論文題目：

Factors Affecting Crowdfunding Outcomes: A Case Study of Kickstarter

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Abstract

Crowdfunding is growing up as an alternative way of raising funds in recent years. It allows new entrepreneurs to solicit financial support from the crowd on the Internet. In this paper, we analyze data from Kickstarter, one of the famous crowdfunding platforms in the USA, seeking to figure out influential factors affecting fundraising outcomes including project success and funding level. We extend former research and take new factors into consideration. Analysis results based on 32,177 projects initiated in the USA and held between May 2009 and 2014 indicate that fundraising goal, duration, positively emotional words in description have negative effects on project outcomes. Urban income, title length, previous projects count launched by the same creator and competing projects count initiated in the same type are positively associated with the outcomes. Further, it is also shown that more urban income or previous project count launched by the same creator are more likely to be overfunded. Additionally, our findings also have evidences of the notable influences of type, region as well as the interaction effects between type and urban development. These results provide insights into the influences of factors on project consequences, and give fundraisers some advice on fundraising.

Keywords：Crowdfunding、Kickstarter、Text Analysis、Funding Level、Overfunded

Chapter 1. Introduction

New entrepreneurs may suffer from lack of funds in early-stage, and usually secure funds from angel investors, banks, venture capitals and even friends and family (Kuppuswamy & Bayus, 2013). However, it is difficult for a new entrepreneur to borrow money from banks, so many of them has turned to crowdfunding to seek financial support in recent years.

Crowdfunding is a relatively new phenomenon. Gerber and Hui (2013) showed the motivations and deterrents of funders and project creators for participating in crowdfunding. Raising venture capital, expanding awareness of work, gaining approval are important purposes of creators. Funders' motivations involve collecting rewards, helping others and supporting a cause. Topics of user behavior are also investigated (Kuppuswamy & Bayus, 2013). Additionally, there are some works about factors influencing successful fundraising. Past studies also revealed the influences of geographic distance and culture difference among lenders and borrowers on successful projects (Burtch, Ghose, & Wattal, 2014). A new product preannouncement theory were taken as the base to investigate factors influencing successful projects (Joenssen, Michaelis, & Müllerleile, 2014). Factors such as fundraising goal, raising duration, project updates, levels of reward were shown to have notable influences on project outcomes (Cumming, Leboeuf, & Schwienbacher, 2014; Joenssen et al., 2014; Kuppuswamy & Bayus, 2013; Lambert & Schwienbacher, 2010; Mollick, 2014).

Generally, project outcomes are affected by project, creator and external factors. Past studies proved notable effects of project factors such as fundraising goal, duration and title length. Creator factors, such as previous experience of initiating projects, were also shown to have influential effects. External factors like competing projects were shown in previous literature, too. This study extents former research and add some new potential factors including urban development and linguistic description. There are some past studies analyzing effects of geographic distance and project description on fundraising outcomes, but urban development and linguistic project description weren't took into consideration. Moreover, past studies often focused on the result of success. Only few studies took funding level into account, but we think realizing factors affecting funding level is also meaningful and important. There are still differences between failed projects with different funding level. As stated by Mollick (2014), crowdfunding projects tend to succeed by relatively small margins but fail by large margins. However, there are some successful and overfunded projects, and we want to figure out the reasons. To summarize, the purpose of this study is to explore the links between factors and project outcomes including project success, funding level and overfunding.

Chapter 2 Literature Review

2.1 Crowdfunding

Crowdfunding is a novel way for entrepreneurs to solicit external financing within a certain time limit (generally a few weeks). Mollick (2014) also indicates that the notion of crowdfunding is inspired by the model of crowdsourcing and micro-finance. It is a process of soliciting financial support from a large number of funders in exchange of a variety of rewards via the Internet without standard financial intermediaries (Belleflamme, Lambert, & Schwienbacher, 2014; Gerber & Hui, 2013; Kuppuswamy & Bayus, 2013; Mollick, 2014).

Some projects usually involve in product production, especially the project category of technology (Joenssen et al., 2014; Lambert & Schwienbacher, 2010). Tomczak and Brem (2013) indicated that crowdfunding can make creators get direct access to the market and to collect financial support from truly interested individuals. Therefore, crowdfunding can also be used as a marketing method (Mollick, 2014).

2.2 Types of Crowdfunding

Crowdfunding is categorized into 4 types by the form of return creators provide, including donation-, reward-, lending- and equity-based (Frydrych, Bock, Kinder, & Koeck, 2014; Kuppuswamy & Bayus, 2013; Mollick, 2014). Because of the legislation limitation, there are only donation- and reward-based crowdfunding platforms in Taiwan now.

Donation-based crowdfunding places the funders as philanthropists, that is, they expect no direct reward for their contributions (Mollick, 2014). Reward-based crowdfunding is the most common type of crowdfunding. It involves in an exchange of tangible or intangible rewards. The rewards vary from a designed post card to an opportunity to participate in the movie. Some reward-based crowdfunding projects treat their funders as their early customers, and provide an access to their products with advanced service or better price as a reward. Famous crowdfunding platforms such as Kickstarter, Indiegogo and flyingV are reward-based.

Lending-based crowdfunding is defined as the use of an online platform that matches lenders and borrowers to provide unsecured loans. Unlike other types of crowdfunding, creators in lending-based crowdfunding need to repay the loan with interest.

Funders in equity-based crowdfunding act as stakeholders. They will receive unlisted shares of the company and dividend if the enterprise earns profits in exchange of money pledged. The idea of it is similar to the process how common stock is bought and sold on the stock market.

2.3 Crowdfunding Models

Reward-based crowdfunding can be divided into two models by the way creators receive money, including all-or-nothing and keep-it-all (Cumming et al., 2014).

An all-or-nothing model indicates that creators can only receive money when the pledged funds exceed the fundraising goal in a certain period, which refers to the project is successful. Only when the project is successful that the funders can get the rewards. Many reward-based crowdfunding platforms use this model such as Kickstarter, FundedByMe and flyingV . On the contrary, a keep-it-all model indicates that creators can keep the entire pledged amount no matter whether or not the fundraising goal is reached. Crowdfunding platforms including FundRazr, GoFundMe and RocktHub use this model.

Additionally, some platforms can let project creators choose their crowdfunding model. For example, Indiegogo, one of the famous reward-based crowdfunding platforms in the USA, use both the all-or-nothing and keep-it-all models. Creators on Indigogo can choose which model the project want to use.

2.4 Factors affecting crowdfunding outcomes

Generally, factors influencing project outcomes can be classified into three types, including project, creator and external factors.

Project factors are project data set by its creator in the beginning. Many past studies proved its notable effects on project success. For example, fundraising goal, raising duration, number of images and months to delivery are negatively associated with project outcomes. On the contrary, title length, video, unique website and pledge level have positive effects (Cumming et al., 2014; Joenssen et al., 2014; Müllerleile & Joenssen, 2014).

Factors about *creators* include previous experience of initiating projects, social networks, team size and so on (Cumming et al., 2014; Kuppuswamy & Bayus, 2013). Most of them were shown to have positive effects on project results.

External factors were also shown in previous literature, such as comments, competing projects initiated in the same type and the same date (Müllerleile & Joenssen, 2014). It was indicated more comments and competing projects will result in better outcomes.

Chapter 3 Research Model and Methodology

As the definition of crowdfunding, it can be categorized into four types depending on the forms of rewards. This paper focuses on the reward-based crowdfunding. Our purpose is to extend past research and explore new factors affecting on fundraising outcomes.

3.1 Research Model

According to literature review, crowdfunding outcomes can be affected by project, creator and external factors. Based on characteristics of crowdfunding, we build on previous studies and add some potential factors into our analysis.

Valanciene and Jegeleviciute (2013) stated that crowdfunding can overcome the limitations of geography. Few studies discussed geographic effects on project outcomes, but influences of urban development weren't analyzed. Additionally, project type was examined but only focused on several categories, and effects of project descriptions were seldom took into account. Therefore, we include project created region and urban income to measure urban development, as well as total description words and emotional words to analyze effects of linguistic factors. Factors concerning about linguistic words are extracted by Linguistic Inquiry and Word Count 2007 (LIWC) (Pennebaker, Booth, & Francis, 2007). Moreover, our research takes all project types into consideration and compares their effects on fundraising results. Variables included in our study are described in Table 3-1.

We need to transform categorical variables into series of dummy variables. There are 15 project categories on Kickstarter and 51 states in the USA. It will be too many variables if we transform all of them into dummy variables. Therefore, we classify project type into seven groups according to their characteristics, including art (art, theater, dance and music), publishing (comics and publishing), media (film & video, journalism and photography), design (crafts, design and fashion), games, technology and food. Geographical regions are classified into 6 regions according to the United States Census Bureau and their project count, including New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont), Mid-Atlantic (New Jersey, New York and Pennsylvania), South Atlantic (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, Washington D.C. and West Virginia), Central (Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma and Texas), Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming) and Pacific (Alaska, California, Hawaii, Oregon and Washington).

Table 3- 1 Descriptions of Variables

Variables	Descriptions
goal	The amount of money that project creators seek to raise, and the monetary unit is USD.
duration	The number of days which the project runs on the platform, calculated by the start date minus end date of the project.
titile_length	Total words of the project title.
ex_project	The number of projects which the project creator launched before.
com_all	The number of competing projects raising money in the same period.
com_type	The number of competing projects classified in the same category and soliciting funds in the same period.
type	Dummy variables indicating the category group which the project is classified into. There are 15 project categories on Kickstarter and we group them into 7 types according to their category characteristics.
word_count	Total words in the project description.
pos_emo	The percentage of positive emotion words such as love, nice and sweet in the project description.
neg_emo	The percentage of negative emotion words such as hurt, hate and nervous in the project description.
region	Dummy variables representing the geographic regions where the project created. There are 51 states in the USA, and we group them into 5 regions according to the United Census Bureau and their project count.
population	The population of the city where the project created in 2013.
payroll	The annual payroll of citizens in the city in 2013. It is used to measure the development level of cities and the unit is $1,000 USD.
success	A dummy variable which is 0 if it's failed project, otherwise it's 1.
funding_level	The percentage of fundraising goal achieved at the end date of the project, calculated as: (amount_pledged / goal) * 100%
amount_pledged	The amount of money that the project collected before it finished
funders	Total number of backers who support the project.

New factors included in our study are written in italics.

It is expected fundraising goal, duration and negatively emotional words will have negative effects on project outcomes, while title length, previous projects created by the same creators, competing project count, urban income, total words and positively emotional words have positive effects.

We want to find influential factors of project outcomes. Since project success is a binary variable, which is 1 if it's a successful project and otherwise 0, a logistic regression is an appropriate regression model to analyze it. The other independent variable will use the linear regression model to examine. All regression models are described below:

$$logit(P_{success=1}) = \beta_0 + \beta_1 ln(goal) + \beta_2 ln(payroll) + \beta_3 duration + \beta_4 title\_length + \beta_5 ex\_project + \beta_6 com\_time + \beta_7 com\_type + \beta_8 wc + \beta_9 posemo + \beta_{10} negemo + \beta_{11} type + \beta_{12} region \tag{1}$$

$$funding\_level = \beta_0 + \beta_1 \ln(goal) + \beta_2 \ln(avg\_payroll) + \beta_3 duration + \beta_4 title\_length + \beta_5 ex\_project + \beta_6 com\_time + \beta_7 com\_type + \beta_8 wc + \beta_9 posemo + \beta_{10} negemo + \beta_{11} type + \beta_{12} region + \beta_{13} type \times region + \beta_{14} type \times \ln(avg\_payroll) + \varepsilon \tag{2}$$

3.2 Data Collection

We draw on the public dataset collected by students in University of California, Berkeley in 2014. This dataset includes data derived from different crowdfunding platforms. Data from Kickstarter is applied to this study because its mechanism is similar to flyingV, which is the largest crowdfunding platform in Taiwan. A total of 105,598 projects on Kickstarter were collected between May 2009 and 2014, and initiated from 163 countries. In order to eliminate the effects of cultural differences, only projects launched in the USA where most projects were created were selected as samples. We got 82,098 finished projects, that is, they had already succeeded or failed in soliciting enough funds. Additionally, in order to take urban development into account, we also combined this dataset with some external sources. We drew on two datasets from U.S. Census Bureau (http://census.gov/), including 2013 Country Business Patterns and 2013 Population Estimates. These datasets are used as a source to measure the urban development.

Following previous study on crowdfunding, we exclude some projects from our analysis. First, we exclude projects with a fundraising goal under $5,000 and successful projects which funders are less than 20 persons. Most of them can get enough monetary support from their family, relatives and friends, which are not consistent with the concept of crowdfunding(Cumming et al., 2014; Mollick, 2014). Second, we also exclude projects with fundraising goal higher than $1,000,000 and extremely successful projects with funding level over than 50 percent, because we think such projects are outliers (Mollick, 2014). In addition, Kickstarter initially allowed projects to raise money in a maximum of

90 days but reduces it to 60 days now. To cut down the effect of different rules of setting funding duration on platform, we exclude projects with a duration over 60 days. Moreover, projects with missing values of urban income are also excluded. Finally, there were 32,177 projects extracted from the dataset, consisting in 20,256 failed projects (62.95%) and 11,921 successful projects (37.05%). The success rate of our sample is very close to the overall success ratio reported by Kickstarter (37.92%) (Kickstarter, 2015).

Chapter 4 Data Analysis and Discussion

This chapter shows the results of our samples. In the first section, descriptive statistics are described. The second section is the results of regression models. SPSS 22.0 are used to analyze data in our research. In the third section, we have a discussion on our results.

4.1 Descriptive Statistics

Table 4-1 shows descriptive statistics for main variables of our samples. Model 1 indicates all projects in our final samples; model 2 and model 3 represent failed and successful projects respectively. The natural log transformations of goal, payroll and population are used in our analysis due to its highly skewed. According to the table, failed projects have higher goals and duration than successful projects. Moreover, successful projects often created in relatively big cities which have more population and urban income on average.

Summary statistics by project types and regions where projects created are shown in Table 4-2. We find that media has the most projects, and art has the highest success rate. Projects refer to game can often attract more funders to fund money. Technological projects often raise more funds and have higher funding level. As regards regions where projects created, there are the most projects created in Pacific, and projects created in Mid-Atlantic have the highest success rate. It may be due to the higher economic development of it that projects created in the Pacific region can often collect more funds, more backers and higher funding level on average. Projects created in New England often tend to have higher funding levels, too.

Table 4-3 provides a correlation matrix for main variables in our sample. The Pearson correlation coefficient is a statistic to measure how strongly two variables are related to one another. We take this correlation coefficients as an approximate indicator of collinearity. The threshold of correlation coefficients is suggested being 0.5 to 0.7(Dormann, 2013); however, table 4-3 shows that ln(population) and ln(payroll) have a high correlation (r=0.727) and may have problems with collinearity. In order to deal with it, we decide to get rid of ln(population) and keep ln(payroll) as statistic variable. We think crowdfunding is an event relating to money, and the urban income may be one of the key affecting funding outcomes.

Table 4- 1 Descriptive Statistics

Variables	Model 1: All Projects				Model 2: Failed Projects				Model 3: Successful Projects			
	Mean	**std. Dev.**	**Min**	**Max**	**Mean**	**std. Dev.**	**Min**	**Max**	**Mean**	**std. Dev.**	**Min**	**Max**
goal	27806.32	53941.35	5001	999000	32969.01	61768.82	5001	999000	19033.93	35335.84	5011	950000
ln(goal)	9.69	0.87	8.52	13.81	9.82	0.92	8.52	13.81	9.48	0.71	8.52	13.76
duration	36.06	11.11	1	60	36.79	11.65	1	60	34.81	10.01	2	60
title_length	35.47	15.89	1	85	34.94	16.09	1	85	36.38	15.52	2	85
ex_project	1.28	1.45	1	78	1.24	1.23	1	78	1.36	1.76	1	78
com_all	3958.29	1095.22	50	7414	4024.24	1130.48	67	7395	3846.24	1022.88	50	7414
com_type	125.43	101.48	0	610	123.76	101.46	0	582	128.27	101.45	0	610
population	1338970.89	2393412.45	59	8405837	1626895.06	2460205.338	59	8405837	2326043.66	2901363.866	349	8405837
ln(population)	13	2.12	4.08	15.94	12.8	2.11	4.08	15.94	13.35	2.08	5.86	15.94
payroll	548956.12	448581.03	29	6105069	511725.67	428037.74	29.00	6105069	612217.60	474852.71	119	6105069
ln(payroll)	12.87	0.99	3.37	15.62	12.79	1.00	3.37	15.62	13	0.95	4.78	15.62
word_count	19.62	4.66	0	35	19.60	4.77	0	32	19.64	4.46	0	35.00
pos_emo	4.73	5.68	0	100	4.83	5.89	0	100	4.56	5.32	0	50.00
neg_emo	1.24	3.01	0	57.14	1.28	3.05	0	37.5	1.17	2.93	0	57.14
success	0.37	0.48	0	1	0	0	0	0	1	0	1	1
funding_level	0.68	1.67	0	47.56	0.10	0.15	0	1.03	1.66	2.44	1	47.56
Observations	**32177**				**20256**				**11921**			

All descriptions of variables are shown in Table 3-1.

Table 4- 2 Summary Statistics by Types and Regions

		Total Projects	Successful Projects	Success Rate	Avg. Pledged	Avg. Funders	Avg. Funding Level
Types	Art	7303	*3477*	*0.48*	8188.34	104.11	0.64
	Design	3846	1279	0.33	23059.32	276.14	1.02
	Food	2075	753	0.36	9551.48	103.38	0.53
	Games	2614	888	0.34	*40907.54*	*646.15*	1.18
	Media	*10741*	*3903*	0.36	10249.99	108.58	0.49
	Publishing	4296	1182	0.28	7390.53	120.20	0.52
	Technology	1302	439	0.34	*48405.63*	405.82	*1.23*
Regions	Central	7525	2463	0.33	11747.21	138.09	0.62
	Mid-Atlantic	5617	2643	*0.47*	14411.29	180.19	0.73
	Mountain	2655	782	0.29	12116.39	142.73	0.64
	New England	1634	721	0.44	14938.88	191.95	*0.76*
	Pacific	*10354*	4131	0.40	*20513.29*	*259.14*	*0.76*
	South Atlantic	4392	1181	0.27	9514.22	116.12	0.52

Notable figures are written in italic.

Table 4- 3 Correlation matrix for variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	1												
(2)	.008	1											
(3)	.007	.727**	1										
(4)	.088**	.016*	.005	1									
(5)	-.032**	-.035**	-.010	.000	1								
(6)	-.024**	-.017*	-.037**	.006	.010	1							
(7)	.146**	-.040**	-.036**	.587**	-.085**	-.005	1						
(8)	.048**	.039**	.048**	.238**	-.047**	-.012*	.295**	1					
(9)	-.025**	-.006	-.003	.021**	.115**	-.012*	-.054**	-.001	1				
(10)	.002	-.009	-.005	-.004	.005	-.002	.007	-.022**	-.083**	1			
(11)	.015**	.060**	.026**	.002	-.084**	.020**	-.002	.041**	.004	-.029**	1		
(12)	-.191**	.126**	.103**	-.086**	.044**	.040**	-.078**	.021**	.003	-.023**	-.018**	1	
(13)	-.058**	.051**	.058**	-.036**	.034**	.065**	-.021**	-.020**	-.016**	-.012*	-.007	.453**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(1)ln(goal) (2)ln(population) (3)ln(payroll) (4)duration (5)title_length (6)ex_project (7)com_all

(8)com_type (9)word_count (10)pos_emo (11)neg_emo (12)success (13)funding_level

4.2 Empirical Results

Based on our research model, we conduct regression analysis with the dependent variables of project success and funding level. The empirical results are shown below, and all results are analyzed by SPSS 22.0. Additionally, since type and region are dummy variables, we need to separately select one of them as a base category in order to prevent the dummy variable trap. According to the summary statistics in Table 4-2, we choose "Publishing" and "South Atlantic", which have the lowest success rate in types and regions, as base category. The base categories are removed from our regression models, and the others are compared with them.

1. Factors affecting project success

A logistic regression estimation is used to analyze the relationship between factors and project success, and the result of it can be seen in Table 4-4. Higher raising goal and duration will have negative effects, while the number of competing projects initiated in the same period with the same type has a positive effect on a successful fundraising. Projects created in cities with more urban income are more possible to successfully raise funds. Projects with longer titles are proven more chances of success. Project creators who have experience of conducting a project may know more skills in it, which can help them raising money successfully. More competing projects created in the same period and the same type will cause more possibilities of success. In linguistic variables, only pos_emo is significant. As for comparison of dummy variables and its base categories, it is expectable that all dummy variables have positive effect, because we select base categories according to its lowest success rate.

Table 4- 4 Logistic Regression Result (dependent variable: success)

Variables	β	S.E.	Sig.	Exp(β)
ln(goal)	-0.504	0.016	0.000***	0.604
ln(payroll)	0.172	0.014	0.000***	1.188
duration	-0.017	0.001	0.000***	0.983
title_length	0.005	0.001	0.000***	1.005
ex_project	0.089	0.013	0.000***	1.093
com_all	0.000	0.000	0.726	1.000
com_type	0.001	0.000	0.000***	1.001
word_count	-0.004	0.003	0.174	0.996
pos_emo	-0.008	0.002	0.000***	0.992
neg_emo	-0.006	0.004	0.165	0.994
Dtype_Art	0.844	0.043	0.000***	2.326
Dtype_Food	0.542	0.060	0.000***	1.719
Dtype_Design	0.328	0.051	0.000***	1.388
Dtype_Games	0.525	0.057	0.000***	1.691
Dtype_Media	0.476	0.043	0.000***	1.610
Dtype_Technology	0.666	0.072	0.000***	1.947
Dregion_NewEngland	0.704	0.063	0.000***	2.021
Dregion_Central	0.203	0.043	0.000***	1.225
Dregion_Mountain	0.145	0.056	0.010*	1.156
Dregion_MidAtlantic	0.713	0.046	0.000***	2.041
Dregion_Pacific	0.547	0.041	0.000***	1.728
Constant	1.527	0.243	0.000***	4.603

Observations	**32177**	**Predictive Accuracy**		**66.1%**
Cox & Snell R^2	**0.085**	**Nagelkerke R^2**		**0.116**

*** p<0.001; ** p<0.01; * p<0.05

2. Factors affecting funding level of projects

We perform a linear regression model using the full sample as well as its successful and failed subsamples to figure out the associations between factors and funding level. The result is described in Table 4-5.

In full sample (model 1), the result shows that ln(goal), ln(payroll), duration, title_length, ex_project, com_type and pos_emo are significant and consistent with the consequence of Table 4-4. ln(goal), ln(payroll), duration, title_length and ex_project all have positive effects on funding level; pos_emo is negatively associated with it. All dummy variables of region also have positive and significant effects on funding level; however, dummy

variables of type does not. Only types including art, design, games and technology are positive and significant. Comparing failed subsample (model 2) with successful subsample (model 3), we find that ln(goal), ln(payroll), duration, title_length and ex_project in failed subsample are all significant and consistent with the result of full sample, but successful subsample only have two significant factors, ln(payroll) and ex_project, among them. Linguistic factors are all insignificant in both subsamples. Specifically, com_all in failed subsample is positive and significant, but com_type is not. Only three and four dummy variables of type are significant in failed and successful subsample, respectively. Dummy variables including design, games and technology are positively associated with funding level in failed subsample. In successful subsample, games and technology are positive, while food and media are negatively associated with funding level compared with the base category. On the other hand, dummy variables of region in failed subsample are positively and significantly linked to funding level except for the mountain region, but they are not in successful subsample.

To show further insight into the effects of project type and urban development, we next conduct a generalized linear model by adding interaction effects. As described in Table 4-6, the interactions between type and region (type * region) as well as type and urban income (type * ln(payroll)) are included in the analysis. We find that the interaction of type and region is highly significant in all models, and the interaction with type and urban income is also significant in full sample and successful subsample.

Knowing significant interaction effects of type and urban development, we use crosstabs to show their relationships. Table 4-7 shows the result of project count, success rate, average amount of pledged and average number of funders by every region and type. Most projects have good results in Mid-Atlantic, New England and Pacific. Art projects created in Mid-Atlantic and New England have especially high success rates. Games and technology projects initiated in Pacific collect more funds, and the former can also attract the most backers on average.

According to results above, we found that successful projects are usually initiated in cities where have higher urban income. Table 4-8 further shows average funding level by types and ranks of urban income. Their increase levels are different between different types.

Table 4- 5 Regression Result (dependent variable: funding_level)

Variables	Model 1: All Projects	Model 2: Failed Projects	Model 3: Successful Projects
ln(goal)	-0.080***	-0.137***	0.013
ln(payroll)	0.051***	0.036***	0.021*
duration	-0.029***	-0.076***	0.011
title_length	0.023***	0.041***	0.000
ex_project	0.054***	0.024**	0.022*
com_all	0.007	0.035***	0.004
com_type	0.015*	0.009	0.004
word_count	-0.009	0.000	-0.003
pos_emo	-0.019***	-0.001	-0.014
neg_emo	0.001	-0.002	0.004
Dtype_Art	0.023**	0.057***	-0.084***
Dtype_Food	0.008	0.065***	-0.042***
Dtype_Design	0.098***	0.105***	0.139***
Dtype_Games	0.115***	0.096***	0.158***
Dtype_Media	-0.006	0.049***	-0.101***
Dtype_Technology	0.096***	0.073***	0.130***
Dregion_NewEngland	0.029***	0.045***	-0.003
Dregion_Central	0.021*	0.038***	0.011
Dregion_Mountain	0.014*	0.032***	0.009
Dregion_MidAtlantic	0.037***	0.061***	-0.016
Dregion_Pacific	0.061***	0.086***	0.015
Observations	**32177**	**20256**	**11921**
Adjusted R^2	**0.039**	**0.041**	**0.099**

*** $p<0.001$; ** $p<0.01$; * $p<0.05$

Table 4- 6 Regression Results: Interaction Effects

Variables	Model 1: All Projects		Model 2: Failed Projects		Model 3: Successful Projects	
	F	Sig.	F	Sig.	F	Sig.
ln_goal	200.217	.000***	361.985	.000***	2.118	.146
ln_payroll	71.647	.000***	18.927	.000***	2.496	.114
duration	19.161	.000***	74.526	.000***	.867	.352
title_length	17.033	.000***	33.830	.000***	.002	.965
ex_project	90.347	.000***	10.434	.001**	4.125	.042*
com_all	.928	.335	15.254	.000***	.055	.815
com_type	6.400	.011*	.408	.523	.363	.547
word_count	2.227	.136	.007	.935	.154	.695
pos_emo	11.244	.001**	.001	.971	2.499	.114
neg_emo	.096	.757	.055	.814	.298	.585
type	5.226	.000***	1.104	.357	2.184	.042*
region	10.422	.000***	9.744	.000***	4.052	.000***
type * region	3.189	.000***	1.547	.009**	2.868	.000***
type * ln(payroll)	7.818	.000***	.973	.442	2.794	.010*
Observations		**32177**		**20256**		**11921**
Adjusted R^2		**0.043**		**0.042**		**0.106**

*** p<0.001; ** p<0.01; * p<0.05

Table 4- 7 type * region Crosstab

		Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic
Art	(1)	0.45	0.58	0.39	0.56	0.49	0.37
	(2)	7970.893	9258.122	6544.256	11891.588	8091.985	6727.738
	(3)	99.12	114.86	79.26	191.80	105.73	73.70
Design	(1)	0.31	0.35	0.30	0.38	0.37	0.27
	(2)	17858.593	24132.399	17998.981	23397.972	30711.093	13562.630
	(3)	226.94	306.69	216.43	245.34	347.72	182.60
Food	(1)	0.33	0.48	0.29	0.47	0.38	0.27
	(2)	7643.522	13502.290	6213.875	9869.890	12077.063	6528.859
	(3)	88.36	144.69	60.88	102.13	127.86	73.10
Games	(1)	0.32	0.35	0.32	0.43	0.37	0.30
	(2)	28776.095	23632.208	19936.897	23532.438	75775.255	26504.931
	(3)	363.14	414.44	336.84	446.43	1273.83	355.00
Media	(1)	0.28	0.50	0.25	0.43	0.39	0.23
	(2)	7420.353	12993.434	8391.332	10494.194	11887.092	6020.182
	(3)	80.23	133.33	87.74	107.13	129.10	61.15
Publishing	(1)	0.23	0.36	0.21	0.32	0.34	0.19
	(2)	5692.334	10565.170	4725.118	10289.500	9373.136	4100.049
	(3)	94.40	180.38	72.89	167.84	146.33	69.20
Technology	(1)	0.28	0.35	0.35	0.36	0.39	0.26
	(2)	43786.971	33535.751	44193.109	46372.602	66704.460	28032.820
	(3)	315.39	430.97	338.69	422.36	519.12	291.69

(1)Success rate (2) Avg. amount_pledged (3) Avg. funders

Table 4- 8 Average funding level by types and rank of urban income

Type	Rank of urban income				
	(1)1%~25%	(2)26%~50%	(3)51%~75%	(4)76%~100%	(4)-(1)
Art	*0.548*	0.648	0.664	*0.706*	*0.158*
Design	*0.689*	0.878	0.977	*1.473*	*0.784*
Food	0.446	0.527	0.542	0.696	0.250
Games	0.970	1.091	1.311	1.398	0.428
Media	0.377	0.406	0.541	0.574	0.197
Publishing	0.403	0.465	0.613	0.670	0.267
Technology	*0.923*	*1.354*	*1.290*	*1.362*	0.439

4.3 Discussions

Based on results above, we find some evidence that help project creators improve the results of crowdfunding. Consistent with former research, setting higher fundraising goal will increase the probability of failure. We explain that higher fundraising goal increases the difficulty of success, which means that creators need to collect more funds to reach the goal. Projects with longer funding duration are much easier to fail. It is considered that longer duration is a signal of lack of confidence (Mollick, 2014), and backers don't have the time pressure of impulsively funding. The experience of creating project also has results corresponding to past research, which indicate that the more past projects the creator has, the more possibilities of success. We see the number of former projects that creators initiated as a measure of creators' experience. If creators have more previous projects, they may have more skills in raising money. It might make the project much easier to be successful. A longer title of a project is indicated that it has more possibilities of success. We think that a project with a longer title may make potential backers difficult to aware of its keywords immediately, so it attracts less potential funders to get further information. In factors of linguistic words, only the percentages of descriptive words which are positive emotions have significant and negative influences on the outcomes. We thought a project described with more positive words might give a good impression on potential supporters and bring about good consequences of fundraising. However, the results showed its negative effects on outcomes. We explain that a project with too many positively emotional words may result in a lack of sincerity and raise doubts about its truthfulness.

Moreover, we use urban income to determine the development level of cities. Results showed projects created in well-developed cities have more chances of successful fundraising. Burtch et al. (2014) proved that greater distance will decrease backers' willingness to support. Therefore, we think most sponsors come from well-developed cities, and they are more willing to fund projects initiated in their cities. The results of regression analysis showed that the more competing projects in the same type and the same period, the more possibilities of success. Previous research also represented that the number of competing projects launched on the same date and the same type has a negative effect on the crowdfunding result, but Müllerleile and Joenssen (2014) didn't state the reason of it. According to the summary description of type (Table 4-2), we can find that art and media type have the greatest number of successful projects. It can be understood the fact that most successful projects are distributed in few types. However, the number of competing projects launched in the same period only has a significant and positive effect on funding level in failed subsample.

When it comes to project types, we classify them into seven categories depending on their characteristics. Then, we use publishing as the base category because of its low success

rate, and analyze effects of the other categories compared with it. According to results above, we demonstrate the significant influences of project type on crowdfunding outcomes. Art, food and media have higher funding level than publishing, but they are relatively difficult to be overfunded. Design, games and technology have better outcomes than publishing. They have higher funding level and more chances of being overfunded. Next, we want to figure out the relationship between regions where projects launched and their outcomes. We merge 51 states into six regions and take South Atlantic as a base category due to its lowest success rate. We found significant influences of regions on funding level. All regions have higher funding level compared with South Atlantic and have no effects on being overfunded.

Realizing the influences of type and urban development on crowdfunding outcomes, we want to figure out the interaction effects of them. We first use a crosstab to examine the interaction between project types and geographic regions. Art projects created in Mid-Atlantic and New England have much higher success rates which are 58% and 56% respectively. Food projects also have much higher success rates which are close to 50% in these regions (48% and 47% individually). Design projects can get better consequences in Mid-Atlantic, New England and Pacific. Games projects have higher success rate in New England, but can collect the most funds in Pacific on average. The difference between regions is notable in media projects. They have the highest success rate in Mid-Atlantic which is 50%, and the lowest one in Mountain which is only 25%. Publishing projects have the lowest success rate among all types and can have better outcomes in Mid-Atlantic, New England and Pacific. Technology projects can raise much more money especially in Pacific. The interactions between types and regions may arise from the level of urban development, the characteristics of cities and so on. Moreover, we also take the interactions between types and urban income into account and find the different increase level between different types. Art projects have the less differences in increase level, and design projects have the most ones.

Chapter 5 Conclusions

5.1 Implication

This study demonstrates factors that affecting the outcomes of crowdfunding projects. It is more likely to succeed if a project have a less fundraising goal, shorter duration, longer title, more creator's experience, more competing projects in the same type, more positively emotional words in description, and is launched in a relatively well-developed city. The interaction between types and urban development is also proved to have effects on the final results. Some types of projects are more appropriate to initiate in specific cities in order to have better fundraising consequences. For example, art projects have the highest success rate in Mid-Atlantic and games projects have more chances to succeed in

New England. Moreover, we have evidence that projects created in cities which have more urban income will have higher funding level. The increase levels are different between different types. For example, design projects will have the most differences if the project is created in cities which have different urban income.

These findings are expected to have implications for entrepreneurs, crowdfunding creators and even crowdfunding platforms. Our findings show factors influencing fundraising outcomes. Fundraisers, regardless of entrepreneurs or crowdfunding creators, can make reference to these results to make better policies of fundraising. Further, managers of crowdfunding platforms can also have insights into users' behavior and improve policies of platforms to increase success rate of projects. If a platform have a high success rate on average, fundraisers will have stronger motivations for creating projects on it, and it will appeal more potential backers to visit.

5.2 Limitation

There are some limitations in our research. First, we only consider data on Kickstarter platform and are created in the USA. In reality, however, there are many projects initiated abroad. Their factors and outcomes may be markedly different from projects launched in the USA due to their cultures. Second, crowdfunding involves an open call, overcoming the geographic restrictions to solicit funds. However, we can't know places where backers come from due to limitations of data. Therefore, our study can't take transnational influences into account. Third, this research doesn't conduct regression models according to different project types. It may have different notable effects on fundraising outcomes by different project types.

5.3 Future Research

It is indicated project type is significantly associated with project outcomes. Its notable interactions with geographic region and urban development are also shown in this study. In future work, researchers can build on our study and find out different effects on project outcomes by different types. Another worthwhile research question is transnational influences on the outcomes. Our research showed that urban development has significant effects on project outcomes. However, our study only focuses on projects initiated in the USA. We suggest that future research can collect data on the platform from all over the world and figure out whether there are effects of transnational funding actions on project results.

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