (Culnan & Armstrong, 1999). Because the uncertainty-bearing consumer faces the risk that the firm will not reach its fundraising goal or, even if it does reach its fundraising goal, that the firm may not comply with the promise of sending the product upon reaching the fundraising goal, we would expect perceived trust in the firm to be an important driver of uncertainty bearing consumer's donations in exchange for (future) products and services.

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<sup>5</sup> While one view of consumers includes them as bearing risk (Taylor, 1974), the nature of the risk that consumers take on and role of consumers in providing capital is unique in this context.

*The Donating Financer.* The donating financer does not expect to receive a product, service, or experience in exchange for the money he or she donates to a venture on a rewards-based crowdfunding platform. The donating financer behaves more like a traditional donor to nonprofit organizations in that a donation is made without any product or service exchange. Unlike the case of traditional charitable giving, however, the venture to which the donating financer donates money is not necessarily altruistic in nature; to the contrary, many crowdsourcing platforms focus on supporting ventures that are for-profit. In these cases, contrary to traditional logic that donations can only support not-for-profit enterprises (Glaeser & Schleifer, 2001), for-profit entrepreneurship can benefit by being the beneficiary of similar donations (Belleflamme et al., 2014). This is a sharp distinction from both the traditional nonprofit donor role (since the majority of the ventures are for-profit in nature) and from the traditional for-profit financier role in which financial contributions are made in exchange for equity or some other stake in the company.

In some cases, the donating consumer makes a donation to an entrepreneurial venture on rewards-based platforms and receives nothing in return. In other cases, the donating consumer receives a “reward” in exchange for the donation that is not a product or service. Such rewards include public shout-outs on Facebook or other social media, a promise for updates or insider information on the progress of the venture, and thank you notes, for example.

An individual can act as an uncertainty-bearing consumer for some ventures and a donor-consumer for different ventures; the distinction we seek to make is not that these are mutually exclusive stakeholder types, but rather, that when individuals take on these stakeholder roles they derive and create firm value differently from traditional consumers and financiers.

## The Advantage of Socially Oriented Ventures on Rewards-Based Platforms

**Socially Oriented Ventures Mitigate Uncertainty for Uncertainty-Bearing Consumers.** Because of the uncertainty of product/service delivery borne by uncertainty-bearing consumers, we would expect entrepreneurial firms that are perceived to be more trustworthy, and thus, less risky, to be more likely to receive funding from uncertainty-bearing consumers. One firm characteristic that has been shown to engender consumer trust in the firm is social responsibility (Brown & Dacin, 1997). Social responsibility has been shown to increase perceptions of a company's trustworthiness towards stakeholders including consumers (Du et al., 2011) and employees (Burbano, 2016; Bode, Singh, & Rogan, 2015). As behaving prosocially towards the broader community and/or environment positively influences perceptions of the company's care and concern for its consumers, this engenders trust in the firm (Du et al., 2011). On rewards-based platforms, we would expect uncertainty-bearing consumers to interpret socially oriented ventures as more trustworthy, thus resulting in higher likelihood of purchase. Given the positive relationship between likelihood of purchase and success, as a baseline we would expect to find that social ventures are more successful on rewards-based platforms such as Kickstarter.<sup>6</sup>

*H1: Socially oriented projects are more likely to be successful than non-socially oriented projects.*

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<sup>6</sup> This is consistent with Calic and Mosakowski's (2016) findings on a smaller subset of 607 technology and film/video projects.

Consumer trust in a firm is generally greater when the consumer has had prior interactions with the seller (Geyskens et al., 1998) and in contexts of lower levels of asymmetric information about the firm or product's expected quality (Elfenbein et al., 2012). We would thus expect the benefits of social orientation to be lower under circumstances where trust is already established in other ways, or when levels of asymmetric information between the firm and uncertainty-bearing consumer are lower (Murray, 1991). Complementary to this line of thinking, Calic and Mosakowski (2016) showed that the effect of a venture's sustainability orientation on project success was mediated by the project's number of endorsements, a measure of project legitimacy. Elfenbein et al. (2002) showed a greater positive buying response to tying products to charities on Ebay for products sold by newer sellers (who had limited alternative measures of assuring quality and about which there were greater levels of asymmetric information). Likewise, on rewards-based platforms such as Kickstarter, we would expect the benefit of being a social venture to decrease as the asymmetric information about the entrepreneurial firm's quality decreases. Asymmetric information about firm quality is lower for firms that have already launched projects on Kickstarter, since information about prior projects is accessible. Asymmetric information about firm quality is also lower, the greater the amount of information about the firm and project provided. As such, we would expect the benefit of social orientation to be lessened for firms that have already launched a project on Kickstarter, and for ventures that provide more information about the venture.

*H2a: The positive effect of social orientation on venture success will be lower, the higher the number of previous Kickstarter ventures posted by the venture creator.*

*H2b: The positive effect of social orientation on venture success will be lower for ventures that provide more (as opposed to less) information about the venture.*

### **Socially Oriented Ventures Motivate Donating Financers**

Though donating to for-profit firms was uncommon prior to the advent of crowdfunding technologies, donating to nonprofit firms and charities was commonplace. When a venture is perceived as having a positive impact on society, donating financers on Kickstarter are likely to experience motivation similar to that of traditional nonprofit donors (see Meier, 2007 for a review of motivation for prosocial behavior). Motivation for prosocial behavior such as donating to charity includes image motivation, a tendency to be motivated by others' perceptions that you are good because you are doing good (Ariely, Bracha, & Meier, 2009); increased utility gained from caring about the utility of the recipient (Smith, Kehoe, & Cremer, 1995) and/or the "warm glow" derived from giving itself (Andreoni, 1990; Singh, Teng, & Netessine, 2017); as well as positive influences on one's own self-image (Bénabou & Tirole, 2006). As a result of this, we would expect donating financers to be more likely to make a pure donation (similar to a donation to a nonprofit) to a Kickstarter venture when that venture is prosocial in nature; that is, socially oriented. We would also expect socially oriented firms to benefit more from being able to engage with customers in a way that allows for donations, and that this would result in greater success for those ventures.

*H3a: More backers will make pure donations (without the promise of anything in return) to socially oriented venture than to non-socially oriented ventures.*

*H3b: The likelihood of success of ventures with a higher proportion of no-reward (pure donation) rewards will be greater for socially oriented ventures than non-socially oriented ventures.*

In some cases, donating financiers make a donation to a venture not in exchange for the promise of a future product or service, but in exchange for some other “reward.” This can include a public reward such as a shout-out on social media, a private thank you card, an update in the future about the venture’s progress, or a token thank you item such as a pen or t-shirt, etc. These rewards vary in the degree to which they are likely to activate image motivation (Ariely et al., 2009), indirect reciprocity (Levine, 1998; Wedekind & Milinski, 2000; Khadjavi, 2017), self-image (Bénabou & Tirole, 2006), and other motivation that influences giving behavior (Meier, 2007). We would expect donating financiers who give to projects that benefit society to be more likely to choose donations rewards that are commonly used to motivate nonprofit donations in other contexts. We would also expect that socially oriented ventures would benefit more from being able to engage with customers in a way that allows for rewards similar to those from which nonprofit organizations normally benefit, and that this would result in greater success for these ventures.

*H4a: More backers will choose donation rewards that are similar to rewards given to donors of nonprofit organizations when donating to socially oriented ventures.*

*H4b: The likelihood of success of ventures with a higher proportion of rewards similar to those given to donors of nonprofit organizations will be greater for socially oriented ventures than non-socially oriented ventures.*

## DATA

### Data Overview

We use a database of 296,597 Kickstarter campaigns between the years 2009 to 2016, obtained from the CrowdBerkeley Database, which is managed by the Fung Institute at UC Berkeley. This database includes information about the campaign (for example, project category and whether it has a video) and its current status (success, number of backers, amount pledged), but does not contain the full description of the project from its campaign page. To augment this, we scraped the full campaign text from each project page URL and matched this text to the project metadata from the database.

The CrowdBerkeley database includes an additional dataset of Kickstarter rewards that link to the project metadata via a unique ID. There exists a complete set of rewards for a random subset of 130,070 projects; it is this set to which we restrict our analysis. The rewards data contain the text of the reward, the minimum amount required to secure it, and the number of backers who selected it.

### Dependent Variables

The primary dependent variable for this analysis, *Successful Project*, is an indicator for whether or not a given Kickstarter project successfully reached its funding goal. Projects that did not meet this condition either failed to reach their goal, were cancelled or suspended, or were removed due to a copyright or content violation. Successful projects constitute 37 percent of the sample.

*Proportion of Non-Reward Backers.* In H3a and H3b, we predict that more backers will make pure donations, and that these pure donations will have a greater impact on success for

socially oriented ventures. We operationalize proportion of pure donation backers as the number of backers who used Kickstarter’s default “Make a Pledge without a Reward” option (as opposed to selecting one of the custom rewards offered by the project creator), divided by the total number of project backers.

*Number of Backers Choosing Reward.* In Hypothesis 4a, we posit that more backers will choose rewards similar to those offered by nonprofit organizations for socially oriented ventures. To measure this, we count the number of backers who selected a given reward, independent of a project’s other rewards. The types of rewards were identified using Latent Dirichlet Allocation (LDA) topic modeling on the reward-level data, which consists of 1,048,388 individual rewards belonging to the 130,070 projects in our analysis. To categorize these rewards, we employed an LDA topic model on the reward text. This topic model can be viewed and explored using an interactive browser visualization found at the following URL: [https://crowdfunding-social-ventures.github.io/Kickstarter\\_Rewards\\_Topics](https://crowdfunding-social-ventures.github.io/Kickstarter_Rewards_Topics). Broadly, LDA is an inductive method for discovering the set of subjects discussed in a body of texts (Blei, Ng, & Jordan, 2003). Each individual “topic” is a probability weighting over all the terms in the vocabulary of the corpus. If the model is well fit, observers can generally view the most highly weighted terms within each topic and agree as to what subject the topic pertains. For example, Topic 8 in our model has its strongest weights on the terms “private”, “home”, “concert”, “house”, and “within.” Given the context of this body of texts, we might deduce that rewards that have a high proportion of Topic 8 offer a private concert or show within the purchaser’s home. The terms in the topic model provide a rough descriptive overview of the most common types of rewards present in the sample, and have the advantage of being “discovered” by the LDA algorithm, rather than externally imposed by the researchers.

## Independent Variables

*Social Orientation.* To identify the projects that had a social orientation, we used a two-stage approach. First, a subset of projects was labeled by human coders to be used as training data. Second, the labeled subset was used to train a machine learning model which was applied to the remainder of the data. The training set consisted of 2068 project texts, which were labeled by a combination of workers on Amazon Mechanical Turk and research assistants from two top US universities. The use of workers on Amazon Mechanical Turk enables a large number of training projects to be completed in a short amount of time. The use of research assistants enables higher quality of the assessments that feed into the training set. The results we present in our Results section are robust to inclusion of just the AMT workers' assessments, as well as to inclusion of both the RAs' and AMT workers' assessments as the training set. Coders were asked to read the project text and answer the following two questions for each project: (1) "Does the product/service benefit the broader society (beyond consumers of the product/service and the organization)?" and (2) "Does the organization have a goal or mission of benefitting the broader society (beyond its consumers and the organization)?" A label of "yes" was assigned if the either of the questions was answered in the affirmative.<sup>7</sup>

We created a label "Social" equal to one if project was coded as "yes" and zero otherwise, which we then used to train a Gradient Boosting Machine (GBM) model<sup>8</sup> (Friedman,

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<sup>7</sup> Mechanical Turk workers labeled 1456 projects, with each text rated by three workers. A label of "yes" was assigned to each question if more than half of the coders answered in the affirmative for a given project. Research assistants trained by the authors labeled the remaining 612 projects using the same questions.

<sup>8</sup> GBM is an ensemble method involving a collection of decision trees. GBMs derive their predictive power from the insight that a large ensemble of weak learners – each learner being a short decision tree – can be accurate in the aggregate. As a boosting model, GBM begins with one decision tree and adds more trees one at a time, adjusting the weights on each tree at every iteration of the training process.

2001) to label the remaining projects.<sup>9</sup> To prevent the GBM model from overfitting to the training data, we employed cross-validation with three folds.<sup>10</sup> The authors hand-labeled a test set of 250 examples to assess how the final GBM model would perform on unseen data, using our judgments as a gold standard for comparison. The model correctly classified 94 percent of the test set, with an AUC of 0.86.<sup>11</sup> The final model generates a probability estimate that the project should have a positive social label.<sup>12</sup> If the probability is over 50 percent, the project was given a *Social Orientation* label of one; otherwise, it was given a *Social Orientation* label of zero. The final model can be visualized and tested using a web application, located at <https://crowdfunding-social-ventures.shinyapps.io/model2> (any text can be entered in and the probability the text reflects a socially oriented project is calculated and shown). Our final indicator for *Social Orientation* constitutes nine percent of the sample.

*Creator Project Count.* In H2a, we suggest that a creator's prior experience on Kickstarter can function as a proxy for trust in the project and reduce informational asymmetry about venture quality. To operationalize this, we create a count of previous projects produced by the creator at the given date of the reference project (i.e., future projects produced by the same creator are not included in this count). To avoid the model being influenced by a few outliers of

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<sup>9</sup> To create the model training data, the project descriptions were transformed into a document-term matrix, with each column representing a unique term and each row containing the number of times the term appeared in each text. Stopwords (common but semantically insignificant words like articles and pronouns) and words that did not appear at least 20 times or in at least 20 project descriptions of the training set were removed, resulting in a vocabulary of 2912 terms.

<sup>10</sup> In this process, the training data is divided into three equal parts, and each part in turn is held out as a validation set for a model trained on the remaining two parts. The final selected model maximizes the average performance over the held-out samples, searching over a grid of different tree depths and tree counts. This process helps to ensure that the model does not become overly complex and therefore overfit to the training set.

<sup>11</sup> AUC, or area under the ROC (Receiver Operating Characteristic) Curve, is a commonly used metric for how well a classifier distinguishes between classes (Fawcett, 2006). An AUC of 1 would indicate a perfect model. Generally, values over 0.7 are considered fair, and values over 0.8 are considered to be good.

<sup>12</sup> The model contains a weighted collection of 150 decision trees. When a new data example is passed through the model, the text is converted to a 1 x 2912 vector of counts for each term in the model vocabulary. This vector is then applied to the decision trees, and the weighted combination of each tree's vote represents a probability estimate that the project should have a social label.

creators with a great number of prior projects, we cap the project count at five, equivalent to the 99<sup>th</sup> percentile.

*Description Length.* In H2b, we note that ventures that provide more information will facilitate trust in the project and reduce informational asymmetry about venture quality. To proxy amount of information provided, we use the length of the project description on the project's main page, in thousands of characters.

In Hypotheses 4a and 4b, we make predictions concerning *rewards similar to those given to donors of nonprofit organizations*. After conducting the LDA topic modeling as described earlier, we had three research assistants independently review the reward topics and identify what topics of rewards fall into this category. There were three reward topic categories that all three unanimously and independently identified as topics that correspond to the types of rewards given to donors of nonprofit organizations. We describe these three reward types, as well as how the measures for the corresponding dependent variables were constructed, below.

*Public Thanks.* For ventures that benefit society, utility from image motivation, activated by acts that will influence others' perceptions that you are good because you are doing good (Ariely et al., 2009), is likely to be greater for rewards that enable others to learn that you are doing good. Likewise, we expect that utility from expected future indirect reciprocity (wherein an individual is treated better when it is learned that he or she is doing something prosocial towards a third party) (Levine, 1998; Wedekind & Milinski, 2000; Khadjavi, 2017) would be higher when the reward enables others to learn about an individual's prosocial behavior. We identify several topics that describe a public form of acknowledgment on the part of the project creator: Topic 40, which appears to pertain to social media shout-outs ("thank", "page", "website", "facebook", "shout") and Topic 22, which appears to refer to the consumer's name

being added to a public list (“name”, “website”, “listed”, “list”, “section”). The measure for the reward type *Public Thanks* constitutes the sum of these two topics, where each topic is the estimated proportion of terms corresponding to that topic for each reward.

*Private Thanks.* Topic 36 also indicates a signal of gratitude on the part of the creators, but this topic refers to a more private form: (“thank”, “personal”, “note”, “personalized”, “postcard”). We would expect individuals to garner higher utility from the “warm glow” (Andreoni, 1990) and improved self-image (Bénabou & Tirole, 2006) that results from being prosocial for rewards that make salient to the donating financier that he or she is supporting ventures that benefit society in some way. We expect *Private Thanks* rewards to increase the salience of the prosocial nature of supporting a socially oriented venture. The measure for *Private Thanks* is operationalized as the estimated proportion of terms corresponding to Topic 36 for each reward.

*Insider Info.* We likewise would expect the benefits of rewards that provide additional information or updates about the venture to be greater in social ventures, as receiving additional information about a venture benefiting the broader society would garner additional “warm glow” utility (Andreoni, 1990) and positively influence a donor-consumer’s self-image (Bénabou & Tirole, 2006), while additional information about non-social ventures would not. Topic 26 refers to offers of insider or behind-the-scenes information (“exclusive”, “updates”, “project”, “access”, “behind”). The measure *Insider Info* indicates the estimated proportion of terms corresponding to Topic 26 for each reward.

## **Control Variables**

We used nine control variables in our analysis. Fixed effects for the *year* as well as the *category* of the project were included. To capture the broad category of the project, we include fixed effects for the categories selected by the project creator within Kickstarter's schema. The categories are art, comics, crafts, dance, design, fashion, film & video, food, games, journalism, music, photography, publishing, technology, and theater. We also follow previous crowdfunding studies (Mollick, 2014) in including a control for the size of the funding goal,  $\text{Log}(\text{Goal in USD})$ , the logged value of the creator's fundraising goal (in US dollars), as this has been shown to impact funding success. Similarly, we create an indicator variable, *video*, for whether a venture has a video as part of the campaign page, as previous studies (Mollick, 2014) have used this as a rough proxy for project quality or sophistication.

When the dependent variable is *Number of Backers Choosing Reward Type*, additional controls at the reward level are included, along with the project level controls above. As the amount that a backer must pay will play a primary role in choosing a reward, the control variable *reward cost* measures the minimum amount, in US dollars, required to purchase the given reward. When analysis is done at the reward level, the objective is to measure relative performance of rewards, so it is important to control for the general popularity of the venture. We thus include the control *overall backer count*, a measure of the overall number of project backers. Likewise, as all projects do not offer the same number of reward options, we include a measure, *num. rewards offered*, of how many rewards were offered by the project overall.

*Product-Based Category* is an indicator for whether projects fall in the categories of design, fashion, food, games, or technology. Projects in these categories are more likely to be centered on the provision of a product (Mollick, 2014) and are therefore more likely to be for-

profit ventures. We thus run all models in the subsample of product-based categories, in addition to the full sample. In the full sample models, this indicator is included as a covariate.

Table 1 displays summary statistics for the primary dependent and independent variables, as well as main covariates of interest.

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INSERT TABLE 1 ABOUT HERE  
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## **ANALYSIS AND RESULTS**

All models are ordinary least squares (OLS) regressions with HC1 heteroskedasticity-robust standard errors (MacKinnon & White, 1985). We use a linear probability model for predictions of project success.<sup>13</sup>

### **The Uncertainty-Bearing Consumer (Hypotheses 1-2)**

Table 2 shows the results for Hypotheses 1-2. Consistent with previous research (Calic & Mosakowski, 2016), in Columns 1 and 4 we find that socially oriented projects are associated with approximately a three percent higher likelihood of success for both the full sample and the sample of product-based categories, respectively ( $p=0.000$  and  $0.001$ ).

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INSERT TABLE 2 ABOUT HERE  
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In Hypothesis 2a we argue that the positive effect of social orientation on venture success will be lower for projects with creators with more previous projects on Kickstarter. We examine

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<sup>13</sup> Linear probability models are unbiased and do not suffer from problems with fixed effects and interactions which are well documented (Katz 2001; Woolridge 2010). Further, given our large sample size and the fact we are not making predictions (we only care about average effects) potential problems with linear models do not apply in this context. Linear models also make interpretation of the regression coefficients more straightforward.

this by interacting the social indicator with the creator's project count. Columns 2 and 5 of Table 2 show support for Hypothesis 2a in both the full sample and the subsample of product-based categories. For the full sample, the effect of social orientation on success is four percent lower ( $p=0.006$ ) for each additional previous creator project. In the product-based categories – projects more likely to be subject to uncertainty pressures – this effect is stronger: each additional project is associated with an eleven percent decrease ( $p=0.000$ ) in the effect of social orientation on success.

Similarly, in Hypothesis 2b, we forecast that the positive effect of social orientation on venture success will be lower for projects that provide more information about the venture. In Columns 3 and 6 of Table 2, we examine the interaction of the length of the project description with social orientation, in the full sample and subsample of product-based categories, respectively. Both models reflect that an additional thousand characters in the description is associated with a two percent decrease in the effect of social orientation on success ( $p=0.000$  for both models).

### **The Donating Financer (Hypotheses 3-4)**

In Hypothesis 3a, we argue that more backers will make pure donations to socially oriented ventures than non-socially oriented ventures. We test this in Table 3 by regressing the proportion of non-reward backers on the social indicator, for both the full sample (Column 1) and the subsample of projects in product-based categories (Column 3). We find support for Hypothesis 3a and observe that social orientation is associated with approximately a five percent ( $p=0.000$ ) larger proportion of backers selecting the non-reward option, in both the full sample and the product-based sample.

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INSERT TABLE 3 ABOUT HERE  
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In Hypothesis 3b, we further hypothesize that the likelihood of success of projects with a higher proportion of non-reward backers will be higher for socially oriented ventures than non-socially oriented ventures. Table 4 displays two ways of testing this proposition, using the sample of projects with at least one reward backer (so as to exclude outlier projects that either received no backers or only had backers making pure donations). Columns 1 and 3 examine the effect of having any non-reward backers on success, as well as its interaction with social orientation, in the full sample and the subsample of product-based categories, respectively. Having any non-reward backers is strongly associated with success, even for non-socially oriented projects. This is reflected by an effect size of 0.41 and 0.33 ( $p=0.000$ ) in the full and product category samples, respectively. In support of Hypothesis 3b, the effect for socially oriented projects is even greater, by four percent in the full sample and six percent in the product category sample. Columns 2 and 4 further examine the impact of having a higher proportion of non-reward backers, given that there are any. The effect of having a greater proportion of non-reward backers on success is strongly negative, and is greater for the socially oriented projects by seven percent ( $p=0.011$ ) in the full sample and fifteen percent ( $p=0.002$ ) in the product category sample.

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INSERT TABLE 4 ABOUT HERE  
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Table 5 reports analyses using the reward-level data, with the number of backers for each reward as the dependent variable.

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INSERT TABLE 5 ABOUT HERE  
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Hypothesis 4a predicted that more backers would choose rewards that are similar to rewards given to donors of nonprofit organizations, when donating to socially oriented ventures. We operationalize rewards similar to those offered by nonprofit organizations by using the proportion of each reward estimated to come from each of the relevant three categories from the topics “Public Thanks”, “Private Thanks”, and “Insider Info.” Columns 1-3 display models interacting these topic category proportions with the indicator for social orientation in the full sample, while Columns 4-6 are restricted to the sample of product categories. The coefficients can be interpreted as the additional number of backers associated with a jump from zero to 100 percent in the given topic category (though in practice the estimated topic proportions are rarely more than 0.3 in any reward).<sup>14</sup> Model 1, for example, suggests that an increase of ten percent in the proportion of public thanks in a given reward is associated with approximately 6.5 fewer backers selecting it for the non-socially oriented projects. If the reward belonged to a socially oriented project, the associated effect is larger by about eight backers ( $p=0.000$ ). Similarly, a ten percent increase in the private thanks topic is associated with a social interaction effect of approximately 4.4 backers (Column 2,  $p=0.006$ ), and a ten percent increase in the insider information topic is associated with a social interaction effect of about 4.7 backers (Column 3,  $p=0.003$ ). The overall effect sizes are larger for the subsample of product-based categories, with the effect of a ten percent increase in public thanks, private thanks, and insider information being greater for the socially oriented projects by approximately 17, 8.3, and 10 more backers, respectively (Columns 4-6,  $p=0.000$ ,  $p=0.035$ ,  $p=0.077$  respectively).

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<sup>14</sup> For each reward text, the estimated proportions of the 40 topics will sum to one. It is rare for any text to be 100 percent estimated to come from only one topic, particularly with a topic model trained on relatively short documents.

Finally, Hypothesis 4b expanded on Hypothesis 4a by suggesting that a higher proportion of rewards similar to those given to donors of nonprofit organizations would be associated with a higher likelihood of success for socially oriented projects than for non-socially oriented projects. To test this, we collapsed the reward topic proportions to the project level, averaging across all rewards for each project (for example, if a project had two rewards, one of which was 100 percent attributed to Topic 1 and the other, 100 percent to Topic 2, the averaged values for that project would be 50 percent for each topic). We then regressed the success indicator on the previously used topic category proportions, “Public Thanks”, “Private Thanks”, and “Insider Info”, interacted with the social orientation indicator. These results are displayed in Table 6.

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INSERT TABLE 6 ABOUT HERE  
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Columns 1-3 display models using the full sample, and Columns 4-6 restrict to the product categories. Once again, coefficients may be interpreted as the likelihood of success associated with a change from zero to 100 percent in a given topic category. We observe that all three “nonprofit” reward categories have a strong negative association with success for the non-socially oriented projects. For example, in the full sample, an increase of ten percent in a project’s “Public Thanks” reward topic proportion is associated with an approximately 16 percent lower chance of success for non-socially oriented projects (Column 1,  $p=0.000$ ). For the socially oriented projects, however, this effect is greater by about nine percent ( $p=0.000$ ). Similarly, a ten percent greater proportion of private thanks and insider information topics in a given non-social project’s rewards is associated with about 15 and 17 percent lower probability of success ( $p=0.000$  for both models), but the effect for socially oriented projects is greater by approximately 20 and 9 percent, respectively (Columns 2-3,  $p=0.000$  and  $p=0.035$ ). In the

sample of product categories, the interaction effect for public thanks is similar in magnitude, but the estimated effects for private thanks and insider information are larger: a ten percent increase in each of these respective topics is associated with an approximate 41 and 21 percent higher likelihood of success for socially oriented over non-socially oriented projects (Columns 5-6,  $p=0.000$  and  $p=0.007$ ).

## **DISCUSSION AND CONCLUSION**

The results show that because the nature of the firm-stakeholder interaction on crowdfunding platforms differs from that of traditional relationships, it creates advantages for socially oriented ventures on these platforms. Due to the financing risk that consumers bear on these platforms, trust is essential, and our results suggest that a venture's social orientation increases trust amongst crowdfunding customers that the venture will act in good faith and provide a quality product. Consistent with the view that social orientation is a substitute for information provision, the benefit of being a social venture decreases as asymmetric information about the firm decreases.

Crowdfunding has also created a way for consumers to donate to profit-seeking ventures. We find donating financiers to be more likely to make pure donations (for no reward or product in exchange) for socially oriented (rather than non-socially oriented) projects. Similarly, by using LDA topic modeling to freely categorize rewards into different types, we examined the types of rewards more commonly chosen by donating financiers supporting social ventures. We find that rewards that provide public shout-outs and rewards that provide informational updates are chosen more frequently for social ventures, and are more predictive of venture success for social ventures. This suggests that donating financiers are motivated by both image motivation and

intrinsic or “warm glow” motivation when donating to ventures that benefit society on rewards-based crowdfunding platforms.

These results are robust to use of a logit, instead of an OLS, specification. They are also robust to inclusion or exclusion of whether the project includes a video, and to inclusion of a video count instead of a binary variable for whether or not a video is included as the video control. Our results are also robust to the use of a Coarsened Exact Matching approach.<sup>15</sup>

The use of new machine learning techniques to classify Kickstarter projects from 2009-2016 as socially oriented or non-socially oriented, as well as to uncover the latent structure of rewards offered by ventures using crowdfunding platforms (using LDA to identify the types of rewards) enables us to 1) analyze a significantly larger set of projects than would be possible without the use of these techniques, and 2) to apply a unique lens through which to examine stakeholder choices, and thus, preferences, on rewards-based crowdfunding platforms. There are some limitations of this approach, however. To begin, our results are dependent upon the machine learning model’s performance, though we are confident from model testing that the approach is able to identify projects that humans would describe as socially oriented with high accuracy. Second, the topic model is only able to estimate proportions of each topic within the rewards, rather than being able to separate rewards into discrete categories. Nonetheless, we believe that the benefits of using topic modeling to enable un-imposed categorizations of the rewards outweigh the limitations.

We also recognize that, though our findings are robust to the use of a Coarsened Exact Matching approach, which can help to address endogeneity issues, and though we do control for key observables in our regressions, there are potential issues of reverse causality and omitted

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<sup>15</sup> As it is not clear that a matching approach would improve performance, we only use it as a robustness check (Miller, Michael K. *The case against matching*. Working paper. Department of Political Science, George Washington University, 2013.)

variable bias that we cannot rule out entirely. Nonetheless, given the importance of examining what stakeholders value and what drives success in the context of platforms such as crowdfunding that are becoming increasingly important for entrepreneurial organizations, we believe this paper to be an important step towards this goal. Future work can seek to establish causality in the relationships we demonstrate, perhaps through the use of lab experiments which would provide a complement to this paper. Future work could also break down the social categorization we use in this paper into different types of social orientation (e.g., environmental vs. benefitting the community) or different levels of social orientation (e.g., product-level vs. organization-level) to examine differential effects.

This paper extends current theory on what drives success on crowdfunding platforms (Mollick, 2014) and on the mechanisms through which social ventures succeed on these platforms (Calic & Mosakowski, 2016). We furthermore contribute to scholarship on the “new economy” of organizing production (Davis, 2017) which has demonstrated the effect that technology can have on the organization of labor, for example (Davis, 2017), by showing how a technological innovation (rewards-based crowdfunding) has also created a new organization-stakeholder dynamic (Bundy et al., forthcoming). Since uncertainty-bearing consumers and donating financiers interact and transact with the firm inherently differently than do traditional consumers and financiers outside of these platforms, existing theory does not provide an adequate understanding of these stakeholders’ preferences and resulting drivers of success. We provide insight into how socially oriented projects provide value for these stakeholders, with implications for the success of entrepreneurs seeking to leverage these platforms. We also contribute to scholarship on social entrepreneurship. Our findings suggest that crowdfunding may help solve challenges of social enterprises such as scaling (Bloom & Chatterji, 2009), both by providing a

platform on which to raise capital, and providing access to a set of stakeholders that respond favorably to social enterprises.

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Table 1: Summary Statistics

	Mean	SD
Social	0.09	
Successful Projects	0.37	
Product-Based Category	0.35	
Log(Goal)	8.61	1.69
Backer Count	101.48	819.54
Amount per Backer	62.92	141.02
Non-Reward Backers	13.82	446.92
Number of Rewards Offered	7.98	5.65
Repeat Creator	0.09	
Description Length (Thousands of Characters)	2.52	2.61
Video	0.71	

Table 2: Effects of Social Orientation and Trust/Information Measures on Success

	<i>Dependent variable:</i>					
	Full Sample		Successful Project		Product Categories Only	
	(1)	(2)	(3)	(4)	(5)	(6)
Social	0.031 (0.005) p = 0.000	0.073 (0.015) p = 0.000	0.120 (0.007) p = 0.000	0.027 (0.008) p = 0.001	0.150 (0.027) p = 0.000	0.126 (0.011) p = 0.000
Creator Project Count		0.070 (0.003) p = 0.000			0.112 (0.004) p = 0.000	
Description Length			0.032 (0.001) p = 0.000			0.031 (0.001) p = 0.000
Social x Creator Project Count		-0.037 (0.013) p = 0.006			-0.111 (0.025) p = 0.000	
Social x Length of Description			-0.022 (0.002) p = 0.000			-0.023 (0.002) p = 0.000
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes		Yes	Yes	
Video	Yes	Yes	Yes	Yes	Yes	Yes
Observations	130,070	130,070	130,070	45,191	45,191	45,191
R <sup>2</sup>	0.168	0.172	0.169	0.144	0.162	0.147

Note:

OLS models with two-sided heteroskedasticity-robust SEs.

Table 3: Effect of Social Orientation on Non-Reward Backers

	<i>Dependent variable:</i>	
	Proportion of Backers Selecting No-Reward Option	
	Full Sample	Product Categories Only
	(1)	(2)
Social	0.047 (0.003) p = 0.000	0.053 (0.005) p = 0.000
Log(Goal in USD)	Yes	Yes
Category FE	Yes	Yes
Year FE	Yes	Yes
Description Length	Yes	Yes
Video	Yes	Yes
Observations	130,070	45,191
R <sup>2</sup>	0.032	0.027

*Note:* OLS models with two-sided heteroskedasticity-robust SEs.

Table 4: Effects of Social Orientation and Non-Reward Backers on Success

	<i>Dependent variable:</i>			
	Successful Project			
	Full Sample	Product Categories Only		
	(1)	(2)	(3)	(4)
Social	-0.025 (0.007) p = 0.000	0.012 (0.009) p = 0.208	-0.039 (0.010) p = 0.000	0.011 (0.015) p = 0.457
Any Non-Reward Backers	0.413 (0.003) p = 0.000		0.330 (0.004) p = 0.000	
Proportion of Non-Reward Backers, Given Any		-0.529 (0.009) p = 0.000		-0.628 (0.016) p = 0.000
Social x Any Non-Reward	0.040 (0.009) p = 0.000		0.063 (0.014) p = 0.000	
Social x Prop. Non-Reward		0.069 (0.027) p = 0.011		0.147 (0.045) p = 0.002
Log(Goal in USD)	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes
Observations	104,348	81,515	36,539	26,779
R <sup>2</sup>	0.266	0.202	0.216	0.194

*Note:*

OLS models with two-sided heteroskedasticity-robust SEs.

Table 5: Effects of Social Orientation and Reward Proportions on Number of Reward Backers

	<i>Dependent variable:</i>					
	Number of Backers Choosing Individual Reward					
	Full Sample			Product Categories Only		
	(1)	(2)	(3)	(4)	(5)	(6)
Social	-8.432 (0.930) p = 0.000	-5.282 (0.699) p = 0.000	-5.410 (0.650) p = 0.000	-17.234 (2.005) p = 0.000	-10.644 (1.580) p = 0.000	-11.140 (1.775) p = 0.000
Prop. of Public Thanks	-65.684 (3.539) p = 0.000			-180.428 (8.316) p = 0.000		
Prop. of Private Thanks		-85.280 (3.750) p = 0.000			-247.447 (10.940) p = 0.000	
Prop. of Insider Info			6.635 (6.087) p = 0.276			-44.336 (22.276) p = 0.047
Social x Public Thanks	81.817 (11.945) p = 0.000			170.987 (26.546) p = 0.000		
Social x Private Thanks		43.765 (15.696) p = 0.006			83.013 (39.268) p = 0.035	
Social x Insider Info			47.362 (15.864) p = 0.003			101.252 (57.251) p = 0.077
Reward Cost	Yes	Yes	Yes	Yes	Yes	Yes
Overall Backer Count	Yes	Yes	Yes	Yes	Yes	Yes
Num. Rewards Offered	Yes	Yes	Yes	Yes	Yes	Yes
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes	Yes
Observations	938,354	938,354	938,354	329,520	329,520	329,520
R <sup>2</sup>	0.124	0.124	0.124	0.121	0.121	0.121

Note:

OLS models with two-sided heteroskedasticity-robust SEs.

Table 6: Effects of Social Orientation and Reward Proportions on Success

	<i>Dependent variable:</i>					
	Successful Project			Product Categories Only		
	Full Sample					
	(1)	(2)	(3)	(4)	(5)	(6)
Social	-0.005 (0.013) p = 0.684	-0.016 (0.012) p = 0.176	0.016 (0.012) p = 0.157	-0.017 (0.021) p = 0.426	-0.075 (0.019) p = 0.000	-0.026 (0.020) p = 0.204
Prop. of Public Thanks	-1.605 (0.077) p = 0.000			-2.670 (0.112) p = 0.000		
Prop. of Private Thanks		-1.449 (0.119) p = 0.000			-3.246 (0.198) p = 0.000	
Prop. of Insider Info			-1.675 (0.133) p = 0.000			-2.386 (0.243) p = 0.000
Social x Public Thanks	0.888 (0.228) p = 0.000			0.905 (0.359) p = 0.012		
Social x Private Thanks		2.084 (0.416) p = 0.000			4.049 (0.673) p = 0.000	
Social x Insider Info			0.865 (0.410) p = 0.035			2.091 (0.772) p = 0.007
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes	Yes
Num. Rewards Offered	Yes	Yes	Yes	Yes	Yes	Yes
Observations	130,046	130,046	130,046	45,182	45,182	45,182
R <sup>2</sup>	0.208	0.206	0.206	0.189	0.184	0.181

*Note:*

OLS models with two-sided heteroskedasticity-robust SEs.

## Figures and Tables

Figure 1: Top Ten Most Probable Words for Relevant LDA Topics

<i>Private Thanks</i>	<i>Public Thanks (Supporter List)</i>	<i>Public Thanks (Shoutout)</i>	<i>Insider Info</i>
thank	name	thank	exclusive
personal	website	page	updates
note	listed	website	project
personalized	list	facebook	access
postcard	section	shout	behind
email	supporter	gratitude	receive
written	wall	media	scenes
card	page	mention	video
letter	added	big	backer
hand	appear	twitter	production

Table 1: Summary Statistics

	Mean	SD
Social	0.09	
Successful Projects	0.37	
Product-Based Category	0.35	
Log(Goal)	8.71	1.48
Backer Count	104.55	802.97
Amount per Backer	64.67	131.81
Non-Reward Backers	14.67	441.73
Number of Rewards Offered	8.11	5.66
Repeat Creator	0.09	
Description Length (Thousands of Characters)	2.58	2.63
Video	0.74	

Table 2: Effects of Social Orientation and Trust/Information Measures on Success

	<i>Dependent variable:</i>							
	Full Sample				Product Categories Only			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social	0.03*** (0.01)	0.07*** (0.02)	0.11*** (0.01)	0.15*** (0.02)	0.02** (0.01)	0.14*** (0.03)	0.11*** (0.01)	0.21*** (0.03)
Creator Project Count		0.07*** (0.004)		0.07*** (0.004)		0.11*** (0.01)		0.10*** (0.01)
Description Length			0.03*** (0.001)	0.03*** (0.001)			0.03*** (0.001)	0.03*** (0.001)
Social x Creator Project Count		-0.04*** (0.01)		-0.03*** (0.01)		-0.10*** (0.03)		-0.09*** (0.03)
Social x Length of Description			-0.02*** (0.002)	-0.02*** (0.002)			-0.02*** (0.002)	-0.02*** (0.002)
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes			Yes	Yes		
Video	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	122,152	122,152	122,152	122,152	42,938	42,938	42,938	42,938
R <sup>2</sup>	0.15	0.15	0.15	0.15	0.13	0.14	0.13	0.14

OLS regressions with CEM weighting and robust SEs. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 3: Effect of Social Orientation on Non-Reward Backers

	<i>Dependent variable:</i>	
	Proportion of Backers Selecting No-Reward Option	
	Full Sample	Product Categories Only
	(1)	(2)
Social	0.04*** (0.003)	0.05*** (0.005)
Log(Goal in USD)	Yes	Yes
Category FE	Yes	Yes
Year FE	Yes	Yes
Description Length	Yes	Yes
Video	Yes	Yes
Observations	122,152	42,938
R <sup>2</sup>	0.03	0.02

OLS regressions with CEM weighting and robust SEs.\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 4: Effects of Social Orientation and Non-Reward Backers on Success

	<i>Dependent variable:</i>			
	Successful Project			
	Full Sample		Product Categories Only	
	(1)	(2)	(3)	(4)
Social	-0.03*** (0.01)	0.01 (0.01)	-0.04*** (0.01)	0.01 (0.02)
Any Non-Reward Backers	0.41*** (0.003)		0.33*** (0.005)	
Proportion of Non-Reward Backers, Given Any		-0.54*** (0.01)		-0.62*** (0.02)
Social x Any Non-Reward	0.04*** (0.01)		0.06*** (0.01)	
Social x Prop. Non-Reward		0.07** (0.03)		0.13*** (0.05)
Log(Goal in USD)	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes
Observations	98,730	77,966	34,975	25,915
R <sup>2</sup>	0.24	0.18	0.20	0.18

OLS regressions with CEM weighting and robust SEs. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 5: Effects of Social Orientation and Reward Proportions on Number of Reward Backers

	<i>Dependent variable:</i>					
	Number of Backers Choosing Individual Reward					
	Full Sample			Product Categories Only		
	(1)	(2)	(3)	(4)	(5)	(6)
Social	-8.07*** (0.93)	-5.21*** (0.70)	-5.49*** (0.65)	-17.20*** (2.00)	-10.39*** (1.58)	-11.11*** (1.78)
Prop. of Public Thanks	-59.38*** (4.08)			-182.77*** (8.38)		
Prop. of Private Thanks		-83.44*** (3.81)			-247.31*** (11.29)	
Prop. of Insider Info			0.99 (5.88)			-55.66** (22.04)
Social x Public Thanks	80.15*** (12.29)			175.29*** (26.75)		
Social x Private Thanks		44.57*** (15.80)			83.09** (39.75)	
Social x Insider Info			53.88*** (15.85)			110.78* (57.45)
Reward Cost	Yes	Yes	Yes	Yes	Yes	Yes
Overall Backer Count	Yes	Yes	Yes	Yes	Yes	Yes
Num. Rewards Offered	Yes	Yes	Yes	Yes	Yes	Yes
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes	Yes
Observations	894,374	894,374	894,374	317,180	317,180	317,180
R <sup>2</sup>	0.12	0.12	0.12	0.12	0.12	0.12

OLS regressions with CEM weighting and robust SEs. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 6: Effects of Social Orientation and Reward Proportions on Success

	<i>Dependent variable:</i>					
	Full Sample		Successful Project			
	(1)	(2)	(3)	(4)	(5)	(6)
Social	-0.02 (0.01)	-0.03** (0.01)	0.02 (0.01)	-0.03 (0.02)	-0.08*** (0.02)	-0.02 (0.02)
Prop. of Public Thanks	-1.77*** (0.10)			-2.83*** (0.15)		
Prop. of Private Thanks		-1.88*** (0.16)			-3.73*** (0.26)	
Prop. of Insider Info			-1.30*** (0.17)			-1.75*** (0.35)
Social x Public Thanks	1.01*** (0.24)			1.00*** (0.37)		
Social x Private Thanks		2.30*** (0.43)			4.22*** (0.69)	
Social x Insider Info			0.63 (0.43)			1.66** (0.81)
Log(Goal in USD)	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Description Length	Yes	Yes	Yes	Yes	Yes	Yes
Video	Yes	Yes	Yes	Yes	Yes	Yes
Num. Rewards Offered	Yes	Yes	Yes	Yes	Yes	Yes
Observations	122,130	122,130	122,130	42,929	42,929	42,929
R <sup>2</sup>	0.20	0.19	0.19	0.18	0.17	0.17

OLS regressions with CEM weighting and robust SEs. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01