

## **eWOM in reward-based crowdfunding platforms: a behavioral approach**

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### ***Abstract***

*Electronic word of mouth (eWOM) plays a crucial role in influencing purchasing decisions of consumers in situations governed by asymmetric information. In this context, investors in reward-based crowdfunding platforms might modify their purchasing intentions according to recommendations of peers and/or experts. The goal of this paper is to analyze the power of eWOM to shape consumers' purchasing decisions. We do so by conducting an experiment through Amazon Mechanical Turk (AMT). This online experimental tool allows for an instant access to a large and culturally diverse subject pool, facilitating behavioral research requiring large amounts of subjects. By recreating a reward-based crowdfunding webpage and tracking how consumers' choices vary due to recommendations of other buyers and experts, this research confirms eWOM power in modifying purchasing decisions, as well as the prevalence of other buyers' recommendations over those of experts. Additionally, it is tested AMT as a crowdsourcing platform that enables scholars to carry out online research related to economics and social sciences.*

**Keywords:** *eWOM; Internet; experimental economics; crowdfunding; crowdsourcing.*

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## **1. Introduction**

Word of mouth (WOM) has been analyzed as an expression of interpersonal communication about products and services. Its power to influence consumer product judgment has been approached both theoretically and empirically, in particular, with the uptake of the Internet, which has broadened the existing channels of communications (Lee & Youn, 2009). It has led to the emergence of electronic word of mouth (eWOM), considered an influential instrument in the field of marketing. Ultimately, in a process of product choice, consumers search for information posted by previous customers and experts to reaffirm their original buying decisions (Erkan & Evans, 2016).

Crowdfunding has revolutionized capital raising as an alternative way of finance that connects those seeking funding for their business endeavors and philanthropic causes with individuals interested in investing or donating. Its revolutionary character allows for bypassing the intermediaries of a traditional supply chain making the funding process more transparent and democratic. Thus, it has the potential to foster innovation as it makes it easier for risky and innovative start-ups to obtain funds. Furthermore, the crowd provides feedback to the entrepreneur while interacting in the funding process, for example, delivering additional information on the actual demand for a product or about consumer preferences (Schwienbacher, 2018).

However, there exists asymmetric information between fund seekers and capital providers as the former have superior knowledge of their projects whereas the latter receive limited information (Agrawal *et al.*, 2014). Due to this, electronic word of mouth (eWOM) plays a crucial role in prompting the investment decision. Often, backers are uncertain about the ability of the campaign promoters to collect enough contributions to reach the funding goal. In this context, we designed an economic experiment launched through Amazon Mechanical Turk (AMT) with the goal of analyzing the effect of eWOM on the investment decision in reward-based crowdfunding environments. Simultaneously, we tested AMT as an experimental tool for recruiting large number of subjects through the Internet. Results confirm the power of eWOM to modify purchasing decisions as well as prevalence of other buyers' recommendations over those of experts.

## **2. Literature Review**

As explained by Belleflamme *et al.* (2014), the concept of crowdfunding consists in several individuals, reached mostly through the Internet, providing financial resources to support the success of all kinds of initiatives. It is derived from a broader concept, crowdsourcing, which encompasses outsourcing a task previously performed by an employee to a large mass of people in the form of an online open call. Specifically, the reward-based

crowdfunding model is mainly used by entrepreneurs to finance the manufacturing of new products. Rather than borrowing money from banks, funds are collected from the crowd.

Backers are always compensated either with a tangible reward –e.g. a sample of the final product– or an intangible one –e.g. having their name written in the product packaging. Ultimately, crowdfunding can play a substantial role in facilitating the flow of funds to risky and innovative start-ups as well as small and medium-sized companies, which might face serious challenges to get funded after the recent financial crisis (Cosh *et al.*, 2009). Crowdfunding platforms, as many other investment environments, are dominated by asymmetric information between fund seekers and capital providers. In this situation, it is likely that eWOM –i.e. sharing experiences and opinions through the internet– triggers herding behavior. Such conduct can be generally defined as a form of social behavior convergence aligning individual thoughts or behaviors with those of the group through non-coordinated interaction (Raafat *et al.*, 2009). More specifically, herding can be rational, when observational learners make unbiased inferences from the behavior of others (Simonsohn & Ariely, 2008), or irrational, as a mere imitation process where investors just go along with the crowd. Therefore, hypotheses are formulated as follows:

H1: eWOM influences investors' beliefs and modifies initial investment decisions.

H2: Recommendations by peers will influence investors' decisions to a large extent than those of experts.

Previous empirical research has analyzed how recommendations made by peers and experts affect online product choice (Huang & Chen, 2006) as well as the impact of electronic word of mouth (eWOM) over the investment decision (Bi *et al.*, 2017). However, to the author's knowledge, this is the first experiment that recreates a crowdfunding webpage with an online economic experiment in which subjects are rewarded according to performance.

### **3. Research Methodology**

#### ***3.1. Experimental design***

In order to explore how the financing decision of investors varies due to comments of peers and experts in reward-based crowdfunding platforms, we designed an economic experiment conducted through Amazon Mechanical Turk (AMT) where 847 subjects participated, 500 from the US and 347 from India. It recreated a crowdfunding webpage, such as *Go Fund Me* or *Kickstarter*, where subjects were asked to virtually contribute \$15 to one of two projects aiming to publish a book. Both projects had the same budget requirement, \$5,250, and deadline date, January 31<sup>st</sup>, 2019, which were kept constant. A project would be successful if it reached the budget threshold by the specified closing date. The experiment had two treatments, one *without information* and the other *with information*. In both

treatments two projects that intended to publish cookery books where shown for the experimental subjects to choose.

The experimental design was conceived to analyze how the reviews of peers and experts influenced the financing decision. Peers are considered those of equal standing to the normal public of a reward-based crowdfunding webpage, that is, investors that provide funds to projects in the expectation of receiving the promised products if the fundraiser succeeds. Conversely, experts are individuals with greater knowledge and experience about the specific product offered, in this case, cookery books. The treatment *without information* asked participants to virtually contribute \$15 to one of the two projects, *Book A* or *Book B*, according to their cover. After, the treatment *with information* showed investors three reviews for each book. *Book A* had two negative comments of peers and one positive of an expert. Oppositely, *Book B* had the positive judgment of two peers and the negative one of an expert. Besides, it was indicated that both projects had raised \$450 from 30 backers. Contributions of early investors were kept identical for both projects, being the reviews the only differentiating information.

### **3.2. Amazon Mechanical Turk (AMT) as a tool for conducting experiments**

Amazon Mechanical Turk (AMT) is a crowdsourcing marketplace allowing employers –called *requesters*– to post tasks –called *HITs*, i.e. Human Intelligence Tasks– to be made by the platform’s online labor market –composed of the so called *workers*– in return for a wage –called *reward*–. Requesters design the HITs either by using the templates offered or by creating their own template with Hyper Text Markup Language (HTML). Before posting a task, requesters decide the number of respondents needed, the time allotted for each respondent to complete the HIT as well as its expiration. Some of the criteria for selecting subjects within the platform can be chosen at no cost –e.g. HIT Approval Rate (%), location and number of HITs approved– whereas the rest involve additional costs –e.g. gender, vacation frequency, job function, primary news source or daily internet usage. Requesters who need respondents of a specific profile use the latter.

Previous researchers have highlighted the strengths and pitfalls associated with conducting experimental research on AMT. Paolacci *et al.* (2010) pointed out how its supportive infrastructure allows integrating various stages of the research process in a single platform. They also noted that subjects are identifiable by a *Worker ID*, what allows researchers to perform longitudinal studies. Besides that, Mason & Siddharth (2011) emphasized the access to a large and culturally diverse subject pool as a core strength that facilitates cross cultural comparisons. Interestingly, they also mentioned how AMT maximizes research efficiency while speeding up the experimental cycle. Furthermore, its low cost and built-in payment mechanism makes it competitive when compared to costly laboratory-based experiments. Despite quality concerns, Buhrmester *et al.* (2011) concluded that workers are willing to complete simple tasks in exchange for small compensation, what suggests they

are not primarily driven by financial incentives. Although they claimed there exists sensitivity between participation rates, compensation amounts and time commitments, they maintained participants could be recruited both rapidly and inexpensively.

Concerning pitfalls, Johnson & Borden (2012) noted the difficulty to ensure subjects devote a reasonable amount of time to complete an experiment. To tackle this problem, they proposed setting a response time benchmark, introducing Instructional Manipulation Checks (IMCs), firstly introduced by Oppenheimer *et al.* (2009), and choosing workers with an approval rating of 95% or above in order to minimize the likelihood of randomly selected answers. Also, it can be underlined the technical complexity associated with conducting experiments that require real-time interaction among participants. Regarding distractions faced by subjects, a survey by Chandler *et al.* (2013) pointed at interaction with other people as the main one. Data reliability is a major concern for many researchers using AMT. Several studies have tried to assess the validity of AMT for conducting behavioral research –e.g. see Buhrmester *et al.* (2011) or Holden *et al.* (2013). Overall, they tend to conclude that benefits in terms of science democratization and instant access to a large subject pool outweigh the weaknesses of an uncontrolled online experimental environment.

#### **4. Results**

As shown by Figure 1, recommendations of peers were more significant than those of experts at influencing investors' beliefs. In *Treatment I*, 59.4% of subjects chose Book A while 40.6% of them chose Book B. In *Treatment II*, Book A was only supported by 39.3% of subjects while Book B, 60.7% of them. Information released showed that Book A had two negative recommendations of two peers and a positive of an expert and the reverse was shown for Book B. Therefore, Book A was endorsed by experts and Book B by peers. The shift of subjects from financing Book A to Book B may have occurred either as a result of a rational reasoning, due to peers' recommendations being understood as a sign of quality by potential investors, or an irrational one, as a mere imitation of the crowd. In any case, it is confirmed the power of eWOM to influence beliefs and, specifically, peers prevalence over experts at modifying investors' choice.

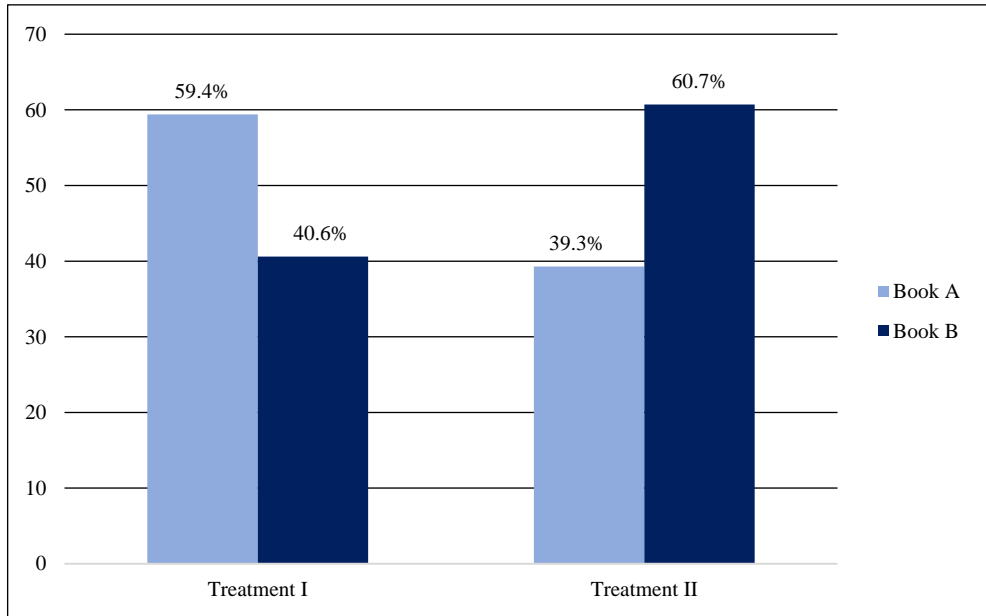


Figure 1. Testing the influence of peer and expert opinion on the investment decision.

Table 1 shows the frequencies and p-values by gender and country. On one side, Panel A displays the change in subject choice between *Treatment I* (without information) and *Treatment II* (with added information) testing the null hypothesis  $H_0: A/B = B/A$ .  $A/B$  denotes subjects changing from funding Book A in *Treatment I* to funding Book B in *Treatment II*, and  $B/A$  denotes subjects changing from funding Book B in *Treatment I* to funding Book A in *Treatment II*. On the other hand, Panel B exhibits subject choice in *Treatment II* testing the null hypothesis  $H_0: A = B$ . Regarding Panel A, all the shifts from the former investment decision to the one made after the information was released were significant. In overall terms, 212 subjects shifted from Book A to Book B while only 42 did so in the opposite direction.

**Table 1. Testing the influence of peer and expert opinion on the investment decision. Frequencies and p-values by gender and country.**

<b>Panel A. Change in subject choice between Treatment I and II (with added information)</b>							
H0: A/B = A/B		Men		Women		Men + Women	
Country		A/B*	B/A	A/B	B/A	A/B	B/A
USA	Number	52	3	83	4	135	7
	%	94.55	5.45	95.40	4.60	95.07	4.93
	Proportion test	p < 0.0001		p = 0.017		p < 0.0001	
India	Number	49	26	28	9	77	35
	%	65.33	34.67	75.68	24.32	68.75	31.25
	Proportion test	p = 0.011		p = 0.005		p < 0.0001	
USA + India	Number	101	29	111	13	212	42
	%	77.69	22.31	89.52	10.48	83.46	16.54
	Proportion test	p < 0.0001		p < 0.0001		p < 0.0001	
<b>Panel B. Subject choice in Treatment II (with added information)</b>							
H0: A = B		Men		Women		Men + Women	
Country		A	B	A	B	A	B
USA	Number	86	164	83	167	169	331
	%	34.40	65.60	33.20	66.80	33.80	66.20
	Proportion test	p < 0.0001		p < 0.0001		p < 0.0001	
India	Number	121	129	43	54	164	183
	%	48.40	51.60	44.33	55.67	47.26	52.74
	Proportion test	p = 0.613		p = 0.267		p = 0.315	
USA + India	Number	207	293	126	221	333	514
	%	41.40	58.60	36.31	63.69	39.32	60.68
	Proportion test	p < 0.0001		p < 0.0001		p < 0.0001	

Concerning Panel B, investors opting for Book B when compared to those choosing Book A in *Treatment II* were significant for all participants from the US but not significant for those of India. Although investment shifts experienced from *Treatment I* to *Treatment II* also favored Book B for the case of India, at the end, the number of investors supporting both books was not significantly different. Thus, we observed the prevalence of peers over experts at influencing investors' beliefs of Indian subjects but not as strongly as for the case of US subjects.

## **5. Conclusions**

In order to analyze how electronic word of mouth (eWOM) influences the investment decision in reward-based crowdfunding platforms, it was conducted an economic experiment using Amazon Mechanical Turk (AMT), an internet-based crowdsourcing platform. According to results, eWOM influences investors' beliefs and, in so doing, modifies initial investment decisions. Additionally, recommendations of other buyers were found to be more influential than those of experts. It has practical implications for those seeking funding in crowdfunding platforms given that, in the light of these results, it becomes more important to encourage positive recommendations by previous buyers rather than excessively relying in experts' appraisal. Even though marketing campaigns often rely on famous experts as a way to increase sales and consumers' loyalty as well as encourage investors to contribute funds, current research puts the spotlight on peers for their power to influence others who share similar aims and motivations.

Further research should try to model the influence of eWOM over backers' investment decision in crowdfunding platforms building on theories such as signaling and herding behavior. It should also try to clarify if backers behave rationally based on observational learning or simply mimic others' behavior.

Ultimately, we tested AMT as a tool for experimental and behavioral research allowing for an instant access to a large and culturally diverse subject pool. Experimental research is usually constrained by costly laboratory-based experiments with small pools of subjects. AMT helps to overcome this issue by widening the subject pool that can be recruited both rapidly and inexpensively through Internet.

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