An Exact Conformity of Online Donors

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Abstract

We use the data of 10,577 donations on an online fundraising platform and explore an answer for when a donor is more likely to be influenced by other donors. The important feature of this platform is that a fundraising page displays each amount of the previous individual donations in chronological order. In our empirical model, we construct variables to explain the information that a donor actually sees on the webpage. The main variables are the modal amount among the last five donations and their appearances along the sequence. We find that when a greater number among the last five donors make a same amount donation, it is more likely that a new donation is equal to that modal donation amount. However, we do not see this phenomenon when the last two continuous donors give in the same amount. These findings indicate that the last continuous three or more modal donations have significantly positive impacts on the likelihood that a new donation is equal to the modal amount.

Keywords: conformity, social preference, charitable contributions, online dataset, natural experiment

JEL Classification Numbers: H41, D64, C99

1. Introduction

When is a donor more likely to be influenced by other donors? And, how the affected donor decides her own contribution? Conformity of donors has been an interest of economics, and seminal experimental and empirical works have investigated the impacts of the information about the others’ contributions (Shang and Croson 2009; Smith et al. 2014). However, there are not enough literature that can solve the puzzle. For example, Shang and Croson (2009) inform a potential donor of another donation amount randomly, finding a significant difference in the average donation between the groups with the information and without the information. But, the finding demonstrates only the existence of conformity in charitable giving.

One possible way to challenge the puzzle is that we provide the information of multiple donors for a potential donor. It is because the literature of social psychology have discovered that an individual’s conformity increases, when a larger number of others behave in a similar way (Asch 1955; Asch 1956). If it is the case in charitable giving, the information of the multiple donors could influence a potential donor more strongly, when a greater number among the multiple donors donate in a same amount. As a result, her contribution could follow the majority in the contributions of the multiple donors.

In this study, we investigate the effects of the amount combinations of multiple donors. Our analysis depends on a novel data and an empirical model. Firstly, we use the data of 10,577 donations on a real fundraising website of JapanGiving. The important feature of this website is that a fundraising page displays each amount of the previous individual donations in chronological order, as seen in Figure 1. Donors easily recognize the last four or five individual donations in the normal browser size, and the donors see different combinations of the several previous donations that arise as a result of their arriving at the page at different times. Secondly, in our empirical model, we use variables to explain representative combination patterns of the several previous donations. Using the data and the model, we can find out which pattern most largely increases the likelihood that the following donation approaches to the majority in the several previous donations.

The main assumption of our analysis is the random variation of the above variables. The introductory analysis backups this assumption by confirming that the distribution of donation amounts on a webpage is stationary throughout the whole period of campaign. This result indicates that donations are plausibly homogeneous on each webpage.

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

2. Data and empirical strategies

2.1. Data

We use the data of 10,577 donations, which were made on JapanGiving from February 2011 to December
2011. It is because the sampled donors saw the same design of webpage during this period, although Japan Giving sometimes changed it. The donations on there are recorded with the following information: The donation amount, their date and time, and the NPO or fundraiser that the donations are made for. We use these kinds of information to generate further information about the donations. First, we can identify the order of the donations within a campaign webpage from the information of their date and time. Then, we use the donation amount and its order to calculate the total amounts that have already been donated till the next donation. These allow us to know enough the information that each donor sees at the timing of their visits to the webpage. We can identify donors by randomly assigned ID numbers, although we do not obtain personal information of donors for the protection.

We introduce simple statistics of our samples. As seen in Table 1, the mean of donation amounts is 9.15,385 yen (114.719 US dollars in the 2011 exchange rate). The mean number of donors per a campaign webpage is about 48 people, and the mean of target price is 1,039,623 yen (13,026.714 US dollars). The number of campaigns with the final achievement rate of 100% or more is 103.

### 2.2. Empirical model

The tested hypothesis is that when a greater number among the last five donors give in a same amount, it is more likely that a new donation approaches to the modal amount. We estimate the equation of the following specification:

\[
y_{c,n}^* = a + \gamma_1 D_1 + \gamma_2 D_2 + \gamma_3 D_3 + \gamma_4 D_4 + z_{c,n} \delta + u_{c,n}
\]

\[
y_{c,n} = 1, \text{ if } d_{c,n} = d_{c,n-1}
\]

\[
y_{c,n} = 0, \text{ if } d_{c,n} \neq d_{c,n-1}
\]

where \(d_{c,n}\) refers the \(n^{th}\) donation amount to a campaign webpage \(c\).

We use nonlinear fixed effect models for the estimations. The error term is decomposed as \(u_{c,n} = \eta_c + \nu_{c,n}\). \(\eta_c\) is a constant page-specific effect that captures unobserved correlations of preferences among donors on the page, and \(\nu_{c,n}\) is a random error term. In addition, we use monthly dummy variables, weekday dummy variables, and time zone dummy variables in order to deal with common shocks among time intervals.

The dependent variable \(y_{c,n}\) is a dummy variable, which takes one when \(d_{c,n}\) is equal to \(d_{c,n-1}\), and it takes zero when otherwise. It is appropriate to use the dummy variable as a dependent variable, because the variable is really based on the payment system of Japan Giving. Their payment system is that the options of several donation amounts are provided at a payment page, and it is for donors’ convenience. Over 90% of all

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Table 1  Simple statistics

<table>
<thead>
<tr>
<th>Donation unit, N=10,557</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giving amount (Japanese Yen)</td>
<td>91,553,857</td>
<td>20,007.37</td>
<td>100</td>
<td>500,000</td>
</tr>
<tr>
<td>Past mean (Japanese Yen)</td>
<td>13,251.93</td>
<td>25,470.75</td>
<td>688,253</td>
<td>803,600</td>
</tr>
<tr>
<td>Number of past donors</td>
<td>28,089,23</td>
<td>18,124.39</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>From the first donation (Days)</td>
<td>8.515203</td>
<td>10.16675</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fundraising campaign unit, N=298</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of all donors</td>
</tr>
<tr>
<td>Target price (Japanese Yen)</td>
</tr>
<tr>
<td>Achievement rate (Percent)</td>
</tr>
<tr>
<td>Over 100% (Dummy variable)</td>
</tr>
</tbody>
</table>

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1 Japan Giving provides a payment page with nine options of donation amounts, including 500 yen, 1,000 yen, 2,000 yen, 3,000 yen, 5,000 yen, 10,000 yen, 30,000 yen, 50,000 yen, and 100,000 yen.
the donations are consistent with the donation amounts in the options. Considering these features, most donors could decide their own donation amount by choosing from the options. In addition, when there are continuous modal donations among the last five donations, the donors could decide whether they select the option that is equal to the modal amount or not.

The independent variables \(D_1, D_2, D_3,\) and \(D_4\) explain the degree of variation of the last five donations. As seen in Figure 2, \(D_1\) explains the largest variation, while \(D_4\) explains the smallest variation. We make the variables in that way, because we should consider the difference of the salience of modal donations between in the larger variation and in the smaller variation. For example, we might not recognize it when two donations with a modal amount appear at an interval, but we could more easily recognize it when the last first and second donations are in a same amount.

The control variables \(z'c_n\) include several information that \(n^{th}\) donor actually sees when visiting the webpage, such as the number of previous donors and the achievement rate. Additionally, \(z'c_n\) includes the duration from the start date of webpage to the date of \(n^{th}\) donation.

3. Results

In this section, we present the basic results from our empirical analysis. We begin by showing descriptive results about comparisons of a basement and four treatment groups. We then run a regression analysis, considering control variables’ effects and several fixed effects.

3.1. Descriptive results

Figure 3 reports means of the outcome variable \(y_{c,n}\) at each group, which takes one if \(d_{c,n}\) is equal to \(d_{c,n}-1\). A mean expresses the proportion of \(y_{c,n}\)’s taking one. The findings are consistent with the hypothesis that when a greater number among the last five donors give a same amount, their following donor is more likely to give the modal amount. We do not find a statistically significant difference between a basement and treatment 1; however, we find it between treatment 1 and treatment 2. The mean of the outcome variable is 13.7% in treatment 2 larger than in treatment 1. In addition, we do not find a statistically significant difference between treatment 2 and treatment 3; however, we find it between treatment 3 and treatment 4. The mean of the outcome variable is 18.1% in treatment 4 larger than in treatment 3. These findings indicate that a donation is likely to be equal to the last first donation when the last three or more donations are in the same amount. The likelihood might not linearly increase with the increase in the number of continuous modal donations.

3.2. Regression results

We confirm the above findings with regression analysis in Table 2, where we regress the outcome variable \(y_{c,n}\) on the variables \(D_1, D_2, D_3,\) and \(D_4\) and the control variables. We use both a linear probability model and logit model, considering several fixed effects.

Table 2 shows the findings that are consistent with those in §3.1. The two continuous modal donations do not have a statistically significant effect; however, the three or more continuous modal donations have it. According to column 1, the effect size is larger in the three continuous modal donations than in the two continuous modal donations, and the effect size is larger in the five continuous modal donations than in the four continuous modal donations; however, there is no statistically significant difference in the effect size between the three continuous modal donations and the four continuous modal donations. As the descriptive results do in §3.1, these findings also indicate that a donation is likely to be equal to the last first donation when the last three or more donations are in the same amount. In addition, the likelihood does not seem to increase linearly with the increase in the number of continuous modal donations.

We explain the effects of control variables. The rise in the last first donation amount decreases the likelihood that a new donation is equal to the last first donation. On the other hand, we do not find a statistically significant effect in either of the number of previous donors, the achievement rate, or the duration from the start date of webpage. The first finding indicates that it is more difficult for a donor to follow the previous donation of a higher amount.

These results are robust to regression-to-the-mean bias and sample-selection bias (See the working paper for details). Now, suppose that the continuous modal donations are larger or smaller than their previous
mean amount. It is still likely that a donation is equal to the last first donation in both cases. In addition, the information of the continuous modal donations does not influence when a new donor appears and donates on the webpage. This finding does not support the concern that different groups of donors visit the webpage accordingly with the amount combinations of multiple donors.

4. Discussion and conclusions

We present several findings from the empirical analysis. The main finding is that when a greater number among the last five previous donors make a same amount donation, it is more likely that a new donation is equal to that modal donation amount. This result indicates that the degree of donors’ conformity could increase at the above circumstance. Next, the interesting finding is that we cannot see this phenomenon when the last two continuous donors give in the same amount. It is the last continuous three or more modal donations that have significantly a positive impact on the likelihood that a new donation is equal to the modal amount.

This is the first study that gives an answer for when a donor is more likely to be influenced by other donors under the environment that she can browse each amount of the others’ contributions. Our findings provide a potential connection between the social psychological literature of conformity and the economic studies of charity. The findings also allow us to make suggestions for real fundraising activities. For example, fundraisers should manipulate information of modal donations to guide following donations to higher amounts.

Reference


