ASIA MARKETING JOURNAL

ASIA MARKETING JOURNAL

Volume 26 | Issue 1 Article 1

April 2024

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Incomplete Decisions on Reward-Based Crowdfunding Platforms: Exploring Motivations from Temporal and Social Perspectives☆

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Abstract

This study explores incomplete decision-making dynamics on reward-based crowdfunding platforms, focusing on temporal and social factors influencing backers' decisions. Utilizing the temporal aspect (i.e., pledging campaign phase) and social aspect (i.e., current pledged amount ratio) as stimuli within the stimulus-organism-response framework, our findings reveal that nearly 50.9% of respondents change their initial decisions, highlighting widespread incomplete information processing. Backers are more prone to altering decisions under heightened time pressure and display herding behaviors. Furthermore, backers exhibit an increased likelihood of changing decisions under heightened time pressure, coupled with a greater chance that the pledged goal amount will not be achieved. The study discusses theoretical and practical implications.

Keywords: Reward-based crowdfunding, Stimulus-organism-response framework, Incomplete decision-making, Temporal and social perspectives, Kickstarter.com

1. Introduction

Crowdfunding has undergone significant growth in recent years, yet project success rates remain relatively low. Many project creators encounter challenges in securing sufficient public backing, leading to the failure to meet funding goals. A primary factor contributing to this high failure rate is the presence of information asymmetry between project creators and potential backers. In response to this challenge, crowdfunding platforms have made efforts to provide comprehensive campaign information, serving as a valuable resource for backers to evaluate projects and make informed pledging decisions (Bogusz, Teigland, and Vaast 2019).

However, despite the abundance of information on reward-based crowdfunding platforms, backers often fall short of fully utilizing this available information, preferring spontaneous funding decisions over deliberate ones (Ren, Raghupathi, and Raghupathi 2021). This study suggests that the roots of these incomplete decisions can be traced to the underutilization of information, influenced by temporal and/or social pressures. Specifically, we employ the stimulus-organism-response framework, using the pledging campaign phase (temporal aspect) and the current pledged amount ratio (social aspect) as stimuli to derive backers' responses. The pledging campaign phase illustrates the time pressure faced by backers, while the current pledged amount ratio indicates potential herding behavior. These stimuli expedite incomplete information processing, causing backers to overlook a significant portion of the provided information, ultimately resulting in incomplete decisions.

The importance of this study lies in its potential to enhance our understanding of the dynamics behind incomplete decision-making on reward-based crowdfunding platforms. By shedding light on the

☆ This work was supported by the Ministry of Education of The Republic of Korea and the National Research Foundation of Korea (NRF-2020S1A5A2A03040798).

Received 18 November 2023; accepted 26 December 2023.
Available online 8 April 2024

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https://doi.org/10.53728/2765-6500.1623

temporal and social factors influencing backers' decisions, we aim to contribute valuable insights that can inform both project creators and platform designers. Understanding why backers may not fully engage with available information is crucial for improving the effectiveness of crowdfunding campaigns and increasing the overall success rate. Ultimately, this research seeks to empower both backers and creators with knowledge that can lead to more informed decision-making in the crowdfunding ecosystem.

The structure of this article is as follows: Section 2 provides the theoretical framework of this study, offering a rationale for possible incomplete decisions. Section 3 highlights the hypotheses we propose. Section 4 discusses the research method, encompassing research design, data collection processes, variables, and model specifications. Section 5 presents the results of the logit regressions, while Section 6 delves into the overall discussion by focusing on the academic and managerial contributions. Additionally, we outline the limitations of the study and suggest future research directions.

2. Theoretical background

2.1. *Determinants of reward-based crowdfunding success*

The preceding studies have extensively delved into the intricate determinants influencing the success of campaigns on a reward-based crowdfunding platform. These determinants can be systematically categorized into three main dimensions: product-focused (Kuppuswamy and Bayus 2017a,b), backer-focused (Kang, Jiang, and Tan 2017; Wang et al. 2018; Xu, Zheng, et al. 2016; Zhao et al. 2017), and creator-focused (Bretschneider and Leimeister 2017; Kuppuswamy and Bayus 2017a,b; Wang and Yang 2019). A foundational assumption underpinning these investigations is the expectation that backers will exercise rational decision-making by leveraging the provided information, a necessity given the inherent high uncertainty and information asymmetries within the crowdfunding landscape. However, scholars also have drawn attention to the potential for backers to make incomplete decisions on reward-based crowdfunding platforms (Ren, Raghupathi, and Raghupathi 2021). This recognition underscores the evolving nature of decision-making processes in the dynamic and multifaceted realm of crowdfunding.

2.2. *Incompleteness in backer decision-making*

The incomplete purchasing decisions of consumers are extensively studied in marketing. This phenomenon is attributed to various factors. First, time constraints and information overload play a significant role. Lewis (2004) emphasizes the impact of time constraints on these decisions, as consumers facing time-sensitive offers or limited availability may prioritize swift decisions over thorough evaluations. In the digital age, information overload can lead to decision shortcuts and incomplete choices (Kivetz and Simonson 2000). Second, psychological and emotional factors contribute to incomplete decisions. Ahn and Kwon (2022) explore the psychology, highlighting the influence of impulse buying and emotional triggers. Emotional states like excitement or desire may lead consumers to make spontaneous and incomplete purchases. Prolonged decision-making processes and mental exhaustion can also drive consumers to opt for incomplete choices, simplifying the decision-making process (Sedek, Kofta, and Tyszka 1993). Third, digitalization and social pressures impact incomplete decisions. Kim, Jun, and Kim (2018) investigate the influence of online reviews and social proof, revealing that consumers, overwhelmed by choices, often rely on others' opinions, leading to incomplete decisions based on social validation. Similarly, Kim, Lee, and Kim (2020) study the impact of FOMO (Fear of Missing Out) on incomplete purchasing decisions, where limited-time offers and the fear of missing out drive consumers to make hasty decisions for exclusive deals.

Backers, as consumers, also have a high possibility of making incomplete decisions. Generally, the determinants explaining consumers' incomplete decisions are applied to backers as well. Additionally, the nature of reward-based crowdfunding increases the chance of incompleteness. As Belleflamme, Lambert, and Schwienbacher (2014) characterize, a reward-based crowdfunding platform relies on providing early access to products that have not yet been launched on the market. Such uncertainty does not guarantee the actual delivery of the product and its expected utility. Also, social pressure, such as herding behavior, accelerates the likelihood of incomplete pledging decisions. Stevenson, Allen, and Wang (2022) examine the impact of social proof on crowdfunding decisions, highlighting how backers, influenced by the actions of their social networks, may hastily join the momentum of a campaign without conducting a thorough evaluation. Herding behavior, triggered by the collective actions of other backers, can contribute to incomplete decisions. Additionally, a reward-based crowdfunding platform inherently has issues of information asymmetry, trust, and credibility. Wang and Kim (2016) explore how backers' perceptions of project creators' credibility influence their decision-making. In situations where trust is lacking or project details are perceived as dubious,

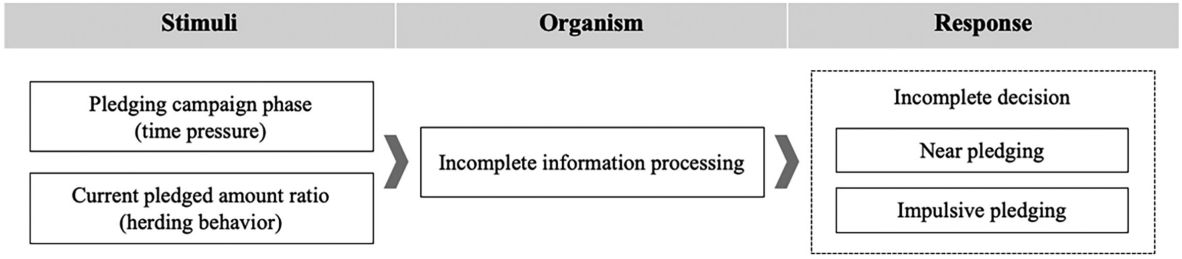

Fig. 1. A theoretical model.

backers may opt for incomplete pledges, hesitant to fully commit. Although the likelihood of experiencing backers' incomplete pledging decisions is high, this area is relatively unexplored academically.

2.3. The stimuli-organism-response framework

To explore this research question, we utilize the Stimulus-Organism-Response framework rooted in Mehrabian and Russell's work (1974). This framework offers a theoretical foundation for comprehending incomplete decision-making, particularly in the context of crowdfunding. It involves three key steps: introducing stimuli, processing perceived stimuli by organisms (individuals), and eliciting subsequent behavioral responses. The Stimulus-Organism-Response framework, widely applied to explain shopping behaviors like impulsive buying, is crucial for understanding how external factors impact human cognition and emotion, ultimately shaping behavior (Floh and Madlberger 2013; Huang 2016; Lim, Lee, and Kim 2017; Parsad, Prashar, and Tata 2017; Verhagen and Van Dolen 2011). In the context of this study, two stimuli were incorporated: the temporal aspect – pledging campaign phase (early vs. late phase of a campaign) and the social aspect - current pledged amount ratio (excess vs. under the goal amount). Figure 1 shows the theoretical model of our research.

3. Hypothesis development

3.1. Temporal aspect

The early phase of a crowdfunding campaign, marked by its launch, serves as the project's initiation, where creators aim to establish momentum and attract backers (Kuppuswamy and Bayus 2018). Backers who engage with projects at this stage often demonstrate a heightened tolerance for uncertainty and a greater willingness to explore new opportunities. Early backers are notably known for their proactive nature and a strong commitment to the project's success (Kuppuswamy and Bayus 2018). This commitment is evident in their inclination to invest time and effort in a thorough evaluation of available information, reducing the likelihood of making incomplete funding decisions. Behavioral economics research suggests that individuals tend to exhibit more risk-seeking behavior in the early stages of decision-making, driven by the novelty and potential rewards associated with new opportunities (Lauriola et al. 2014; Li and Ahlstrom 2020). In the context of crowdfunding, backers participating in the early campaign phase approach decision-making with heightened attention and thoroughness, influenced by this risk-seeking behavior. Furthermore, during the early phase, creators frequently provide additional details and updates, contributing to a more comprehensive information pool as campaigns progress. However, backers engaging in the early phase may be exposed to a more limited set of information. Paradoxically, this limitation encourages them to delve deeper into the available details, demonstrating their commitment to making well-informed decisions in the face of potentially incomplete information.

On the other hand, a late campaign phase, indicating limited time for backers to participate, introduces time pressure that may lead to incomplete information processing (Liu, Shi, et al. 2022). Time pressure is a well-known strategy employed by salespersons to curtail deliberate information processing (Scott, Pascalis, and Nelson 2007; Sohn and Lee 2017). Analogous to a salesperson emphasizing limited time to encourage a purchase, backers tend to check the remaining time in each crowdfunding campaign. More time implies an opportunity for thorough information review, while less time may hinder thoughtful information processing. Thus,

H1. *The earlier the campaign phase, the less probable (The later the campaign phase, the more probable) it is to encounter incomplete funding decisions in a reward-based crowdfunding platform.*

3.2. Social aspect

Crowdfunding platforms operate within a competitive landscape, with projects competing for the

attention and support of backers. In this context, a project's ability to attract backers is intricately linked to its perceived credibility and potential for success (Wang and Kim 2016). The current pledged amount serves as a tangible metric, providing insights into a project's popularity and community support (Mollick 2014). When backers encounter projects that have surpassed the 300% pledged amount threshold, this achievement is often interpreted as an endorsement from a significant number of backers, fostering a perception of reduced risk and an increased likelihood of achieving funding goals (Burtch, Ghose, and Wattal 2013; Kuppuswamy and Bayus 2018). This, in turn, influences backers to make more informed and thoughtful decisions.

However, a different interpretation arises when considering information processing dynamics. In the realm of crowdfunding, characterized by inherent uncertainties, the influence of herding incentives often outweighs meticulous information review on equity-based platforms (Li, Liu, et al. 2022). Given the inherent uncertainties in crowdfunding, backers may find reassurance in a project's popularity, perceiving it as a sign of legitimacy and endorsement from the crowd (Wessel, Gleasure, and Kauffman 2021). Backers might interpret a project's popularity as indicative of its viability and appeal, thereby diminishing the perceived uncertainty linked to incomplete funding decisions. Conversely, projects with lower financial backing may trigger skepticism, prompting backers to approach decisions more cautiously and potentially resulting in incomplete funding choices (Belleflamme, Lambert, and Schwienbacher 2014).

Moreover, support for this hypothesis can be found in the academic literature on behavioral economics and decision-making under uncertainty. The current pledged amount ratio, displayed on the campaign status webpage, can trigger herding behavior. Herding behavior is characterized as impulsive activity in response to the actions of others (Prechter Jr. 2001). It has been extensively studied in various disciplines, including online impulsive buying (Chen, Su, and Widjaja 2016). The information about a campaign exceeding its pledged amount may or may not induce incomplete decisions, influenced by social impacts. In crowdfunding contexts, this dynamic can be shaped by varying perceptions and attitudes among backers. There are two possible scenarios: positive social impact (i.e., herding behavior) or negative social impact (i.e., contrarian behavior). The positive social impact occurs when backers are influenced by the collective choice of others, leading them to follow the crowd. In this case, the information about a campaign exceeding its pledged amount may reinforce backers' confidence in the project, reducing the perceived uncertainty associated with incomplete funding decisions. On the other hand, backers may show contrarian behavior, opting not to participate in a campaign that has already surpassed its funding goal, as they perceive it to be less unique or in less need of their support. In this case, the information about exceeding the pledged amount may deter backers from participating, leading to a negative social impact.

H2. *The greater the current pledged amount, the less the likelihood (The lesser the current pledged amount, the more the likelihood) of encountering incomplete funding decisions in a reward-based crowdfunding platform.*

3.3. Interaction between temporal and social aspects

The intricate interplay between the campaign phase and the current pledged amount in shaping backers' decisions unfolds through a nuanced exploration of temporal dynamics and financial support levels within the crowdfunding context. The campaign phase acts as a temporal dimension, embodying the urgency and time pressure associated with the different stages of a crowdfunding project (Belleflamme, Lambert, and Schwienbacher 2014). In the early phase, characterized by a lesser degree of time pressure, backers engage in a more deliberate review of available information (Liu, Shi, et al. 2022). This behavior is not solely motivated by the necessity to comprehend campaign details but is further heightened in the context of highly popular campaigns that have significantly exceeded their goal amount (Mollick 2014). Backers, intrigued by the earlier success of the campaign, tend to undergo more thorough information processing (Kuppuswamy and Bayus 2018). Consequently, the likelihood of changing their intention is diminished during this phase.

Conversely, as the campaign progresses into the later stage, time pressure becomes a critical factor (Liu, Shi, et al. 2022). Backers may find themselves constrained in affording thoughtful consideration due to the impending campaign deadline. In this scenario, the current pledged amount assumes heightened significance as a heuristic for decision-making (Burtch, Ghose, and Wattal 2013). Backers, constrained by time, are more likely to rely on the financial momentum indicated by a higher pledged amount, leading to a lower possibility of changing their original pledging intention (Liu, Shi, et al. 2022).

Thus, the temporal dynamics of the campaign phase, coupled with the financial cues provided by the current pledged amount, intricately shape backers' decision-making processes in crowdfunding scenarios, revealing a multifaceted interaction effect

between these two variables (Burtch, Ghose, and Wattal 2013; Kuppuswamy and Bayus 2018).

H3. *There exists a positive and significant interaction effect between the campaign phase and the current pledged amount on incomplete funding decisions in a reward-based crowdfunding platform.*

4. Research methodology

4.1. Research design

To empirically test our hypotheses, we systematically designed our research setting. Initially, we conducted an extensive review of existing research to identify previously examined determinants, categorizing them into five groups based on the type of information provided: pledging status, creator information, campaign details, communication information, and reward information. Secondly, we defined four distinct campaign states by considering a 2 × 2 combination of campaign stage (early vs. late) and the current pledged amount ratio (more than 300% vs. less than 30%). Early-stage campaigns were defined as those within the first three days of the launching date, while late-stage campaigns were within the last three days of the closing date. A total of 28 campaigns were purposively selected from Kickstarter.com, with seven campaigns representing each of the four identified states. Kickstarter.com was chosen for its widespread use in prior research exploring crowdfunding-related inquiries (Zheng et al. 2014; Zhou et al. 2018). Thirdly, we designed an online survey to inquire about potential backers' pledging intentions under two distinct circumstances for the same project. Respondents were initially asked about their initial pledging decision without any intervention. Subsequently, a step-by-step guide was presented to respondents to systematically review categorized campaign information, followed by a reassessment of their pledging decision. Throughout this process, we collected information on the factors considered for the revised decision. Lastly, logit regressions were employed to investigate whether backers altered their initial decisions and to discern which pieces of information influenced these changes.

4.2. Data

Utilizing Amazon Turk, we gathered a total of 414 responses. Following data cleaning to eliminate invalid responses, the final sample size was reduced to 402. Descriptive statistics for the respondents are presented in Table 1. Notably, male respondents constituted 57.3% of the sample, slightly outnumbering female respondents at 42.7%. Over 70% of respondents fell within the 21–40 age range, and over 80% had completed, or were in the process of completing, at least a bachelor's degree or higher. The majority of respondents reported monthly incomes between $3,000–$4,999.

4.3. Variables

Dependent Variable: We utilize a dummy variable to represent the change in the original funding decision (1 = changed, 0 = otherwise) for the first test. In the second test, we also use a dummy variable to represent the change from initially not pledging to later pledging (1 = changed, 0 = otherwise), and vice versa.

Independent and Control Variables: The independent variables in our study include the pledging campaign phase and the current pledged amount ratio.

Table 1. Profile of the respondents (N = 402).

Attribute	Value	Frequency	Percentage
Sex	Male	229	57.3
	Female	173	42.7
Age	21–30	134	34.8
	31–40	133	34.5
	41–50	71	15.9
	Over 51	64	14.8
Education	Less than high school degree	17	0.6
	High school graduate (high school diploma or equivalent including GED)	41	7.9
	Attending or associate degree in college (2 years)	51	11.0
	Attending or bachelor's degree in college (4 years)	203	57.3
	Attending or master's, doctoral, or professional degree in graduate college	90	23.2
Income (per month)	Less than $1,000	41	8.8
	$1,000 ~ $2,999	95	24.4
	$3,000 ~ $4,999	117	31.1
	$5,000 ~ $6,999	93	23.5
	More than $7,000	56	12.2

The pledging campaign phase is operationalized as the stage of selected projects, coded as 1 for early projects and 0 for late projects. Early projects are defined as those with survey dates matching their launching dates, while late projects are those with end dates falling within a week. The current pledged amount ratio is also represented as a dummy variable, coded as 0 for projects less likely to reach their target pledge amount (progress less than 30%) and 1 for projects more likely to reach their target pledge amount (progress exceeding 300%). Control variables encompass the demographic information of the backers, as detailed in Table 2. These variables account for potential influences based on gender, age, education level, and monthly income. Additionally, the number of prior crowdfunding projects in which a backer has participated serves as a control variable, capturing the individual's crowdfunding experience. Project-related information includes project type, derived from Kickstarter.com project categories, and project location, obtained from the city and country information provided on Kickstarter.com. These variables are integrated into the analysis to account for potential variations associated with project characteristics.

4.4. Model specification

Our first model tests whether backers change their decision when they become aware of all available information. To test the possibility of the decision changing, we adopted a logit model to test the changes in backers' intentions. We ask about backers' initial decision by only providing pre-selected campaigns, then question what kind of information they considered. During this process, backers are informed about the information available on the platform. Lastly, we ask backers whether their initial decision changed; the variable takes the value of 1 if it changed, and 0 otherwise.

Table 2. Results of the logit models (Dichotomy, Dependent variable – Incomplete decision: changes in the initial decision).

	Model 1	Model 2	Model 3	Model 4	Model 5
Controls					
Intercept	−5.739***	−6.850***	−4.873***	−5.613***	−5.885***
	(1.097)	(1.170)	(1.149)	(1.211)	(1.240)
Pledging amount	0.726	0.601	0.817	0.611	0.619
	(0.553)	(0.562)	(0.577)	(0.581)	(0.585)
Pledged goal	0.702†	0.397	0.603	0.358	0.458
	(0.419)	(0.440)	(0.447)	(0.468)	(0.468)
Pledged ratio	−0.295	−0.107	−0.397	−0.198	−0.256
	(0.330)	(0.337)	(0.351)	(0.365)	(0.370)
Number of backers	0.119	0.239	0.106	0.217	0.185
	(0.313)	(0.324)	(0.337)	(0.346)	(0.352)
Remaining days	0.354	0.267	0.283	0.197	0.156
	(0.338)	(0.352)	(0.367)	(0.378)	(0.377)
Age	0.042***	0.049***	0.027*	0.032*	0.030*
	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)
Sex	−0.16	−0.173	0.0458	0.022	−0.030
	(0.251)	(0.260)	(0.272)	(0.282)	(0.286)
Education	0.252	0.198	0.277	0.215	0.263
	(0.182)	(0.188)	(0.194)	(0.200)	(0.202)
Income	−0.098	0.090	−0.067	−0.064	−0.089
	(0.134)	(0.136)	(0.146)	(0.147)	(0.149)
Crowdfunding experience	0.318***	0.307**	0.349***	0.339**	0.375***
	(0.096)	(0.099)	(0.103)	(0.105)	(0.107)
Campaign type	0.0235	0.012	0.007	0.002	0.018
	(0.025)	(0.026)	(0.026)	(0.026)	(0.027)
Late (Early = 0, Late = 1)		1.364***		1.173***	1.783***
		(0.306)		(0.302)	(0.370)
Success (Success = 1, Fail = 0)			−1.835***	−1.724***	−0.593
			(0.301)	(0.299)	(0.455)
Late * Success					−2.057**
					(0.649)
Log likelihood	−169.89	−167.40	−157.73	−167.41	−164.07
χ^2	126.1*	131.1*	150.4*	131.1*	137.7*
Pseudo R^2	0.270	0.281	0.323	0.281	0.296

Note: $N = 402$ ($^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$).

For the binary dependent variable, the logit regression is appropriate (Carayannopoulos and Auster 2010):

$$P(y_i = 1|x_i) = \frac{exp(x_i'\beta)}{1 + exp(x_i'\beta)}$$

The positive coefficient of β means that the probability of change in a backer's initial investment decision increases with that variable.

5. Results

The findings indicate the presence of incomplete decision-making among backers, with 50.9% of respondents altering their initial decisions after exposure to information available on the crowdfunding platform.

In Table 2, the results of the logit regressions on changes in backers' initial decisions are presented to elucidate the factors influencing these alterations. Our primary focus in this model centers on the pledging campaign phase and the current pledged amount ratio. Notably, in Model 2, the pledging campaign phase exhibits a positive and statistically significant coefficient ($\beta = 1.364$, $p < 0.001$). This signifies a 291%[1] increased likelihood of backers changing their pledging decision during the late campaign phase compared to the early phase. Therefore, Hypothesis 1 is substantiated by the empirical findings.

Regarding the current pledged amount ratio, as indicated in Model 3 of Table 2, a negative and statistically significant result is observed ($\beta = -1.835$, $p < 0.001$). This implies an 84%[2] reduced likelihood of backers changing their pledging decisions when the current pledged amount ratio exceeds 300%. This consistent result across the analysis supports our Hypothesis 2, indicating that backers are less likely to change their initial decision as the current pledged amount exceeds its goal amount.

Furthermore, in examining the interaction term, we identified a negative and highly significant coefficient ($\beta = -2.057$, $p < 0.01$). This suggests that the impact of the pledging campaign phase on changes in backers' decisions is further influenced by the current pledged amount ratio, emphasizing the intricate interplay between these variables. The result aligns with our expectations.

To elaborate on how the independent and control variables influence the direction of pledging intention change, we delve deeper by considering the types of intention changes: positive and negative. Positive intention change denotes a favorable shift in backers' intention to pledge compared to the initial decision, whereas negative intention change indicates an unfavorable shift in backers' intention to pledge compared to the initial decision. Table 3 illustrates that backers are more inclined to experience a positive change when the campaign has a greater pledged amount, while they tend to move in the opposite direction when the campaign is struggling to raise funds.

Regarding the results of control variables, several noteworthy findings emerge. Firstly, backers with more crowdfunding experience are more likely to change their initial decisions in both directions. This may be explained by prior experience providing backers with a nuanced understanding of the potential utility of participating in a campaign under high uncertainties, leading to more calculated decision-making. Additionally, the results suggest that herding behavior accelerates a greater willingness to participate in a project, and older backers exhibit more conservative purchasing patterns.

6. Discussion

Crowdfunding platforms have diligently worked to minimize information asymmetry between creators and funders, recognizing its pivotal role in the success of platform providers. Efforts focus on establishing trust by providing a wealth of information to entice increased contributions from backers. This information encompasses details on pledging status, creator information, campaign specifics, communication logs, and reward specifications. While strategies to bridge the information divide have been extensively studied (pertaining to the information provider aspect), there is a relative lack of understanding regarding how backers effectively utilize the provided information (pertaining to the information receiver aspect).

Previous literature assumes that, in the presence of information, backers adeptly leverage it to make rational and complete decisions. This study delves into the information receiver aspect, adding a nuanced perspective to the existing literature. From the perspective of an information receiver, the study addresses a fundamental inquiry: How does a backer leverage the information provided on a crowdfunding platform? Specifically, our proposition revolves around the assertion that backers exhibit incomplete decision-making tendencies on reward-based

[1] The coefficient 1.364 implies a 291% ($e^{1.364} = 3.91 - 1 = 2.91$) higher chance of the initial decision being changed.
[2] The coefficient −1.835 implies an 84% ($e^{-1.835} = 1 - 0.16 = 0.84$) lower chance of the initial decision being changed.

Table 3. Results of the logit models (Dichotomy: Dependent variables – Positive change, indicating a positive shift in backers' intention to pledge compared to the initial decision and Negative change, indicating a negative shift in backers' intention to pledge compared to the initial decision).

	Positive change			Negative change		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Controls						
Intercept	−1.938*	−1.926*	−2.317*	−5.897***	−5.943***	−5.485***
	(0.917)	(0.928)	(0.942)	(1.219)	(1.231)	(1.234)
Pledging amount	−0.327	−0.323	−0.380	0.378	0.367	0.429
	(0.425)	(0.427)	(0.427)	(0.555)	(0.557)	(0.557)
Pledged goal	0.371	0.375	0.437	0.561	0.540	0.472
	(0.360)	(0.363)	(0.364)	(0.447)	(0.453)	(0.451)
Pledged ratio	0.268	0.266	0.290	−0.147	−0.137	−0.191
	(0.322)	(0.324)	(0.327)	(0.361)	(0.363)	(0.361)
Number of backers	0.857**	0.854**	0.877**	−0.439	−0.431	−0.465
	(0.306)	(0.308)	(0.308)	(0.332)	(0.334)	(0.336)
Remaining days	0.046	0.047	0.079	0.435	0.428	0.425
	(0.301)	(0.302)	(0.303)	(0.372)	(0.373)	(0.379)
Age	−0.009	−0.009	−0.003	0.044***	0.044***	0.038**
	(0.011)	(0.011)	(0.011)	(0.012)	(0.013)	(0.013)
Sex	−0.212	−0.212	−0.281	−0.161	−0.160	−0.085
	(0.233)	(0.233)	(0.237)	(0.276)	(0.276)	(0.281)
Education	0.218	0.219	0.212	0.264	0.261	0.275
	(0.169)	(0.169)	(0.169)	(0.210)	(0.210)	(0.213)
Income	−0.007	−0.007	−0.010	−0.015	−0.015	0.004
	(0.123)	(0.123)	(0.123)	(0.148)	(0.148)	(0.150)
Crowdfunding experience	0.234**	0.234**	0.236**	0.460***	0.459***	0.465***
	(0.088)	(0.088)	(0.089)	(0.108)	(0.108)	(0.109)
Campaign type	−0.009	−0.009	−0.008	0.014	0.013	0.008
	(0.023)	(0.023)	(0.023)	(0.027)	(0.028)	(0.027)
Late (Early = 0, Late = 1)		−0.020			0.083	
		(0.253)			(0.303)	
Success (Success = 1, Fail = 0)			0.504*			−0.697*
			(0.246)			(0.289)
Late * Success		−0.020			0.083	
		(0.253)			(0.303)	
Log likelihood	−230.96	−230.96	−228.84	−178.92	−178.88	−175.93
χ^2	38.02***	38.02***	42.26***	56.92***	57***	62.9***
Pseudo R^2	0.076	0.076	0.085	0.137	0.137	0.151

Note: $N = 402$ ($^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$).

crowdfunding platforms. To provide a theoretical framework, we adopt the Stimulus-Organism-Response framework. Temporal and Social stimuli were employed: the pledging campaign phase, symbolizing time pressure or scarcity persuasion (Chen, Su, and Widjaja 2016; Lo et al. 2022), and the current pledged amount ratio, indicative of potential herding behavior or social influence (Chen, Su, and Widjaja 2016; Lo et al. 2022; Xue, Liang, et al. 2020).

The empirical findings highlight that backers make incomplete decisions, with approximately 50.9% of respondents experiencing a change in their initial decisions. This suggests that nearly half of the backers in our sample exhibited incomplete information processing during their initial decision-making processes. Among the two stimuli examined, the positive coefficient associated with the pledging campaign phase indicates that backers are more likely to alter their decisions when facing tighter time constraints. Notably, backers are more inclined to change their decision as time pressure or scarcity persuasion intensifies, aligning with prior research (Lo et al. 2022). Regarding the current pledged amount ratio, we observe that backers also exhibit herding behaviors. This herding behavior serves to alleviate uncertainties surrounding backers' initial decisions, leading them to reaffirm and stick to their original choices. The introduction of the interaction term adds a more dynamic dimension to changes in a backer's decision. Backers show a tendency toward incomplete information processing, suggesting a greater likelihood of changing their initial decisions under heightened time pressure and an increased likelihood that the pledged goal amount will not be achieved. Consequently, we conclude that time pressure and the interaction between time pressure and herding behavior act as stimuli for incomplete information processing on a crowdfunding platform.

While providing valuable insights into the dynamic nature of backers' funding decisions, this study acknowledges several limitations. The survey's use of Amazon Turk may limit the sample's representativeness, and the exclusively U.S.-conducted survey may not capture global variations. Expanding the sample to include diverse demographics and analyzing cultural differences is essential. Additionally, the focus on a limited number of campaigns warrants exploration of funding behaviors across categories, especially within Kickstarter.com's eight categories. The categorization of social pressure based on the pledged amount may be anecdotal, requiring further investigation within each category.

6.1. Theoretical implications

This study contributes to existing literature in several significant ways. First, our findings offer empirical evidence of the existence of incomplete decision-making in a crowdfunding context. While extensive literature exists on impulsive purchasing both online (Jeffrey and Hodge 2007; Lim, Lee, and Kim 2017; Verhagen and Van Dolen 2011; Wells, Parboteeah, and Valacich 2011) and offline (Crawford and Melewar 2003; Lee and Kacen 2008; Parsad, Prashar, and Tata 2017; Virvilaitė and Saladienė 2012) contexts, the possible incomplete decision in the context of reward-based crowdfunding is relatively unexplored. Inherent to reward-based crowdfunding platforms is a pronounced information asymmetry between creators (sellers) and backers (buyers), as the products and services on the platform are often not necessities. Many prior studies have explored the relationship between available information on a platform and backers' pledging intentions, assuming that backers engage in necessary information processing and reach rational decisions. However, our study reveals that over half of the backers made incomplete decisions, signifying a shift from their initial choices. This finding adds to the literature on online impulse-buying behaviors (Floh and Madlberger 2013; Huang 2016; Lim, Lee, and Kim 2017; Parsad, Prashar, and Tata 2017; Verhagen and Van Dolen 2011).

Second, we identify temporal (i.e., time pressure) and social (i.e., herding behavior) aspects as stimuli influencing incomplete decision-making. Recognizing these stimuli is crucial for understanding the factors behind incomplete funding decisions. As highlighted in previous studies, limited time and social impact are well-known mechanisms employed by crowdfunding platform providers to enhance the likelihood of reaching the target pledge. Paradoxically, our paper provides evidence that these stimuli can induce incomplete decisions among backers (Chen, Su, and Widjaja 2016; Lo et al. 2022; Xue, Liang, et al. 2020).

6.2. Managerial implications

Our research underscores that a backer's funding decision is a dynamic and intricate process influenced by various determinants. While prior studies have acknowledged the multitude of factors impacting funding decisions, crowdfunding platforms actively strive to address information asymmetry between creators and backers—a critical consideration, especially when creators offer products in early stages or lack an established reputation. To mitigate this asymmetry, crowdfunding platforms emphasize comprehensive information, differentiating themselves by featuring exclusive campaigns (i.e., reputable creators) or offering insightful information to maximize success rates.

Despite the wealth of information provided on platforms, our findings suggest that backers may focus on only a select few pieces of information during their decision-making process. Instead of overwhelming backers with extensive information, we advocate for a tailored approach, providing customized information based on backers' interests, age, education level, and crowdfunding experience. This personalized strategy aims to improve the overall effectiveness of crowdfunding platforms.

Conflict of interest

The authors declare that there is no conflict of interest.

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