Econometric Applications of Behavioral Economics

A Review and Replication of

Hey look at me: The effect of giving circles on giving

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1. Introduction and Literature Review:

Charitable organizations have long been aware of individuals' desire to be publicly recognized for donations and have historically given many opportunities for donors to receive this type of recognition, from the naming of public buildings and university research centers to the printing of donors' names in newsletters. Much research from both economics and psychology have proven that individuals are motivated towards pro-social behavior by public visibility of their actions. Benabou and Tirole (2006) investigated this behavior using social image as a defining motivator to giving publicly to charity. It is known that social comparisons are a significant driver of individual behavior (Veblen, 1899), and fundraisers are able to increase donations if donors receive prestige (Harbaugh, 1998) and if donors can send a signal about their altruism (Cartwright and Patel, 2013). Empirically, Harbaugh (1998) found in a field study that donors to a university gave strategically to enter a higher public recognition circle (which was verified in the lab (Li and Riyanto, 2009)); Ariely et at. (2009) found evidence in the lab that individuals work harder to generate gifts for charity if their effort is publicly observable; and Soetevent (2011) found that individuals tend to give more if their donations are made with cash and, as a result, more visible to others.

The researchers provide two reasons for why individuals are more willing to donate and donate more when observed by others - social image benefits and the ability to encourage others to give. In this research, Karlan and McConnell attempt to provide empirical evidence for an increase in willingness to donate due to public recognition via a randomized field experiment and for which mechanism, social image or social influence, is primarily responsible for this increase in willingness to donate via a controlled laboratory experiment. The randomized field experiment

follows the design of an RCT, so for this reason, we are focused on the methods and results of the field experiment, not the lab experiment.

2. The Experiment

2.1 Experimental Design

A natural field experiment was conducted at the service club Dwight Hall of Yale University as a part of their yearly phone-a-thon campaign aimed at alumni. The campaign lasted eight months from October 2007 to May 2008 and was run by volunteers from campus student groups. The sample in the study consists of 4168 alumni from the Dwight Hall database who had previously donated, had a valid phone number, and had not yet donated prior to the study in 2007.

Dwight Hall historically has published the names of donors who give above $100 in the annual alumni newsletter. There are three tiers of donors - the “Friends” tier includes any donation between 100$ and 500$, the “Benefactor” tier includes any donation between 500$ and 1000$, and the “Patrons” tier includes any donation $1000 and up. Because donation amounts rarely were above $1000 the analysis focuses on just the Friends and Benefactor giving circles. There is no interaction amongst group members and no private benefits for placement in the different tiers - the tiered groups are merely a method to identify publicly, by newsletter, the individuals who have donated a significant amount of money. In previous phone-a-thons, the ‘giving circle’ and recognition was never mentioned; however, any participant who had already received communication via newsletter could have already been aware of the donation thresholds resulting in recognition. Thus, the intervention is providing a combination of increased salience and potentially new information. And the primary treatment effect is mentioning in the phone

call the potential to be publicly recognized in the newsletter for donating above a specified amount.

Volunteers were tasked with making calls to the alumni one or two times a week in the evening and the alumni were randomly assigned to different conditions - the script that a volunteer would read to them. Hence, the volunteers were not blind to the experimental design. The cap on the number of attempts to reach the alumni was set at three. The calls would begin by informing the potential donor that the purpose of the annual campaign is to raise funds in support of the various Dwight Hall student groups. This was followed by the request of a gift, where the volunteers would vary the information regarding donor recognition, depending on the preassigned treatment condition. Potential donors were randomly assigned with equal probability into four scripts. Before a call, the volunteers at Dwight Hall would look up each alumni in the randomized list provided by the researchers to find out which of the following conditions to use:

1. Control: We are hoping you will continue your support to Dwight Hall with a gift of $100
2. $100 circle: We are hoping you will continue your support to Dwight Hall with a gift of $100. With a donation of at least $100, you will become a member of our Friend donor circle. Friends will be listed by name in the Dwight Hall Fall 2008 newsletter.
3. $500 circle: We are hoping you will continue your support to Dwight Hall with a gift of $100. With a donation of at least $500, you will become a member of our Benefactor donor circle. Benefactors will be listed by name in the Dwight Hall Fall 2008 newsletter.
4. $100 circle and $500 circle: We are hoping you will continue your support to Dwight Hall with a gift of $100. With a donation of at least $100, you will become a member of our Friends donor circle. With a donation of at least $500, you will become a member of

our Benefactor donor circle. Both Friends and Benefactors will be listed by name in the Dwight Hall Fall 2008 newsletter.

In each script there was a request for 100$ because Dwight Hall staff felt that asking for a specific quantity (consistent with Andreoni, 2006) generates significant contributions. This was held constant for each condition, including the control, but this may have decreased the overall treatment effect. Besides the control condition there were three manipulated treatments. Two of them mention either the "friends" or "benefactors" giving circles and the requirements to join them along with the request for 100$. These treatment groups should increase the salience of public recognition from the mentioned giving level and, as predicted, increase the probability of donating an amount above the level. There is also one more condition that includes both the "friends" and "benefactors" groups - this group was included to see if it heightens social comparisons (Veblen, 1899) and, as a result, increases giving.

Therefore, the treatment groups are the independent variables, taking the form of binary variables in the regression, and we are looking to see how the different treatment groups affect the dependent variables of donation probability (at specific levels) and the log of gift amount, calculated by Log(1 + gift amount) to include individuals who did not donate. The dependent variables of donation probability look at the probability, above the control condition, of donating 1. Any amount; 2. Above $0 and less than $100 (the threshold to be included in the "friends" recognition group); 3. Greater than or equal to $100 (for entrance into the "friends" recognition group); 4. Greater than or equal to $500. Besides from the log of the donation amount, the dependent variables of donation probability are binary - either an individual's donation amount satisfies the condition or it doesn't. If a donation amount satisfies the condition then the

regression results check to see the average increase in probability of making that donation amount for each specific treatment group, in comparison to the control condition.

In the summary statistics, it is shown that demographic information of age, sex, and marriage status is not significantly different in the different treatment groups. Further, because of the sample size and the nature of the RCT, it is unnecessary to use those static variables in the regressions.

3. Results

3.1 Primary treatment effects

Of the total number of individuals targeted in the campaign (4168), 13% of them made a donation. And we are looking to see how the donation amounts for individuals in the control condition compare to the donation amounts for individuals in the treatment conditions. Average gift size increased by 14%. On the macro level, there was a 2.7% increase in the probability of making a gift of any amount across all the treatment conditions that mentioned public recognition in the Dwight Hall annual newsletter, with a confidence level above 95%. Mentioning the newsletter (any treatment condition) increased the probability of a gift of $100 or more by 1.8% (95% confidence level) and the probability of a gift of $500 or more by 0.5% (90% confidence level). There was a positive but nonsignificant increase in the probability that in any treatment condition a donor would make a donation less than the $100 level required to be mentioned in the newsletter. Further, there are larger and more significant effects in the treatment conditions that mention the $500 gift required to be published in the “benefactor” group. Any gift amount increased in probability by 3.9% (99% confidence level) in the $500 treatment and by 3.1% (95% confidence level) in the $100/$500 treatment, compared to the 1.21% (nonsignificant result) increase in probability of any donation amount in the $100

treatment. Also, a gift amount greater than or equal to $100 increased in probability by 2.6% (95% confidence level) in the $500 treatment and by 2.4% (95% confidence level) in the $100/$500 treatment, compared to the predicted, yet nonsignificant, 0.05% increase in a gift amount greater than or equal to $100 in the $100 treatment condition. In fact, the treatment effect mentioning just the requirement to enter the "friends" giving circle, labeled in our analysis as the $100 treatment, did not generate any significant effects on any dependent variable above a 90% confidence level. Whereas the average increase in donation amount was 14% (99% confidence level) across all treatment conditions that mentioned the newsletter, the $500 treatment condition increased the average donation amount by 19.3% (99% confidence level) and the $100/$500 treatment condition increased the average donation amount by 16.7% (95% confidence level), while the $100 treatment condition yielded, again, a positive yet nonsignificant result of 5.9%.

3.2 Heterogeneity by prior average gift

The researchers also considered the possibility for a heterogeneous response to the treatment condition depending on the individual's prior gift size. In general, the researchers found that the response to the treatment is increasing in the average amount of prior gifts, demonstrated by the clear positive and significant values for the coefficients of the independent variable log(1 + prior donation amount) in each dependent variable regression. This is believed to be the case because the social reward is only relevant to the individuals giving above $100. However, because the average prior gift amount is the best predictor (shown by the comparatively much smaller coefficients of determination in the prior model) of both an individual's probability to donate at or above a specific threshold and the next donation amount itself (0.309 elasticity from log-log regression), we find that the treatments lack significance

themselves, while the interaction effects between the log(1 + prior gift amount) and the treatment conditions become significant.

4. Conclusions

This research added to the limited body of empirical findings demonstrating that donors are more willing to donate if they receive some sort of public recognition. The main results of this research supports the hypothesis that public recognition plays an important role in an individual's decision to donate to charity. Using a control condition that didn't mention the possibility of public recognition and three treatment groups that varied the message of public recognition, Karlan and McConnell prove that including public recognition in the call to donors resulted in a 14% higher average donation amount and a 2.7% increase in the probability that an individual would donate any amount.

4.1 Critical Examination

There are some issues with the design of the experiment, preventing a totally accurate reading of the treatment effects of public recognition. Across the control groups, there was a call for individuals to donate the same $100. The difference between the $100 treatment condition and the control group was therefore just the mentioning of being publicly recognized in the "friends" circle in the annual newsletter if the individual donates the $100. If the isolated effect we are analyzing is the mentioning of potential public recognition, there should be a statistical difference in the control and $100 treatment condition. There is a difference in the scripts of the other two treatment groups, $500 and 100$/$500 – the mentioning of different amounts of money, which could be where the increased salience from the message comes from and,

therefore, where the statistical significance comes from. This implies some concern for the internal validity of the RCT.

The volunteers placing the call are also a problem with the design of the field experiment - they were, of course, aware of each participant's treatment group, and, as such, they were not blind to the experimental design. Further, because the calls were not recorded, there is no way of actually insuring that volunteers followed the script completely or gave more effort for donations in the higher monetary treatments. The fact that the volunteers knew which condition each participant was in and, therefore, could adjust their behavior towards participants accordingly jabs at the study's internal validity.

Another issue with the paper is that the intervention – providing the participants with knowledge about the potential inclusion on the annual newsletter – wasn't totally new information. The participants, if they had already been in contact with Dwight Hall or read previous newsletters, could have already been aware of the giving circles. This might have decreased the actual effect that completely new information about public recognition would have had on an individual's decision to donate. The researchers acknowledge this by stating the intervention is simply providing potentially new information and/or increased salience of public recognition. This is a problem the study has with external validity – in the real world, knowledge of public recognition for donation amounts above certain thresholds varies significantly from cause to cause, so it would be impossible to ensure that salience/knowledge is increasing at the same level.

Further, the participants in the study have already donated previously. Thus, they are already predisposed at a higher rate than average to donate to Yale University, meaning it is even harder to generalize the results to the greater population. Said individuals would be more likely

to listen and have a conversation with the student volunteers calling them. This, also, decreases the external validity of the study.

4.2 Proposed new study

We propose a new study - a modification of the phone-a-thon study. One, the student volunteers will be randomly assigned as participants but will only be given one script. They will only know this script and will be told to use only that script. This will eliminate the ability for the volunteer staff to change their behavior per script and bolster internal validity of the study. The participants, of course, will also be randomized to treatment groups. Two, we would like to find a situation in which a cause has not yet introduced public recognition for donations. This could ensure that the communication of public recognition is indeed new information and all participants would have the same knowledge instead of varying levels of knowledge and increased salience. We would not change the fact that the control condition explicitly requests a specific monetary amount, because without requesting a specific amount it wouldn't be an accurate representation of donation phone-a-thons. Three, we would like to find potential donors who have not yet donated to a cause. While this would require a much larger target audience, would be more expensive, and would have a much lower rate of donation than this study's 13%, we would still be able to compare the control condition to the treatment conditions. This, we believe, would be a more accurate RCT in the field.

5. Data Replication

Summary Statistics (from study):

Table 1
Summary statistics: means and standard deviations.

Treatment	Control	100 Circle	500 Circle	100 Circle and 500 circle	*P*-value from *F* test: regression on treatment
Panel A: Field experiment: summary statistics and balance verification					
Married	0.410	0.390	0.430	0.412	0.46
	(0.492)	(0.488)	(0.495)	(0.492)	
Male	0.468	0.444	0.486	0.483	0.29
	(0.499)	(0.497)	(0.500)	(0.500)	
Age	41.196	43.016	41.687	41.119	0.27
	(18.114)	(18.693)	(18.536)	(18.954)	
Average prior gift	58.005	52.367	80.292	83.592	0.62
	(415.773)	(239.899)	(822.55)	(783.602)	
Largest last gift >$0 and <$100	0.109	0.124	0.137	0.119	0.26
	(0.312)	(0.33)	(0.345)	(0.324)	
Largest last gift >$100 and <$500	0.032	0.022	0.036	0.035	0.18
	(0.175)	(0.145)	(0.186)	(0.184)	
Missing any demographic variables	0.505	0.459	0.492	0.488	0.19
	(0.500)	(0.499)	(0.500)	(0.500)	

Replicated Summary Statistics:

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Summary statistics:
================================================================================================
                                control 100_circle 500_circle 100_circle_and_500_circle
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mean_age                         41.196    43.016     41.687                 41.119
sd_age                           18.114    18.693     18.536                 18.954
mean_male                         0.468     0.444      0.486                  0.483
sd_male                           0.499     0.497      0.500                  0.500
mean_married                      0.410     0.390      0.430                  0.412
sd_married                        0.492     0.488      0.495                  0.492
mean_averagegift                 58.005    52.367     80.292                 83.592
sd_avergegift                   415.773   239.899    822.550                783.602
mean_lragest_to_100               0.109     0.124      0.137                  0.119
sd_lragest_to_100                 0.312     0.330      0.345                  0.324
mean_Largest_lastgift_100_to_500  0.032     0.022      0.036                  0.035
sd_Largest_lastgift_100_to_500    0.175     0.145      0.186                  0.184
mean_missing_any_demo             0.464     0.427      0.449                  0.455
sd_missing_any_demo               0.499     0.495      0.498                  0.498
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Regression results (from study):

Table 2
Field results: OLS estimation.

Dependent variable	Binary: gave >$0		Binary: gave >$0 & <$100		Binary: gave ≥$100		Binary: gave ≥$500		Log (1 + gift amount)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Primary treatment effects										
Any treatment	0.027**		0.009		0.018**		0.005*		0.140***	
	(0.012)		(0.008)		(0.009)		(0.003)		(0.052)	
Treatment: announced $100 giving circle		0.0121		0.007		0.005		0.004		0.059
		(0.0149)		(0.011)		(0.011)		(0.004)		(0.063)
Treatment: announced $500 giving circle		0.0387***		0.013		0.026**		0.004		0.193***
		(0.0149)		(0.011)		(0.011)		(0.004)		(0.067)
Treatment: both $100 and $500 Giving circles announced		0.0313**		0.007		0.024**		0.007*		0.167**
		(0.015)		(0.011)		(0.011)		(0.004)		(0.067)
Constant	0.110***	0.110***	0.053***	0.053***	0.057***	0.057***	0.005**	0.005**	0.473***	0.473***
	(0.010)	(0.011)	(0.007)	(0.008)	(0.007)	(0.007)	(0.002)	(0.002)	(0.0443)	(0.044)
Number of observations	4168	4168	4168	4168	4168	4168	4168	4168	4168	4168
R-squared	0.001	0.002	0.000	0.000	0.001	0.002	0.001	0.001	0.001	0.003
Panel B: Heterogeneity by prior average gift										
Any treatment	0.011		0.003		0.008		−0.002		0.059	
	(0.014)		(0.010)		(0.011)		(0.004)		(0.062)	
Any treatment × log(average prior gift + 1)	0.009*		0.004		0.005		0.005***		0.045*	
	(0.006)		(0.004)		(0.004)		(0.002)		(0.025)	
Treatment: announced $100 giving circle		0.005		0.001		0.004		−0.002		0.031
		(0.017)		(0.013)		(0.0129)		(0.005)		(0.075)
Treatment: announced $100 giving circle × log(average prior gift + 1)		0.005		0.004		0.001		0.005**		0.019
		(0.007)		(0.005)		(0.005)		(0.002)		(0.030)
Treatment: announced $500 giving circle		0.013		0.009		0.00281		−0.005		0.045
		(0.017)		(0.013)		(0.013)		(0.005)		(0.075)
Treatment: announced $500 giving circle × log(average prior gift + 1)		0.014**		0.002		0.012**		0.006***		0.077**
		(0.007)		(0.005)		(0.005)		(0.002)		(0.030)
Treatment: both $100 and $500 Giving circles		0.017		−0.001		0.017		0.001		0.101
		(0.017)		(0.013)		(0.0129)		(0.005)		(0.075)
		0.009		0.005		0.004		0.004*		0.038
		(0.007)		(0.005)		(0.005)		(0.002)		(0.030)
Log(average prior gift + 1)	0.064***	0.064***	0.019***	0.019***	0.045***	0.0449***	0.00585***	0.006***	0.309***	0.309***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.00381)	(0.00149)	(0.001)	(0.022)	(0.022)
Missing prior gift	0.144***	0.144***	0.060***	0.060***	0.085***	0.0846***	0.0155***	0.016***	0.660***	0.659***
	(0.013)	(0.013)	(0.010)	(0.010)	(0.010)	(0.010)	(0.004)	(0.040)	(0.059)	(0.059)
Constant	−0.008	−0.008	0.014	0.014	−0.023**	−0.023**	−0.006	−0.006	−0.090	−0.089
	(0.013)	(0.013)	(0.010)	(0.010)	(0.010)	(0.010)	(0.004)	(0.004)	(0.056)	(0.056)
Number of observations	4168	4168	4168	4168	4168	4168	4168	4168	4168	4168
R-squared	0.170	0.170	0.034	0.035	0.138	0.140	0.040	0.040	0.189	0.191

Robust standard errors in parentheses. Probit estimates in appendix tables.
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

Replicated primary treatment effects:

regression 1

	Dependent variable:				
	gave>0 (1)	gave>100 (2)	gave <500 (3)	gave>500 (4)	log 1+gift (5)
any treatment	0.027**	0.009	0.018*	0.005	0.140**
	(0.012)	(0.009)	(0.009)	(0.003)	(0.056)
Constant	0.110***	0.053***	0.057***	0.005*	0.473***
	(0.011)	(0.008)	(0.008)	(0.003)	(0.049)
Observations	4,168	4,168	4,168	4,168	4,168
R2	0.001	0.0003	0.001	0.001	0.001
Adjusted R2	0.001	0.00003	0.001	0.0003	0.001
Residual Std. Error (df = 4166)	0.337	0.237	0.257	0.095	1.537
F Statistic (df = 1; 4166)	4.929**	1.106	3.777*	2.295	6.203**

Note: *p<0.1; **p<0.05; ***p<0.01

regression 2

	Dependent variable:				
	gave>0 (1)	gave>100 (2)	gave <500 (3)	gave>500 (4)	log 1+gift (5)
100 giving circle	0.012	0.007	0.005	0.004	0.059
	(0.015)	(0.011)	(0.011)	(0.004)	(0.068)
500 giving circle	0.039***	0.013	0.026**	0.004	0.193***
	(0.015)	(0.011)	(0.011)	(0.004)	(0.068)
100 and 500	0.031**	0.007	0.024**	0.007*	0.167**
	(0.015)	(0.011)	(0.011)	(0.004)	(0.068)
Constant	0.110***	0.053***	0.057***	0.005*	0.473***
	(0.011)	(0.008)	(0.008)	(0.003)	(0.049)
Observations	4,168	4,168	4,168	4,168	4,168
R2	0.002	0.0004	0.002	0.001	0.003
Adjusted R2	0.001	-0.0004	0.001	-0.00002	0.002
Residual Std. Error (df = 4164)	0.337	0.238	0.257	0.095	1.536
F Statistic (df = 3; 4164)	2.818**	0.504	2.692**	0.976	3.574**

Note: *p<0.1; **p<0.05; ***p<0.01

Replicated heterogeneity by prior average gift:

regression 3

	Dependent variable:				
	gave>0 (1)	gave>100 (2)	gave <500 (3)	gave>500 (4)	log 1+gift (5)
announced100	0.005	0.001	0.004	-0.002	0.031
	(0.017)	(0.013)	(0.013)	(0.005)	(0.075)
log prior gift	0.064***	0.019***	0.045***	0.006***	0.309***
	(0.005)	(0.004)	(0.004)	(0.001)	(0.022)
and 500*log	0.016	-0.001	0.017	0.001	0.101
	(0.017)	(0.013)	(0.013)	(0.005)	(0.075)
announced 500	0.012	0.009	0.003	-0.005	0.045
	(0.017)	(0.013)	(0.013)	(0.005)	(0.075)
missing prior gift	0.144***	0.059***	0.085***	0.015***	0.659***
	(0.013)	(0.010)	(0.010)	(0.004)	(0.059)
100*average prior	0.005	0.004	0.001	0.005**	0.019
	(0.007)	(0.005)	(0.005)	(0.002)	(0.030)
both 100 and 500	0.009	0.005	0.004	0.004*	0.038
	(0.007)	(0.005)	(0.005)	(0.002)	(0.030)
500*average prior	0.014**	0.002	0.012**	0.006***	0.077**
	(0.007)	(0.005)	(0.005)	(0.002)	(0.030)
Constant	-0.008	0.014	-0.023**	-0.006	-0.090
	(0.013)	(0.010)	(0.010)	(0.004)	(0.056)
Observations	4,168	4,168	4,168	4,168	4,168
R2	0.170	0.035	0.140	0.040	0.191
Adjusted R2	0.169	0.033	0.138	0.038	0.189
Residual Std. Error (df = 4159)	0.308	0.234	0.238	0.093	1.384
F Statistic (df = 8; 4159)	106.774***	18.583***	84.639***	21.713***	122.644***

regression 4

	Dependent variable:				
	gave>0 (1)	gave>100 (2)	gave <500 (3)	gave>500 (4)	log 1+gift (5)
log prior gift	0.064***	0.019***	0.045***	0.006***	0.309***
	(0.005)	(0.004)	(0.004)	(0.001)	(0.022)
any treatment	0.011	0.003	0.008	-0.002	0.059
	(0.014)	(0.010)	(0.011)	(0.004)	(0.062)
Missing prior gift	0.144***	0.060***	0.085***	0.015***	0.660***
	(0.013)	(0.010)	(0.010)	(0.004)	(0.059)
Any treatmentxaverage prior	0.009*	0.004	0.005	0.005***	0.045*
	(0.006)	(0.004)	(0.004)	(0.002)	(0.025)
Constant	-0.008	0.014	-0.023**	-0.006	-0.090
	(0.013)	(0.010)	(0.010)	(0.004)	(0.056)
Observations	4,168	4,168	4,168	4,168	4,168
R2	0.170	0.034	0.138	0.040	0.189
Adjusted R2	0.169	0.033	0.137	0.039	0.189
Residual Std. Error (df = 4163)	0.308	0.233	0.239	0.093	1.385
F Statistic (df = 4; 4163)	212.431***	37.008***	166.759***	43.013***	243.164***
Note:					*p<0.1; **p<0.05; ***p<0.01

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