An Exact Conformity of Online Donors

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ABSTRACT

We use the data of 4,000 homogeneous donors on a fundraising website and uncover behavioral principles about when, where and how donations are influenced by others' contributions. The uniqueness of this website is that fundraising pages show each amount of the previous individual donations in chronological order. In our noble empirical model, we construct variables to explain various patterns of social information that each donor is actually seeing. The main variables include each amount of the last five donations, their mean, and the modal amounts and their appearances along the sequence. The main finding is that when donors can see the last three or more previous donations with the same amount, they are more likely to conform to the modal amount. In addition, they do not simply increase their own donation but also approach to it. Interestingly, there could be asymmetry in the conformity behavior. If the modal amount is larger than the previous mean, donors conform to it: however, if the modal amount is smaller than the previous mean, donors do not conform to it.

Keywords: conformity, social preference, charitable contributions, online dataset, natural experiment
JEL Classification Number: H41, D64, C99

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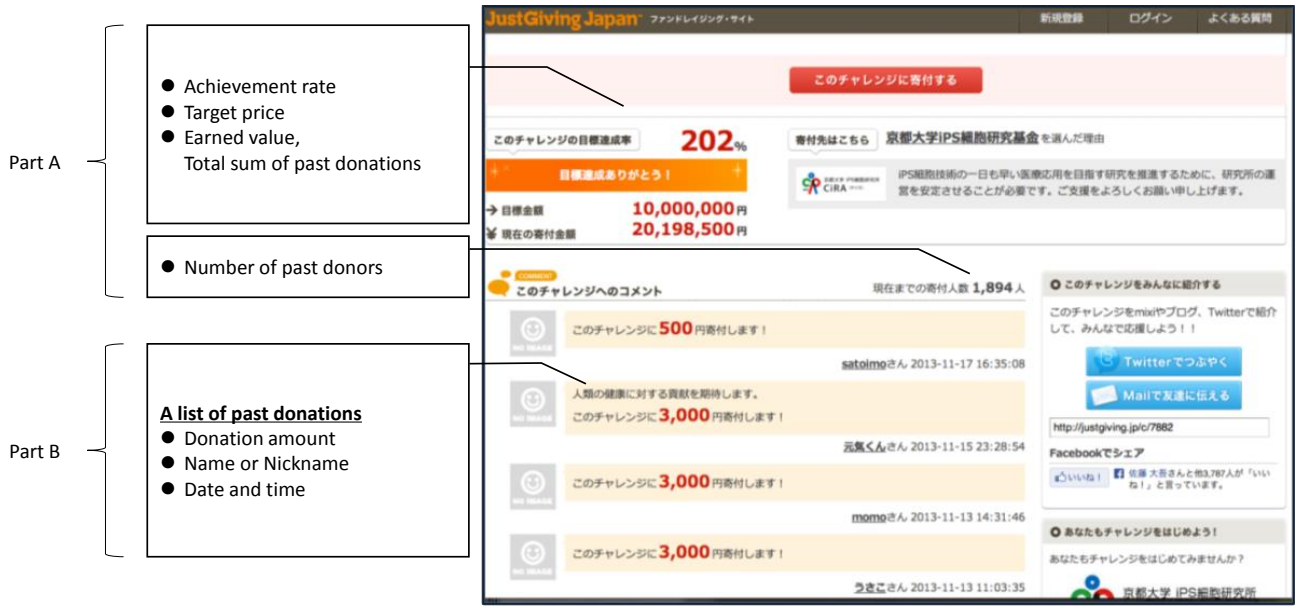
1. Introduction

Every year, lots of people donate a vast amount of money to charities. The magnitude of giving is inconsistent with the predictions of traditional economics theories. Firstly, Becker (1974) and Andreoni (1989, 1990) construct the models of *altruism* or *warm-glow* to explain the basic mechanism of how giving does not reduce but enhance donors' utility. In addition, seminal works of social comparison have recently revealed that donors' own contributions relative to those of the others are one of the most important determinants of their utility. Bernheim (1994) prove that conforming to social cues could enhance individuals' utility. Several empirical and experimental results indicate that social pressure could dissuade free-riding behaviors and promote the provision of the public goods (DellaVigna et al. 2012).

Recent studies of field experiments have demonstrated that providing the information of the others' contributions, called *social information*, changes individual's contribution in real settings (Shang and Croson 2009). Those studies manipulate single and uniform pieces of information to demonstrate the existence of conformity in charity. However, the information with simple variation does not allow us to reveal the conditions that conformity is likely to appear and the behavioral characteristics of donors with conformity: (1) Which among several pieces of social information do donors exactly conform to? (2) When and where are they more likely to conform to it? (3) How much do they increase their donation as a result of conforming to it? Do they increase it without an upper limitation, or do they head for a particular amount?

The purpose of this study is to discover an exact conformity in charity from the perspectives above. We use the data of 4,000 donations on a real fundraising website of JustGiving.jp. This website is the most traditional one among online fundraising platforms in Japan and a brother company of JustGiving UK, which is one of the largest platforms in the world. The unique feature of this website is that the fundraising pages show each amount of the previous individual donations in chronological order (*Figure 1*). Each donor sees different patterns of social information that arise as a result of their arriving at the page at different times.

Figure 1. A fundraising page on JustGiving.jp



We construct a noble empirical model, which includes variables to explain various patterns of information about the previous donations that each donor actually sees. Of course, our identification strategy should depend on random variation of those variables. The preliminary analysis confirms that the timing of their arriving at the website is uncorrelated with the pattern of the information that they see. In addition, the distribution of the donation amounts for a particular fundraising campaign could be stationary throughout the whole period. It means that the donors on the same page could have a similar distribution of willing-to-donate.

The rest of this paper is organized as follows: The next section explains data, hypothesis and econometric strategies. The estimated results are presented in Section 3. Finally, section 4 discusses the implications and contributions of our study.

2. Data and Empirical Strategies

Social information on JustGiving.jp is subdivided into two categories. The first category is the information that they can know from the part of the earned value and the number of the previous donors. For example, if they divide the earned value by the number of the previous donors, they can obtain the mean amount of all the previous donations. The second category is the information that they can know from the list of the previous donations. As they see the last four or five individual donations in the normal size of browser window, they can easily recognize each amount of the last four or five individual donations. If they sum up the last four or five donation amounts and divide the total amount by four or five, they can obtain the mean amount of those donations. In addition, they can easily recognize the modal amount among them and their appearances along the sequences.

Firstly, we need to specify which piece of social information potential donors could browse in considering the standard amount among the pervious donations. The study of Smith et al. (2013) provides a suggestion for the model by their evidence that a £10 rise in the mean of all the previous donations increases the average next donation by £2.5. Thus, we estimate the equations of the following specification:

$$d_{in} = \alpha + \gamma \overline{d_{\iota,n-1}} + z'_{in}\delta + u_{in}$$

where d_{in} refers the n^{th} donation amount to a particular campaign i. The main variable $\overline{d_{\iota,n-1}}$ explains the mean of all the previous donations or the last five individual donations for n^{th} donor. The control variables z'_{in} include the order on the campaign page, the duration from the start date of the page, and the achievement rate that n^{th} donor actually sees. In addition, we use monthly dummy variables, weekday dummy variables, and time zone dummy variables in order to deal with unobserved heterogeneity among donors.

However, we need to be careful about whether the above specification is suitable for every sample donors or not. It is partly because we cannot easily assume that they spend time to calculate the mean amount. If so, the effect of the mean amount could explain the effect of the previous donors indirectly. On the other hand, even if donors actually use the information of the mean amount, its effect could vary according to the degree of dispersion of the previous donation amounts.

One possible specification is that donors conform just to the last first donation. Thus, we estimate the equation of the following specification:

$$d_{in} = \alpha + \gamma d_{i,n-1} + z'_{in}\delta + u_{in}$$

Next donors might not respectively browse the previous donations. Another possible specification is that they could conform to their sequence. It means that they are more likely to conform to the last first donation when the last first donation also conforms to their own previous donations. We have two ways to explain the degree of conformity among the last several donations. One of them is that we use the coefficient of variation among them. We can assume that the last several donors conform to each other when their coefficient of variation is smaller. Thus, we estimate the equation of the following specification:

$$d_{in} = \alpha + \beta cv_{i,n-1} + \gamma d_{i,n-1} + z'_{in}\delta + u_{in}$$

where $cv_{i,n-1}$ is the coefficient of variation of the last five individual donations for n^{th} donor. The other way is that we use the information of how many modal donations appear in sequence: (1) The last first donation is not equal to the last second donation, (2) the last first donation is equal to the last second donation, (3) the last three or more donations are equal to each other. We can assume that the last five donors strongly conform to each other when all of them donate exactly in the same amount. Thus, we estimate the equation of the following specification:

$$d_{in} = \alpha + \gamma d_{i,n-1} + \beta_1 d_{i,n-1} \times CASE_{(2)} + \beta_2 d_{i,n-1} \times CASE_{(3)} + z'_{in}\delta + u_{in}$$

where $CASE_{(1)-(3)}$ are dummy variables to respectively explain the three above conditions. We basically use a fixed effect regression for the estimations. In addition, we also consider the results of system GMM estimations (Arellano and Bover 1995, Bundell and Bond 1998).

Before entering the estimations, we introduce simple statistics of our samples. As seen in *Table 1*, the mean donation is 9012.612 yen (112.924 US dollars in the 2011 exchange rate). The mean number of the donors per campaign is about 36 people, and the mean of target price is 792,510.6 yen (9,930.339 US dollars). We exclude the campaigns with the target price of 50,000 yen (626.511 US dollars) or less. The number of the campaigns with the final achievement rate of 100 % or more is 49.

Table1. Descriptive Statistics

	Mean	Std. Dev.	Min	Max
Donation unit, N=4,323				
Giving amount (Japanese Yen)	9012.161	50970.67	100	2,700,000
Past mean (Japanese Yen)	12590.66	35548.48	688.2353	803,600
Number of past donors	19.353	9.4724	5	46
From the first donation (Days)	17.00416	40.88144	0	457
Fundraising campaign unit, N=156				
Number of all donors	36.39103	6.706351	28	50
Target price (Japanese Yen)	792510.6	1274025	70,000	10,000,000
Achievement rate (Percent)	0.7818518	0.5442416	0.01731	3.16565
Over 100% (Dummy variable)	0.3141026	0.4656523	0	1

3. Results

As the first step, we investigate the effects of the mean amount of the previous donations on next donations. *Table 2* indicates that their effects could fluctuate according to the ranges of the previous donations. In addition, we find the low F-statistics in both specifications. Of course, their effects might have a downward bias (Nickel 1981): however, their effects are not enough modified and not statistically significant in GMM estimations.

We proceed to the second step and investigate the effect of the last first donation. *Column 3* shows that a 1,000 yen rise in the last first donation increases the average next donation by 194 yen. The modification of system GMM estimation is consistent with the study of Nickell (1981).

As the third step, we use the coefficient of variation among the last five donations to investigate whether donors are likely to conform to the last five donation when it also conforms to their own previous donations or not. *Column 4* shows that the degree of their conformity could influence next donors: however, we still cannot argue that it critically changes their conformity, considering its effect size of 0.0188. The coefficient of variation could indirectly explain the degree of conformity among the last five donations.

Next, we more directly explain their degree of conformity by using the information of how many modal donations appear in sequence. According to *column 5*, a 1,000 yen rise in the last first donation increases the average next donation by 192 yen. Furthermore, when the last three or more donations are equal to each other, a 1,000 rise in the last first donation increases the average next donation by 902 yen. Based on either result, we can argue that the donation amount of next donors are likely to approach to the last first donation as a result of their conforming to it. Interestingly, even if the last two donations has the same amount, it does not have an additional effect on the next donations. It might be not until donors see the last three or more donations with exactly the same amount that they recognize the previous donors conform to each other.

Table2. Estimation Results

Dependent variable = Giving price of next donor	The mean amount		The last first donation	The sequence of the previous donations	
Fixed effect estimation	(1)	(2)	(3)	(4)	(5)
Mean of the previous donations					
The last 5 donations	0.0173				
	(0.0275)				
All the previous donations		-0.101**			
		(0.0480)			
The last first donation			0.194***	0.206***	0.192***
			(0.0156)	(0.0166)	(0.0156)
The sequence of the previous donations					
Coefficient of variation				-0.0188**	
				(0.00843)	
The last donation with 2 modes in sequence : 1st = 2nd					-0.335
					(0.208)
The last donation with **3 or more** modes in sequence					0.712***
					(0.204)
Number of the previous donors	0.257	0.159	0.482***	0.433***	0.483***
	(0.157)	(0.156)	(0.151)	(0.152)	(0.150)
Achievement rate (%)	-5.927	-1.960	-20.42***	-17.86***	-20.62***
	(6.384)	(6.137)	(6.041)	(6.147)	(6.033)
From the first donation (Days)	0.166	0.178	0.122	0.123	0.0912
	(0.182)	(0.182)	(0.179)	(0.179)	(0.179)
Constant	61.90	69.55	35.91	37.99	25.55
	(73.92)	(73.86)	(72.55)	(72.53)	(72.49)
R-squared	0.005	0.006	0.041	0.042	0.045
F-statistics	0.61	0.73	4.90	4.90	5.07
Observations	4,323	4,323	4,323	4,323	4,323
Number of cmpgn_id	156	156	156	156	156
Campaign FE	YES	YES	YES	YES	YES
Month FE	YES	YES	YES	YES	YES
Weekday FE	YES	YES	YES	YES	YES
Timezone FE	YES	YES	YES	YES	YES

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

4. Discussion

Our findings are important in both practical and academic contexts. Practically, we have discovered several behavioral principles of conformity, which provide more fruitful suggestions for fundraising activities. For example, our results indicate that the information of the three or more modal donations have seed money effects on the website. List and Lucking-Reiley (2002) shows that providing higher achievement rate of the fundraising campaign goal has positive effects on average donation amount. Following their viewpoints, we can argue that the three or more modal donations also have the role of seed money and increase the next donation amount. Thus, we suggest that ten donors make a donation of 10,000 yen rather than only one donor make a donation of 100,000 yen. Academically, we demonstrated that there still exists conformity under the real environment that they can browse several kinds of social information. In addition, we discovered that their donations approach to the same amount of the modal donation as a result of their conforming to it. Our analysis truly contributes to the external validity of previous literature of conformity in charity.

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