

## Signalling in Donation Crowdfunding: The Role of Mixed Product and Ideological Bundling

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### Abstract

*Crowdfunding projects depend on signalling to demonstrate authenticity. However, literature on signalling has focused on investment and reward crowdfunding with lesser emphasis on donation crowdfunding. This study adopts the signalling theory and bundling concepts to explore the impact of two validation mechanisms on donation crowdfunding outcomes. Drawing from the literature on bundling and signalling, we investigate the impact of a mixed product bundling strategy (community pot mechanism) and ideological bundling strategy (third-party signalling) on donation project success. Based on data from Mchanga.com, our findings indicate that the mixed product bundling strategy positively influences project amount of funds raised and backer support. However, we also find preliminary evidence indicating ideological bundling can have undesirable and contrasting effects on project outcomes. Implications and future work are also discussed.*

**Keywords:** crowdfunding, signaling, bundling, community pot, third-party endorsement, donation.

### 1. Introduction

Increasingly donation crowdfunding, a popular and fundraising tool, is playing a critical role in the provision of important financial relief services to vulnerable segments of society (Goel, 2020). Yet, donation crowdfunding projects are plagued with failures due to many instances of underfunding (Thunstrom, 2021). Donors are equipped with insufficient information as one of the major roadblocks to project success in the crowdfunding space (Ahlers et al., 2015). Donors' inability to evaluate project authenticity is due to missing or inefficient information exchange (Wang et al., 2021).

This information asymmetry is heightened in the crowdfunding environment because donors face a herculean task of validating "unknown" project founders. By "unknown", we mean founders with no prior fundraising background yet empowered by crowdfunding to raise funds to support a cause.

The presence of insufficient information allows unscrupulous behavior from malicious actors seeking to take advantage of unsuspecting users with charity intentions (Zenone & Snyder, 2019). This is not surprising considering crowdfunding's limited regulation and its efficacy in gathering a "crowd" for fundraising purposes. Consequently, founders' unscrupulous behavior erodes donors' trust and confidence resulting in an adverse effect on donation behavior (Cumming et al., 2021). Platform administrators encourage project founders to adopt various strategies. Project founders strategize by revealing key features about the underlying, otherwise unobserved, credibility of a crowdfunding project. Several studies, largely focused on reward and investment crowdfunding, have demonstrated the use of signals by project founders to demonstrate project authenticity. Founders expect these signals of authenticity to enhance online trust and positively influence the outcome of their crowdfunding projects (Ahlers et al., 2015; Davies & Giovannetti, 2018; Wang et al., 2021).

In investment and reward crowdfunding, backers are mostly assumed to have a uniform response to observed signals because project founders and backers are primarily driven by profit returns (Saluzzo & Alegre, 2021). The role of signals in such contexts are simpler as founders provide project signals to raise funds while backers, often interested in a return on their investment, depend on these signals to select credible and quality projects to fund. However, this assumption has not been tested in non-economic contexts such as donation crowdfunding where project

founders and backers often have diverse non-profit motives. For instance, donors on donation platforms are often motivated by self-actualization and emotional desires such as achieving a sense of satisfaction, alleviating self from guilt, or receiving public acknowledgment about helping others in need in times of difficulty (Ho et al., 2021).

In this study, we focus on the case of donation crowdfunding- online collection of money from donors for social causes, for the following reasons: (1) donors tend to be informationally disadvantaged regarding projects' credibility and founders' behavioral tendency to use donated funds as promised. (2) donation crowdfunding behavior is emotionally driven which impedes donors' desire to interrogate a project and as such, easier for unscrupulous founders to exploit donors' altruism and trust. We posit that signals in project characteristics is important in donation crowdfunding because contributing to a crowdfunding project is usually not a major financial decision for many donors. As such, donors often have less motivation to spend considerable resources (time and effort) evaluating project credibility as searching for information about multiple projects is costly. Instead, donors can be expected to rely on signals to identify and validate the credibility of projects. Similarities and differences among projects may foster sponsors' trust and follow-up investment behaviors (Wang et al., 2021). Therefore, this study seeks to answer the research question:

*RQ: What are the effects of commonalities in donation crowdfunding projects' characteristics on project success?*

To explore this phenomenon, we conduct a quantitative study involving a preliminary analysis of existing crowdfunding projects on M-Changa, a donation-based platform. Specifically, we investigate current practices for assessing the credibility of crowdfunding campaigns on this platform. We identify two credibility factors: mixed product bundling, and ideological bundling. In this context, mixed product bundling refers to a community-pot mechanism where multiple projects with similar causes and objectives form a platform community for crowdfunding purposes (Venkatesh & Mahajan, 2009). Meanwhile, ideological bundling occurs when a project receives endorsements and resource commitments from a third-party organization with similar ideological orientations (Gerber & Lewis, 2002). This study focuses on mixed product bundling (community pot mechanism), by examining the impact

of its novel signalling strategy together with ideological bundling (third-party endorsements) in donation crowdfunding. Specifically, we draw from the signalling theory and bundling literature in marketing and economics to assess the impact of both bundling strategies as signals in non-profit contexts. In doing so, we expand and challenge the assumptions underlying signalling and bundling strategies. We expect our findings to provide valuable insights to management and project founders on the various strategies to provide clear signals to address information asymmetry and enhance project outcome on donation platforms.

## 2. Relevant Literature

Crowdfunding presents a viable alternative financing to project founders without access to traditional financial institutions. The phenomenon offers an accessible platform and last-resort financing option for financially excluded yet needy individuals. Crowdfunding founders depend on signalling to demonstrate the viability and legitimacy of their projects (Mollick, 2014). Inspired by several theories, prior studies have examined the causal relationship between crowdfunding and project success factors. Such theories include the media richness theory, the social presence theory, the information diagnosis theory, the strong reciprocity theory, and the signalling theory (Bruni et al., 2008; Mudambi & Schuff, 2010). Extant literature on investment and reward crowdfunding has identified numerous signals including entrepreneurs' social capital (Colombo et al., 2015; Zheng et al., 2014), their prior crowdfunding experience (Buttice et al., 2017; Colombo et al., 2015) and the strength of their social network (Fan-Osuala et al., 2018). Moreover, a review of equity crowdfunding literature highlights relevant signaling actions and attributes including the possession of a patent, governmental grants and business angel financing (Moritz & Block, 2016).

This study is motivated by several gaps in literature. First, to address insufficient information and enhance project outcome, prior research has explored several concepts to bridge the information gap between project founders and donors to enhance online trust and achieve project outcomes on crowdfunding platforms (Davies & Giovannetti, 2018). However, extant literature on the antecedents of crowdfunding outcome including signalling and information asymmetry have focused on investment and reward crowdfunding campaigns, leaving the donation crowdfunding literature underdeveloped (Ho

et al., 2021; Zhang et al., 2020). Also, the existence of different crowdfunding platforms suggests that empirical patterns observed on one platform cannot be assumed to generalize to other platforms (Moysidou and Spaeth 2016). As crowdfunding platforms differ by nature, clear contextual success factors for a specific platform should be highlighted while discussing the generalization of previous research on the outcome of crowdfunding campaigns (Kaartemo, 2017). Therefore, it is useful to distinguish the role of signals between investment-based, reward-based, and donation-based crowdfunding. In investment and reward crowdfunding, donors are mostly assumed to have a uniform response to observed signals because donors' participation decisions are predominantly driven by profit motives (Saluzzo & Alegre, 2021). However, Saluzzo and Alegre (2021) contend that the impact of signals are not always as clear and beneficial in prosocial and donation contexts compared to economic settings (investment and reward contexts). The focus of this study on donation crowdfunding is geared toward contributing to this area of discussion where signals might operate differently on donation platforms.

Second, this study addresses a novel concept, community pot mechanism, yet to be acknowledged in both entrepreneurship and crowdfunding literature. We believe that the mixed product bundling strategy underlying the community pot provides a signal of authenticity to donors which sharply contrasts the purpose of bundling in economic settings.

### **3. Theoretical foundation and model development**

Provision of project information to donors are clear signals from the founder to represent their intentional efforts to build up social ties with sponsors to foster donors' trust and encourage follow-up investment behaviors. Signals sent by the project founder often includes social interactions and ties the founder is involved in, and frequency of project updates. These signals are activated by the founder to simultaneously persuade and assist donors to comprehend project details (Clauss et al., 2018). Funding a project is a comprehensive cognitive affair as it involves persuading donors to spend their money. Thus, founders must communicate effectively with donors to enhance donors' trust and their understanding of the value of the proposed project, the expected outcome and project updates. Guided by the signalling theory and bundling literature, the current research investigates the impact of two bundling

strategies as signals- mixed product bundling and ideological bundling on donation project outcomes.

#### **3.1. Bundling strategy**

Bundling is defined in the marketing literature as the combination of two or more products into a single offering (Bhargava, 2012). The concept presents numerous benefits to both companies and consumers. Companies employ bundling strategies to increase demand, enhance market position, build new markets, reduce production, promotion, shipping costs and signal authenticity through association of products (Bhargava, 2012). For consumers, bundling eliminates search and assembly effort, provides cost savings, and simplifies purchasing decision on the impression that bundled products are more practical and less expensive (Yang & Lai, 2006). The evolution of bundling can be traced from economic-inspired reasons for bundling to marketing and psychology-based rationales that emphasize the interplay of both firms and consumers in the bundling decision (Venkatesh & Mahajan, 2009). However, bundling literature has mostly focused on the commerce relationship between buyers and sellers where the interest of both parties lies in maximizing efficiency – creating optimum value at minimal cost. A couple of studies on bundling in reward crowdfunding (Cholakova & Clarysse, 2015; Dushnitsky et al., 2022) found that projects offering more rewards and leveraging bundling are more likely to succeed. Bundling projects in reward crowdfunding strongly resembles product bundling or the act of offering several products for sale as one combined product. This marketing strategy has been found to be most successful if there are economies of scale in production and marginal costs of bundling are low. However, the bundling strategy explored in this study sharply contrasts what we have come to know in marketing, economics, and reward crowdfunding.

This study explores two different forms of bundling. First, the community-pot inspired mixed product bundling strategy is where crowdfunding projects are bundled together by similarity in cause and promoted to donors interested in such particular cause. In donation crowdfunding, the community pot mechanism provides projects with a unique source of authenticity and credibility as related projects are managed by individuals or groups that may be required to bear some accountability. The second form is the ideological bundling where a third-party organization endorses and commits to support a project on basis of ideological orientations. Prior literature in political science identifies a similar form

of ideological bundling which occurs when candidates who share the same ideologies and motivation are bundled together by an organization as an endorsement signal to voters with similar perspectives (Gerber & Lewis, 2002). Findings indicate that when such bundling occurs, voters who share similar ideology respond to these cues (Gerber & Lewis, 2002). The ideological bundling in this context differs on two key grounds. First, the binding factor between third-party organizations and donation projects are mostly altruistic and ideological (ethical and sociopolitical). This sharply contrasts investment and reward crowdfunding contexts where third parties primarily endorse projects on economic (profit and reward) potential. Second, ideological bundling allows the third-party to share resources (marketing, logistics and financial) with donation projects. This allows both the third party and project to champion their “bundled” values and goals.

Prior research shows that companies employ bundling strategies to send signals to consumers when there are uncertainties regarding the reliability and quality of new products and technology (Bhargava, 2012). By bundling established with new unproven products, companies anticipate the credibility of the former rubbing off on the latter. However, the community pot mechanism also deviates from key standard bundling strategies. First, bundling is often done in economic settings to provide product and pricing efficiencies to consumers (Bhargava, 2012; Yang & Lai, 2006). In the donation context, donors derive no economic value from the bundled projects. Rather, the purpose of bundling is to signal project credibility to individual and organizational donors. Projects in the bundle undergo vetting and authentication as invitation to a community is exclusive. Second, bundling is effective when stronger brands are associated with weaker brands (Bhargava, 2012; Yang & Lai, 2006). In the donation context, donors need not be aware or familiar with any of the projects in the community bundle. There are no clear distinctions among the projects on “brand familiarity”. Drawing from the marketing literature, the current research explores the impact of these validation signals on project outcome in donation crowdfunding.

### **3.2. Mixed product bundling-the community pot mechanism**

Mixed product bundling strategy is a form of bundling where components of a bundle are also made available for purchase individually (Venkatesh &

Mahajan, 2009). Similarly, the community pot mechanism offers a synergistic platform for different projects with similar causes and objectives to raise funds together in a communal manner. As a mixed product bundling strategy, donors may choose to donate to individual projects in the community or to the community pot as whole. Generally, a community is formed and coordinated by an individual with crowdfunding experience on the M-Changa platform. Such individual, referred to as the community coordinator, invites and manages existing or new projects together as a community. The mixed product bundling strategy allows the coordinator to accept donations to support the community as a whole and distribute the funds to the projects in the community based on pre-defined community rules. For instance, the coordinator may decide to re-distribute excess funds from fully funded projects to underfunded projects struggling to meet their goals. Further, the community provides the platform for project founders to exchange ideas and advice on the best fundraising practices which have worked for them. Most importantly, the community provides an extra layer of validation for projects as coordinators screen and investigate the credibility of invited projects. This mechanism provides projects with increased authenticity. It also prevents information overload as potential donors need not sort through thousands of projects but simply donate to a community pot with shared interests or easily sort through projects by their community profile. Consequently, we posit that the mixed product bundling strategy in the form of the community-pot mechanism should have a positive influence on project outcome as donors who are drawn to the community by one project are exposed to similar projects in the community. Donors can then easily donate to multiple projects concurrently. As such, the mixed product bundling strategy allows donors to easily donate to multiple projects with shared interests resulting in an increased level of funding and participation for community-based projects. Therefore, we posit that,

*H1: the mixed product bundling strategy is positively related to project outcome.*

### **3.3. Ideological bundling-third-party endorsements**

Prior research investigating third-party endorsement has focused on affiliations with prominent organizations like venture capitals or

alliances with established multinationals (Ozmel et al., 2013; Stuart et al., 1999). Third-party endorsement involves the use of third-party affiliation to signal project authenticity in the donation context. Such affiliations serve as external validation to the projects due to the reputation of the partners as donors are likely to associate third-party affiliation with project viability and authenticity. This validation often serves to complement the basic authentication provided by the crowdfunding platforms. Donors expect external partners who endorse projects to have completed extensive checks and audits on the authenticity of such projects. Donors' doubts and concerns about projects are thus lowered leading to increased trust levels since they will be willing to trust such reputable partners and to a large extent, their endorsement of the project.

In this context, ideological bundling occurs when third-party organizations interested in promoting civic causes like education offers to partner and support projects with similar goals. Unlike the mixed product bundling strategy where projects are bundled by the platform, third-party organizations perform ideological bundling by championing projects with shared values. Also, these third-party organizations might offer to match funds contributed to the projects, often, at a double or triple rate. As such, ideological-bundled projects enjoy a significant level of differentiation from projects who do not possess such endorsement or partnership. Therefore, we posit that,

*H2: the ideological bundling strategy is positively related to project outcome.*

In crowdfunding, multiple signals often operate at the same time. However, extant research on information asymmetry has mostly examined the direct impact of specific signaling factors in isolation (Hsu & Ziedonis, 2013; Reuer et al., 2012). This study addresses the concurrent impact of multiple signals on donation project outcomes. An important question arises as to whether and if so, how these multiple factors interact to enhance or diminish each other's value. The current research therefore investigates the interaction effect of ideological bundling and the mixed product bundling strategies in donation crowdfunding. We posit that it is easier for donors to perceive project authenticity in the presence of multiple signals. Projects send a stronger signal of validation when they belong to a bundled community and also have an ideological bundle. For a mixed bundled project, having an ideological bundling partner should increase its authenticity and bolster donors' confidence. This should lead to an increased

donor funding and support. Thus, the presence of both ideological bundling partner and mixed product bundling mechanism should enhance project outcomes. We assert that,

*H3: the positive effect of mixed product bundling strategy on project outcome strengthens in the presence of ideological bundling.*

#### **4. Research methodology**

M-Changa, an online fund-raising platform based in Kenya, is one of Africa's earliest and largest crowdfunding platforms. M-Changa, [www.changa.co.ke](http://www.changa.co.ke), is an online and SMS-based crowdfunding platform which allows individuals to register via mobile phone or online. The platform boasts of giving project founders the support to raise funds for individual needs, organizations, and businesses through mobile technology and mobile money. We collected cross-sectional data (1151 projects) from the Crowdfunding portal in Kenya using ScrapeStorm –software for data extraction. For this study, we crawled features of project campaigns that were hosted on this platform during the period of January 2015 to January 2021. The crawled data represents a sample of the projects that have been hosted on this platform. Mixed bundled projects belonging to communities were extracted and coded as dummy variables. Specifically, projects that belonged to a community (mixed product bundle) were coded as 1 (n=116) and projects that did not belong to a community were coded as 0 (n=1035).

As robustness, we conducted a propensity score matching to address any possible selection bias that potentially confounds the effect of the mixed bundling mechanism in section 5.1. Some projects on the M-changa platform are supported by foreign and local organizations like the United Kingdom's Department for International Development (DFID) through their UKAID's program, the Agha Khan foundation, and the Global Village Energy Project (GVEP). Such local and foreign endorsements were also coded as dummy variables. Projects that had third-party endorsements (ideological bundles) were coded as 1 (n=36) and those that did not were coded as 0 (n=1115). Tables 1 and 2 below show the descriptive statistics and collinearity indicators for the variables used in the study. We adopted project goal, project type, project duration and treasurer controlled as control variables because these factors influence donors' perception of project (Wang et al., 2021). Treasurer controlled refers to the mechanism where project founders appoint

individual third parties as trustees to oversee the withdrawal and usage of funds. Typically, founders will not be able to withdraw the donated funds without the approval of these appointed treasurers. Project type refers to the different categories of projects existing on the crowdfunding platform. In this context, we categorized the projects as medical, education, community, COVID-19 related-issues, religion (church fundraising), energy conservation, ceremonies (weddings and funerals) and sports. Project goal refers to the target amount of funds expected to be raised by the founder while project duration comprises the amount of time (days) the project has been hosted on the platform.

Successful crowdfunding projects are those that attract enough funds to achieve the intended goal. Depending on the size of the project, every crowdfunding project has a target range for the sought amount of funding. Crowdfunding platforms generally operate under one of two basic models which includes the “all-or-nothing” model and the “keep-it-all”

model. In the “keep-it all model”, project founders are entitled to receive raised funds, irrespective of project goal. In the “all-or-nothing” model, the project founder sets a goal for minimum target funding and receives the invested money only if the goal is achieved. That is to say, the crowdfunding platform will return donors’ funds to them if the project fails to achieve the minimum funding threshold. Donation-based projects, aside funding goals, often seek to enhance crowd participation and awareness for their projects. For example, social organizations such as Oxfam International and Red Cross are interested not only in increasing the amount of donations but also, more importantly, in increasing crowd participation as a way to convey their message and increase social consciousness. Pertinent to this study, the “keep-it-all” model is synonymous to the donation model and as such, our measure of project outcome is operationalized as amount of funds raised and donor support (number of donors).

**Table 1. Descriptive and multicollinearity statistics**

	Mean	Std. Deviation	Std Error	Min	Max
<b>Project Type</b>	1.56	1.946	0.057	0	7
<b>Duration</b>	1022.22	489.493	14.428	30	2160
<b>Mixed product Bundling</b>	0.10	0.301	0.009	0	1
<b>Project Goal</b>	14140.36	25683.290	757.030	46	410475
<b>Amount Raised</b>	2671.19	4860.836	143.276	23	51628
<b>Donors</b>	172.57	682.878	20.128	1	17604
<b>Ideological Bundling</b>	0.05	0.285	0.008	0	2
<b>Treasurer Controlled</b>	0.61	0.487	0.61	0	1

**Table 2. Correlation statistics**

	Treasurer Controlled	Ideological Bundling	Duration	Project Goal	Project Type	Mixed Bundling	Donors	VIF
<b>Treasurer Controlled</b>	1.000							1.009
<b>Ideological Bundling</b>	0.013	1.000						1.027
<b>Duration</b>	0.013	-0.032	1.000					1.016
<b>Project Goal</b>	0.033	0.006	0.013	1.000				1.074
<b>Project Type</b>	-0.058	-0.053	0.104	0.064	1.000			1.029
<b>Mixed product Bundling</b>	-0.053	-0.145	0.045	-0.016	-0.065	1.000		1.036
<b>Donors</b>	-0.032	0.035	0.026	-0.250	0.010	-0.056	1.000	1.074

## 5. Analysis and Results

The dependent variable, amount of funds raised, is a linear continuous variable making linear regression modeling appropriate and that of donor support, number of donors, is a count variable making binomial

regression modeling appropriate. We chose the negative binomial regression because there was overdispersion- the variance was much larger than the mean. Therefore, models 1 to 3 in table 3 were constructed using linear regression and model 4 to 6 using negative binomial regression. We formally define the econometric models as:

**Model 1** as: *amount of funds raised (log) =  $\beta_0 + \beta_1$  mixed product bundling +  $\beta_2$  ideological bundling + 3 (log) project goal +  $\beta_4$  project type +  $\beta_5$  project duration +  $\beta_6$  treasurer controlled + error term.*

**Model 2** as: *amount of funds raised (log) =  $\beta_0 + \beta_1$  mixed product bundling +  $\beta_2$  ideological bundling +  $\beta_3$  int (mixed product bundling\*ideological bundling) +  $\beta_4$  (log) project goal +  $\beta_5$  project type +  $\beta_6$  project duration +  $\beta_7$  treasurer controlled + error term.*

**Model 3** as: *amount of funds raised (log) =  $\beta_0 + \beta_1$  mixed product bundling +  $\beta_2$  foreign ideological bundling +  $\beta_3$  local ideological bundling +  $\beta_4$  (log) project goal +  $\beta_5$  project type +  $\beta_6$  project duration +  $\beta_7$  treasurer controlled + error term.*

**Model 4** is defined as *number of backers =  $\beta_0 + \beta_1$  mixed product bundling +  $\beta_2$  ideological bundling + 3 (log) project goal +  $\beta_4$  project type +  $\beta_5$  project duration +  $\beta_6$  treasurer controlled + error term.*

*\*Models 5 and 6 also adopt number of backers as dependent variable in a binomial equation and follows the same pattern of predictors as models 2 and 3 respectively.*

From table 3, the findings in models 1 and 4 indicate that the mixed bundling strategy has positive impact on project outcome- amount raised and donor support. This result indicates support for hypothesis 1. In model 2 and 5, hypothesis 3 was supported as the presence of multiple signals i.e., ideological bundling strengthens the positive effect the mixed bundling has on both metrics of project outcome. Meanwhile, hypothesis 2 was not supported. We found in models 1 and 4 that the presence of ideological bundling had a negative effect on amount of funds raised and donor support. To understand why hypothesis 2 was not supported, we dived deeper into ideological bundling. We split the variable into two unique sources- foreign and local ideological bundling and examined their respective impact on project outcome. Prior research shows that the effect of signals also depends on the reputation of the signal source (Courtney et al., 2017). Results in models 3 and 6 show that local ideological bundling had a negative effect on amount of funds raised and donor support. On the other hand, foreign ideological bundling had a positive impact on donor support but no significant impact on amount of funds raised.

## 5.1. Robustness and additional analysis

We conducted robustness checks to account for possible biases in our findings. To account for selection bias, we conducted propensity score matching. We generated a matched sample (232 projects) of community bundled projects and non-community bundled projects. Using the matched sample, we conducted a linear regression (amount of funds raised) and negative binomial regression (donor support) to confirm whether the impact of mixed bundling strategy on project outcome was not influenced by any form of bias. The findings show that the results are consistent with previous results in table 3. Similarly, we computed for the influence of ideological bundling using the matched sample. We found that ideological bundling had a negative effect on donor support and the amount of funds raised. Overall, these results strengthen our previous findings that ideological bundling do not positively affect donation project outcomes in our context.

## 6. Discussions

We theorize that the significant differences in the impact of foreign and local ideological bundling on project outcome is contingent on contextual factors and the fact that these third parties play different roles and donors interpret these roles differently. The context of this study is in Kenya, an African country with peculiar challenges to crowdfunding. Prior research shows that African countries are characterized by a relative low level of public trust (Chao et al., 2020). That, Africans have been found to exhibit lower levels of trust towards local institutions (Bratton & Gyimah-Boadi, 2016). We assert that donors in this context value foreign affiliations more than local affiliations as they perceive foreign institutions as incorruptible and accountable. This explains the foreign ideological bundling's positive influence and local ideological bundling's negative influence on donor support in this context.

Foreign partners also offer to match funds contributed to the projects, often at a double or triple rate. This enhances the projects' ability to raise the needed funds to commence operations and concurrently provides a positive signal to donors that such projects have higher chances of achieving funding goals. We argue that foreign affiliates' offer to match donated funds attract donors, but such donors contribute a little bit less than they would have without the matched funds offer. We attribute this to donors' perception of foreign partners having deeper pools of

funding resources. This explains why foreign ideological bundling, even with these matching schemes, have no significant impact on amount of funds raised. For projects with local ideological bundling, a lot of donors may not recognize the affiliation as a form of validation due to low trust in local institutions. Overall, our argument aligns with Saluzzo and Alegre (2021) who finds that even though

an endorsement might signal trustworthiness, it might also signal that the entrepreneur already has some financial support and thus is less in need than entrepreneurs with no support at all. Simply put, ideological bundling might signal authenticity; however, it might also not have the desired impact on project outcome.

**Table 3. Results**

DV	Project Outcome						
	Baseline	Amount of funds Raised (log)			Donor Support (number of donors)		
		1	2	3	4	5	6
Model		<i>Direct Effects</i>	<i>Interaction Effect</i>		<i>Direct Effects</i>	<i>Interaction Effects</i>	
<i>Direct Effects:</i>							
Mixed product Bundling	.978*** (.138)	.850*** (.146)	.901*** (.146)	.878*** (.108)	.668*** (.107)	.739*** (.10)	
Ideological Bundling	-.51*** (.145)	-.71*** (.164)		-.33*** (.126)	-0.79*** (.121)		
Local Affiliate			- 1.20*** (.312)				-1.1*** (.2303)
Foreign Affiliate			.049 (.376)				.525*** (.280)
<i>Interacting Effects</i>							
Mixed product bundl. * Ideological bundl.			.900** (.347)			1.268*** (.259)	
<i>Control Variables:</i>							
Project Goal (log)	.761*** (.064)	.722*** (.028)	.720** (.028)	.72*** (.028)	.001*** (.001)	.001*** (.001)	.001*** (.001)
Project Type	-.012 (.046)	-.043** (.022)	-.044** (.022)	-.045** (.022)	-.09*** (.015)	-.094*** (.015)	-.097*** (.015)
Project Duration	.001 (.001)	.001*** (.001)	.001*** (.001)	.001*** (.001)	.001*** (.001)	.001*** (.001)	.001*** (.001)
Treasurer Controlled	1.106*** (.200)	.743*** (.084)	.741*** (.084)	.745*** (.084)	.704*** (.063)	0.69*** (.062)	.697*** (.062)
Intercept	-.165*** (.635)	.103 (.276)	.146 (.276)	.143 (.277)	6.786*** (.09)	6.827*** (.091)	6.814*** (.089)
<i>Model Fit Indices:</i>							
R <sup>2</sup>	.409	.418	.421				
Notes: *** p < 0.01, ** p < 0.05, * p < 0.1							

**Table 4. Robustness results (matched sample)**

DV	Project Outcome	
	Amount of Funds Raised (log)	Donor Support (number of donors)
	1	2
Model	<i>Direct Effects</i>	<i>Direct Effects</i>
<i>Direct Effects:</i>		



Mixed product Bundling	<i>.866***</i> (.184)	<i>.876***</i> (.136)
Ideological Bundling	<i>-.105**</i> (.212)	<i>-.357**</i> (.141)
Model Fit Indices:		
R <sup>2</sup>	.458	
Notes: *** p < 0.01, ** p < 0.05, * p < 0.1		

## 7. Implications

Signals play an important role in communicating project authenticity in crowdfunding. However, their presence on donation platforms can send mixed signals to donors which can simultaneously assist and hinder projects from achieving their objectives. This finding deviates from prior results in the equity and reward crowdfunding where third-party endorsements have been shown to consistently affect funding rates (Ahlers et al. 2015; Plummer et al. 2016). This study provides preliminary evidence that project signals can have contrasting effects on donor support and funding behaviors on donation platforms (Saluzzo & Alegre, 2021). Arguably, projects with ideological bundling might attract significantly less donor resources because of the perception that such projects are better resourced or less needy. As such, this study agrees with Saluzzo and Alegre (2021) that the value of ideological bundling as a signaling mechanism differ between for-profit and nonprofit contexts.

The study also demonstrates that bundling strategies are beneficial beyond economic settings. We show that bundling projects together in a non-profit community context enhances project outcomes like funds raised and backer support. This study expands the bundling literature by showing that a mixed product bundling strategy, through community pot mechanism, provides a valuable signalling mechanism to donors in non-profit settings.

Further, this study attempts to clarify the boundaries of signaling project authenticity through an association with a prominent social organization or with a community with similar projects within donation crowdfunding platforms. In doing so, we contribute to prior literature that have studied the interaction of signalling mechanisms (Courtney et al., 2017; Saluzzo & Alegre, 2021).

Practically, project founders need to be wary of how their choice of signals affect donors' perception of projects and subsequently, their participation and funding behavior in donation-based crowdfunding. If possible, founders are encouraged to pursue

affiliations from foreign organizations as compared to local organizations. Also, project administrators need to continuously design innovative mechanisms, promote awareness, and educate both founders and donors on the beneficial effect of these mechanisms on project authenticity and outcomes.

## 8. Conclusion and future research

Crowdfunding offers a much broader and accessible financing platforms to individuals who for many reasons might not be privy to traditional financing mechanisms. Drawing from the literature on bundling and signalling, this study shows the impact of two signalling mechanisms and their interaction on donor behavior in non-profit crowdfunding platforms. We demonstrate that in non-profit contexts where a donor is not prioritizing financial return but social return, the role of signalling mechanisms can be confusing to potential backers. Future research will adopt a multi-method approach to triangulate these preliminary findings. The additional studies – experimental and qualitative should provide further insights on signal interpretation and their effect on participation and funding behaviors from donors' perspective.

## 8. References

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