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## Exploring Crowdfunding Success in Cross-Culture Framework

(Work in Progress)

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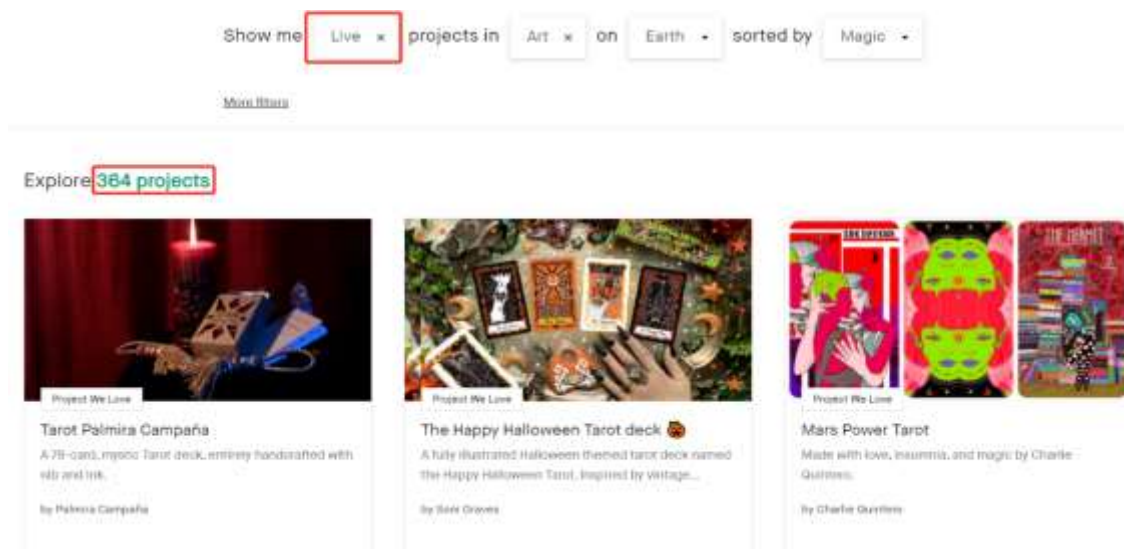
### ABSTRACT

With the rapid development of reward-based crowdfunding, how to make creative projects stand out is of great significance to entrepreneurs and other stakeholders. This study tends to explore the impact of the number of projects within the same category on crowdfunding success and the impact of spatial clustering effect on crowdfunding success. We draw upon a sample of 11,576,590 daily observations of 331,104 projects from Kickstarter, finding a negative association exists between the number of projects within the same category (NPSC) and crowdfunding success, which means that the concurrent impact of the number of projects within the same category (NPSC) on crowdfunding success displays the much larger competitive effects. The preliminary findings are discussed, and it is hoped that this work can be used to explore the key factors influencing the fundraising success of reward-based crowdfunding projects.

*Keywords:* Projects within the same category, crowdfunding success, national cultural values

### INTRODUCTION

Crowdfunding has been a popular and effective way to help entrepreneurs raise funds for their innovative ideas on a digital platform referring to a website or organization operated by startups or industry incumbents, supporting projects seeking investment and investors with funds together (Dushnitsky *et al.*, 2016). For example, Kickstarter, the leading reward-based crowdfunding platform, has raised more than \$5440 million for supporting 209,648 numerous creative ideas of various categories off the ground until October 12, 2021, with a crowdfunding success rate of nearly 39.16% (Kickstarter, 2021). It shows that there is still about 60 percent of projects struggling to meet their funding goals and attempting to explore the hints to enhance their crowdfunding success, which is defined here as the amount of money raised by crowdfunding projects that meet or exceed the pre-determined fundraising goals (Wang *et al.*, 2018). Therefore, to promote crowdfunding success, previous studies have explored the factors influencing the success of reward-based crowdfunding projects, including some project-level signals, such as linguistic style of crowdfunding pitches (Parhankangas & Renko, 2017), comments from backers (Petitjean, 2018), and also entrepreneur-level factors such as narcissism (Butticè & Rovelli, 2020) and successful crowdfunding experience (Koch & Siering, 2019). Besides, the impact of projects and founder features (Lagazio & Querci, 2018; Skirnevskiy *et al.*, 2017) and pledging environment (Koch & Siering, 2019; Mollick, 2014) have also been verified to have effects on crowdfunding success.



Source: Kickstarter Platform  
Figure 1: NPSC presented in Kickstarter platform.

However, there is limited understanding of the effect of the number of projects within the same category on the funding success of the projects. The number of projects within the same category (NPSC) refers to projects that have the same or similar attributes and are classified as the same category in the online crowdfunding platform, as shown in Figure 1 below. For example, in the art category, the corresponding NPSC for a focal project is 364. Investors can filter live projects within the same category by category in the online crowdfunding platform.

In addition, considering that the cultural orientation of different countries may affect the investment decisions of investors in crowdfunding, this article aims to explore the impact of NPSC on crowdfunding success and explore the differences in its influence between countries with different cultural values.

We collect and analyze data of 331,104 crowdfunding projects and 11,576,590 records of daily pledges from Kickstarter. We use logistic regression to explore the influence of NPSC on crowdfunding success. We adopt spatial measurement methods and use cultural dimensions of power distance (PDI), individualism/collectivism (IDV), masculinization/feminization (MAS), and uncertainty avoidance (UAI) to construct a spatial weight matrix to determine the spatial measurement model. Our findings primarily suggest that the NPSC has a significant negative impact on the crowdfunding success of the focal project, indicating the negative competitive effect of the project market crowding outweighs the positive spillover effect.

## LITERATURE REVIEW

### Crowdfunding Success

Scholars have studied the antecedents of crowdfunding success from project features, founder-related factors, and the pledging process. Lagazio and Querci (2018) find that entrepreneurs can communicate with investors and promote fundraising activities via pictures and pitch videos. Projects in different categories with sustainability orientation will affect the ability of entrepreneurs to acquire financial resources from supporters differently (Calic & Mosakowski, 2016). Such literature considers the number of live projects as control variables without probing the effect of NPSC thoroughly. Another group of scholars has studied founder features. For example, Courtney *et al.* (2017) suggest that the founder's previous successful crowdfunding experience has a positive impact on the possibility of crowdfunding success for the following crowdfunding project. Other studies examined the effects of factors affecting the pledging process. For instance, Wang *et al.* (2018) emphasize the importance of founder-backer interaction in crowdfunding success. These studies consider the effects of various factors for crowdfunding success but neglect the number of homogeneous competitors (i.e., projects within the same category), which could play an important role in crowdfunding success.

### Number of Competitors

A question that has aroused much attention in the field of marketing and economics is how the number of competitors and market outcomes are associated. Prior studies have explained the impact of the number of competitors. For example, Grewal and Lindsey-Mullikin (2006) provide evidence that when the number of competitors increases, consumers are less likely to engage in additional searching in the online shopping context. Search literature regards the number of competitors as a moderator to explore the impact of increased competition intensity on consumer search behavior and product price (Janssen & Moraga Gonzalez, 2004).

### Indirect Network Externality

The indirect network externality is manifested as the increase in the use of a certain product will affect the price and sales of similar complementary products (Podoyntsyna *et al.*, 2013). The indirect effects of network externalities also exist in the online crowdfunding context. The small number of crowdfunding projects receiving large amounts of funding have positive spillover effects on other projects in the platform by attracting more potential investors, and the magnitude and direction of such network externalities varied according to the project category (Liu *et al.*, 2015). Our study extends the findings of previous studies by expanding the sample size to verify and explore the indirect network externalities which exist in different clusters of crowdfunding projects.

### Search Cost and Consumption Intention

Most existing literature reveals how search costs affect consumers' behavior. For example, Wang and Sahin (2018) incorporate search cost into consumer choice behavior and investigate a consider-then-choose choice model. Consumers search for information in the consideration stage to eliminate uncertainty, and then they choose the one with the highest utility. The increasing search costs in online markets may have strong adverse effects on consumer welfare, and online markets should formulate and introduce policies to reduce consumer search costs and further stimulate search and entry. However, there are few studies referred the search cost of the investors in the crowdfunding platform context. To fill this gap, from the perspective of NPSC, this research enriches the mechanism of search cost theory in the context of online crowdfunding.

### National Cultural Values

National cultural values are a series of beliefs and values displayed by people in a country, and it is also the product of long-term socialization. The cultural dimension explored by Hofstede is widely used in empirical research. From the perspective of basic value needs, Hofstede has determined four value dimensions (power distance, individualism/collectivism, masculinization/feminization, and uncertainty avoidance) by investigating and studying the values of 40 countries. The

Hofstede cultural dimension is generally considered to be a representative dimension that can reflect the differences in the traditional culture of various countries and a value dimension that focuses on national culture.

Power distance describes the acceptance of unequal distribution of power among people in a country or an organization (Hofstede, 1983). In countries with a high-level power distance, people tend to accept a hierarchical structure with large gaps. On the contrary, most people expect power to be distributed as equally as possible. Individualism/collectivism distinguishes the importance of individuals or groups in national cultural values. Countries with individualistic cultures pay more attention to the needs, interests of individuals and their immediate family members, while countries with collectivist cultures pay more attention to collective needs and interests (Hofstede *et al.*, 2005). Masculinization/feminization emphasizes the degree to which masculinity values dominate the society or group. Highly masculine groups emphasize the degree of attention to others, the quality of work and life, the qualities of humility, cooperation, and caring for others (Hofstede *et al.*, 2005). Uncertainty avoidance is defined as the way members of society deal with uncertainty and risks (Hofstede, 1983). Groups with higher uncertainty avoidance are more cautious, unwilling to take risks, and do not violate social and cultural norms. Groups with lower uncertainty avoidance are more likely to accept decisions with certain risks (Hofstede, 1983). This article will use the Hofstede cultural dimension to construct a cross-culture framework and explain the influence of NPSC on crowdfunding success.

## DATA AND METHOD

### Data

To investigate the cross-country differences in the impact of NPSC on crowdfunding success, we collected data about crowdfunding projects launched on Kickstarter, the most well-known and largest reward-based online crowdfunding platform in the United States, which follows an “all or nothing” pattern. Kickstarter is greatly appropriate for the aim of this research as the scale of this platform is large enough, and project classification is detailed (e.g., Arts, Film, Games, and Music). A sufficient sample size allows us to explore the factors that affect crowdfunding success in the segmented market of the same project category. Data on crowdfunding projects launched on Kickstarter has already been used in a number of studies in the field of online crowdfunding (Burtch *et al.*, 2018). At the same time, we obtained data on the Hofstede cultural dimensions (power distance, individualism/collectivism, masculinization/feminization, uncertainty avoidance) of the countries covered by the sample from clearlycultural.com. After merging different project information data, we assembled a panel data comprised 11,570,590 observations of 331,104 crowdfunding projects spanning from 2009 to 2018 year and covers all categories classified by the Kickstarter platform.

### Variables

#### Dependent variable

Our target outcome is fundraising success. Thus, we construct the dependent variable *CrowdfundingSuccess*, which has been used in previous studies (Butticè & Rovelli 2020; Yuan *et al.*, 2016). *CrowdfundingSuccess* is an indicator variable equal to 1 if the crowdfunding project reaches the funding goal within the funding period. Otherwise, the value is 0.

#### Independent variable

For the explanatory variable, *the number of projects within the same category (NPSC)* is used to measure the number of other live crowdfunding projects within the same category for a focal project.

### Empirical Model and Specification

As discussed above, we extend our analyses for the impact of NPSC on crowdfunding success for a focal project, and it is appropriate to employ a baseline logistic regression model to examine the effects. Our complete model specification is given by:

$$CrowdfundingSuccess_{it} = \alpha + \delta * NPSC_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

*CrowdfundingSuccess<sub>it</sub>* is a dummy variable. It equals 1 if the focal crowdfunding project *i* reaches the funding goal on day *t*, and otherwise, the value is zero. *NPSC<sub>it</sub>* represents the number of live crowdfunding projects within the same category for the focal project *i* that exist in the crowdfunding market on day *t*. The parameter  $\delta$  is coefficient.  $\mu_i$  and  $\lambda_t$  represent project fixed effects and day fixed effects.  $\varepsilon_{it}$  denotes the error term. We use robust standard errors clustered at the projects level to deal with potential issues of heteroscedasticity.

Based on different entrepreneurial resource endowments, economic conditions, and cultural values, the development of reward-based crowdfunding in various countries is generally uneven, but the development of neighboring countries is prone to the convergence of crowdfunding results, resulting in spatial interaction between crowdfunding activities. By introducing spatial effects into the baseline model, according to the different impact methods of the spatial items, we constructed the following three spatial panel models containing the relationship between NPSC and crowdfunding success.

The spatial lag model (SLM) adds the spatial lag of the explained variable to the classic econometric model, indicating that crowdfunding results of the research unit are not only affected by the local explanatory variable but also depend on crowdfunding results in its neighboring regions. The formula is as follows:

$$CrowdfundingSuccess_{it} = \alpha + \rho \sum_{j=1}^{23} w_{ij} CrowdfundingSuccess_{jt} + \delta NPSC_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \varepsilon_{it} \in N(0, \sigma^2 I_n) \quad (2)$$

$w_{ij}$  is the element of row  $i$ , and column  $j$  of the standardized  $N \times N$  dimensional spatial weight matrix  $w$ .  $\mu_i$  and  $\lambda_t$  represent project fixed effects and time fixed effects.  $w_{ij} CrowdfundingSuccess_{jt}$  refers to the spatial lag term of the explained variable,  $\rho$  is the spatial lag autoregressive coefficient, representing the magnitude and direction of the spatial spillover effect,  $\mu_i$  and  $\lambda_t$  represent project fixed effects and time fixed effects.

The spatial error model (SEM) adds the neglected spatial error term to the classic econometrics model, which means that the crowdfunding result of the research unit depends on the observed set of local features and the spatial error term of the neighboring research unit. The formula is as follows:

$$CrowdfundingSuccess_{it} = \alpha + \delta NPSC_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \varepsilon_{it} = \nu \sum_{j=1}^{23} w_{ij} \varepsilon_{jt} + \varphi_{it}, \varphi_{it} \in N(0, \sigma^2 I_n) \quad (3)$$

$\nu$  is the spatial residual autocorrelation coefficient, and the other variables have the same meaning as above.

The spatial Durbin model (SDM) is a synthesis of the above two spatial panel models. It is believed that there is a spatial correlation between the project crowdfunding results of the research unit and the variables in the neighboring regions. The formula is as follows:

$$CrowdfundingSuccess_{it} = \alpha + \rho \sum_{j=1}^{23} w_{ij} CrowdfundingSuccess_{jt} + \delta NPSC_{it} + \theta \sum_{j=1}^{24} w_{ij} NPSC_{jt} + \mu_i + \lambda_t + \varepsilon_{it}, \varepsilon_{it} \in N(0, \sigma^2 I_n) \quad (4)$$

$\theta$  is the elastic coefficient of the lag in the independent variable space, and the other variables have the same meaning as above.

### PRELIMINARY FINDINGS

We formally conduct our analyses by using a panel logit framework to evaluate the effect of NPSC on crowdfunding success. Our regression estimates suggest that the more projects within the same category existed in the online crowdfunding market, the lower the probability of crowdfunding success. That is, market crowding within the same categories is not conducive to successful crowdfunding projects. The competitive effect among projects within the same category is greater than the positive spillover effect, which is in line with the 60% failure rate of the failure rate of project fundraising across the platform (Kickstarter, 2021).

The next steps for this research are to conduct a series of analytical processes, including constructing a spatial measurement model based on formula (1), analyzing the results of spatial econometric analysis, and results of sub-sample regression. By conducting the analytical processes, we can find the role of cultural differences in the relationship between NPSC and crowdfunding success.

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