NBER Call for Research Proposals: Productivity, Innovation and Entrepreneurship Program (Digitization group)

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Title: A Model of Dynamic Donor Behavior on a Crowdfunding Platform

by Jin-Hyuk Kim and Peter Newberry

Statement of the Problem

Kickstarter.com is a crowdfunding platform, which helps bring creative projects to life by raising financial contributions from a large number of people via the Internet. As of December 2014, 73,264 projects were successfully launched on this platform and 7.3 million donors made pledges in over 1.3 billion dollars. Individual project backers commit their pledges to a project and are charged only if the total amount pledged exceeds the goal by the end of the funding period. About 40% of the projects posted on Kickstarter do eventually reach their funding goal.

The main problem at issue is why some projects are successfully funded while others fail and and to what extent the institutional features of Kickstarter play a role in the success or failure. Most (if not all) of the crowdfunding platforms allow potential backers to observe how many people have pledged to date and how much has been pledged. This feature is likely to have a non-trivial impact on an individual backer's choice to pledge or not. For instance, seeing the current level of funding may influence one's assessment of whether a project will reach the funding goal.

The purpose of our project is to build a tractable structural model of backer's choice and estimate it using a unique data set. Our model captures the fact that people tend to donate to projects which are likely to be successful. Specifically, we allow a potential donor's utility to be a function of the likelihood a project reaches its goal. This belief is formed via Bayesian updating and is based on the current level of pledged funding, the time remaining in the funding period, and the project characteristics. Utility is also assumed to be a function of other observable project characteristics such as the project's category.

The data used to estimate come from two main sources. First, we obtained the number of backers and amount of pledges for Kickstarter projects (around 30,000) for each day the project was active. Because we are interested in the dynamics of backer decision, it is especially important that we observe backer decisions over time. These data also provide the project characteristics. Second, we collected a measure of the daily website traffic originating from social networking platforms (mostly Twitter but it can also include Facebook, etc) for each

project. While not a perfect measure of overall traffic, this provides us some measure of how many donors choose to take the “outside option” of not donating.

Research Design

In our framework, potential backers arrive and decide whether or not to pledge. The project backers can be friends and family (FF) who make donation decisions independently of how much has been pledged so far, or they can be third-party visitors who consider the probability that the project is going to reach its funding goal based on this assessment. A fraction of the general visitors may decide to pledge. Hence, the total number of donors predicted by the model is the sum of the FF and the visitors who decide to donate.

To empirically estimate the model, it is crucial to get some measure of third-party visitors, which we approximate using the website visits to the Kickstarter projects that were originated from social networking activities, and that of FF, which we estimate using behavioral definitions such as single-project backers. Identification of the model is relatively straightforward given the website traffic data. For instance, the project quality parameter can be identified by the differences in donor behavior across projects and time conditional on project characteristics and the probability of successful funding (based on rational expectation).

Implications and Importance

The crowdfunding model has a number of benefits: it offers project creators alternative sources of funding; and it also allows creators to test the waters for unproven concepts in various subject categories. The economics literature, however, has not paid enough attention to the aforementioned observational features when it comes to policy recommendations. With this project, we can examine closer the role of information in this market. That is, we can address the question of how the information observable to potential donors affects the distribution of successful and failed projects. Through counterfactual policy experiments, we will be able to identify potential sources of inefficiencies in the prevailing crowdfunding model.

Budget

The budget request for this proposal is $15,000, which will be equally split between the two co-PIs. Given $7,500 budget for each, we will put $2,500 into our research account to hire graduate RAs on an hourly basis and cover expenses (e.g., submission fees and travels) related to this project. For instance, it can cover travel expense so that the co-PIs can meet and work together at least once, and present the result at conferences. We propose that the remaining $5,000 is used for our summer support. We have no other financial support for this research.