

# The Coin Strategy and Charitable Giving

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## Abstract

A charity in South Korea sent out 16,000 solicitation letters of four types. Each of the four groups had a different attachment: no attachment, 100 Korean won, 500 Korean won, or a 500-won-sized medallion. This was done to better understand individuals' social preferences by comparing responses by letter type. The charity received one donation and 381 'active' returns. Attaching a real coin to the letter brought no positive effect, although some charities, including UNICEF, have used this 'coin strategy' widely. A sense of involuntary indebtedness does not seem to drive reciprocity. The coin attachment appeals to the potential donor's inequity aversion. A significantly larger proportion of mail recipients returned the letter with 100 won than returned the letters with no attachment. I also claim that the results of previous studies that selected solicitation recipients from the existing database should be extrapolated with extra care due to the sample selection bias.

**JEL Classification:** C93, H41

**Keywords:** Charitable giving, Inequity aversion, Field experiments

## 1 Introduction

Some charities, including UNICEF (see Figure 1) and the March of Dimes (Figure 2), send direct mail with coins attached in the hope of a larger return. According to a news report,<sup>1</sup> their solicitation strategy, which I call the 'coin strategy,' is successful in terms of both response rate and returns. Is their reported success of the coin strategy based on rigorous comparisons? Does the coin make a letter heavier, unbalanced, and

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<sup>1</sup>Jones, Stacy. (2010, July 14). Charities mail out coins, hope for larger return. *USA Today*.

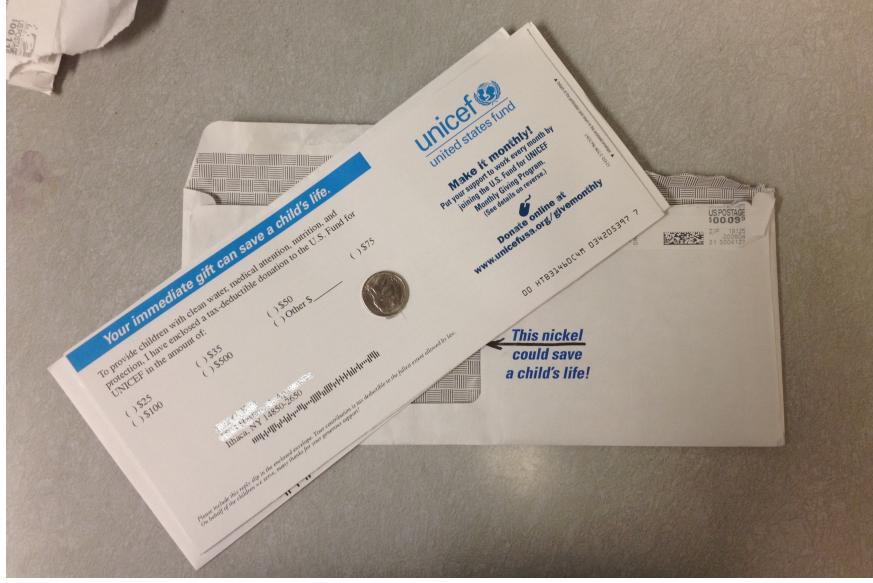


Figure 1: A Nickel Attachment Solicitation Letter from UNICEF

curious enough to allow more chance for potential donors to open the envelope? Does the coin strategy send a signal that the charity's project the charity is serious enough for potential donors to believe that it is worth reading the solicitation letter more carefully? Or, does the coin simply trigger pro-sociality?

Provided that the effect of the coin strategy had been rigorously examined and correctly reported by the fundraising charities, it is a conundrum. Although many theories proposed in behavioral economics and public economics attempt to explain why people donate,<sup>2</sup> most of these theories cannot convincingly explain why the coin strategy may cause a significant increase in donations. If the coin stimulates potential donors' inequity aversion (Fehr and Schmidt, 1999), then sending the coin back would be optimal, provided that the recipient would not have donated if they had received a solicitation without a coin. Moreover, since some charities whose purpose is not mitigating inequity have also used the coin strategy,<sup>3</sup> we cannot merely assume that the

<sup>2</sup>See impure altruism (Andreoni, 1990), inequity aversion (Fehr and Schmidt, 1999), the Rawlsian motivation (Charness and Rabin, 2002), social pressure to abide by pro-social norms (DellaVigna et al., 2012) and the reputation incentives to do pro-social deeds (Benabou and Tirole, 2006). These may explain, although not exhaustively, why people donate.

<sup>3</sup>As of March 2019, the following charities have used the coin strategy at least once for various purposes; UNICEF (relief for needy children); Children's Hunger Relief Funds (relief for needy children); Leukemia & Lymphoma Society (research & support of patients); March of Dimes (health of mothers and babies); Mothers Against Drunk Driving (prevention of drunk driving and underage drinking); Covenant House (helping homeless youth); and 20/20/20 (restoring vision to blind children and adults). Note that many charities have adopted the coin strategy even though their mission is not directly related to the mitigation

coin strategy only appeals to the recognition of inequity. Studies of reciprocity or gift exchange (Gneezy and List, 2006; Falk and Fischbacher, 2006; Falk, 2007) may partly explain the success of the coin strategy if potential donors recognize the coin as a gift. However, this interpretation is also puzzling because we do not usually present coins as gifts, and sometimes small monetary compensation can actually reduce recipients' goodwill or even invoke negative feelings.<sup>4</sup> I claim that the coin by itself does not make the recipients happier. Moreover, even if potential donors regard the coin as a gift whose monetary value is obvious and fixed, the expected marginal contribution cannot be higher than the coin value unless there is a particular type of leverage process. In short, if the coin strategy is indeed successful, it may suggest a new source of philanthropy initiatives.



Figure 2: A Dime Attachment Solicitation Letter from March of Dimes

Thus the primary purpose of this study is to investigate the effect of the coin strategy. If the coin strategy is effective even after controlling other possible attributes, I would claim that people donate generously to relieve a sense of involuntary indebtedness *regardless of* whether the coin provokes positive or negative sentiment. When we are voluntarily indebted to someone identifiable, for example, when taking out a loan, feeling indebted does not encourage us to be pro-social. However, when we feel

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of inequity.

<sup>4</sup>Ariely (2009) argues that work done as a favor can produce much better results than paid work in some cases. For example, when AARP asked some lawyers to provide destitute retirees with services at a low cost, about \$30, they did not accept the offer. However, when asked to offer services for free, they agreed. Experiments also showed that giving a small gift would not offend anybody, but mentioning the monetary value of the gift evokes market norms, such as prices, wages, rents, costs, and benefits relevant to the value of the gift. Zelizer (1997) argues similarly that the social value of money is determined in the process.

that we are unexpectedly indebted to others, anonymously or intangibly, we may try to compensate for the sense of indebtedness by making a leveraged contribution to society. Reciprocity explains this repayment behavior when such a feeling of indebtedness comes with positive sentiment.<sup>5</sup> However, reciprocity may not necessarily consist entirely of the response to the positive sentiment<sup>6</sup> provoked by unexpected goodwill from others.

Does pro-social behavior come from feeling involuntarily indebted or from positive sentiment created by receiving another's goodwill? Reciprocal behavior is often regarded as a response to the combination of two factors—a sense of unexpected indebtedness and a sense of unexpected happiness. The coin attachment worked as a critical treatment to discern those two factors because lab experiments or existing data cannot provide variations to control for the positive sentiment from another's goodwill. I assume that the coin attachment does not make potential donors feel happier enough to give more than what they have received.<sup>7</sup>

Even if people respond more to the solicitation letter with a coin attachment, we are still unsure whether the value of the coin affects donations or a coin-sized medallion attachment does. It might be the case where the coin (or any metal) makes the letter heavier, unbalanced, and curious enough to allow more chance for potential donors to open the envelope (see Figure 3.) To test the effect of a coin attachment, I conducted a randomized controlled trial with the cooperation of *Human in Love*, a charity located in Seoul, South Korea. I used four different attachments in direct mail: no coins, a 100 Korean won coin, a 500 Korean won coin, and a 500-won-sized medallion of no real value.

The charity collected only one donation from the entire sample in eight weeks. I could not conclude anything further than that feeling involuntary indebtedness may not prompt people to be pro-social because the coin strategy did not particularly bring any significant effect. The donation was made from a household who received the letter with a medallion attachment, and the donor decided to make monthly donations of 10,000 Korean won (roughly equivalent to \$10). This return is surprisingly low,

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<sup>5</sup>For example, some successful celebrities who believe that their fame and wealth were achieved by not only their abilities but also their fans' invaluable support have made large donations to society. Some religious people donate because they feel that their large share of well-being is indebted to God. Similar examples and related field experiments are found in Cialdini (2009).

<sup>6</sup>A number of studies summarized in Isen (2008a) and Isen (2008b) show how mild and positive feelings influence decision-making and thought processes. For example, subjects who found a dime in the return slot of a public telephone were more likely to spontaneously pick up papers that were dropped in front of them (Isen and Levin, 1972).

<sup>7</sup>Some self-interested agents may obtain some utility from the coin attachment by regarding it as a monetary payoff. However, this additional utility would not explain their return donations.

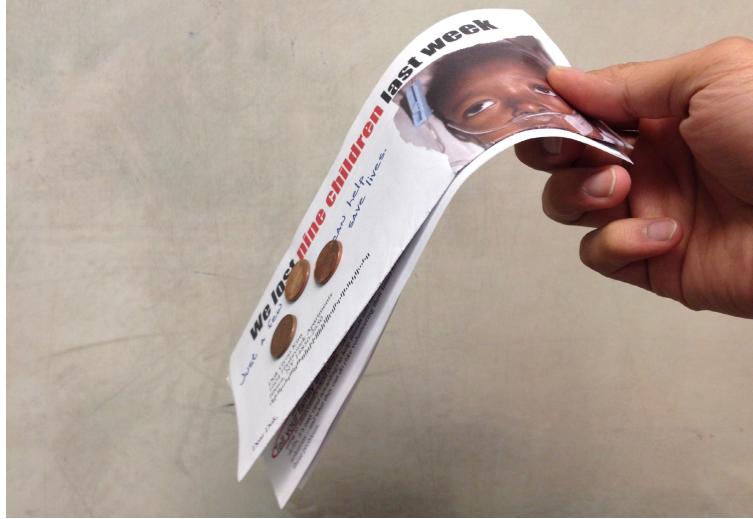


Figure 3: Three Cent Attachment Solicitation Letter from the Children’s Hunger Relief Fund

Instead of using envelopes with an additional window that displays the coins inside, Children’s Hunger Relief Fund used a standard envelope so the recipients could not observe what was inside without opening the envelope. By placing three cents on the left, however, they made the letter unbalanced so people could recognize immediately that something other than paper is in the envelope.

both when considering the large project expenses ( $> \$12,000$ ) and when compared to similar studies. One conclusion for fundraising organizations that consider using the coin strategy is that they might be better off if they look for a more cost-effective solicitation strategy.

Although the charity had only one donation from this project, they collected 381 ‘actively returned’ letters out of 15,718 during the same data collection period. Some mail recipients intentionally returned the solicitation letter by putting the letters in a designated return box, or to refuse to receive the letters by indicating this to a mail delivery person. An interesting observation is that a significantly larger proportion of the letters with an attachment were returned than those without attachment. This evidence may suggest that the coin attachment appeals to the recipients’ inequity aversion. The coin strategy creates some social costs by making the national mail delivery system bear the cost of return.

One caveat for practitioners is that the results of previous studies should be extrapolated with extra care because of a potential sample selection bias. Unlike this experiment, where the samples were randomly selected from the entire population, previous studies have selected samples from a narrower (or pre-selected) set of the population to increase response rates and returns.

The rest of this paper is organized as follows. Section 2 elaborates on the detailed process of the field experiment. Section 3 analyzes the responses. Section 4 discusses why the return could be so low, and Section 5 concludes. All supplementary notes are in Appendices.

## 2 Experimental Design and Procedure

I experimented with the cooperation of *Human in Love*, an international charity whose headquarters is located in Seoul, South Korea. The purpose of the charity is to “improve the quality of life for the poor by delivering interventions for the issues of absolute poverty, hunger, and deficient public health and education in developing countries.”<sup>8</sup> I considered four comparison groups, and each of the four groups received a solicitation letter with a different attachment: no attachment, 100 Korean won,<sup>9</sup> 500 Korean won, or a 500-won-sized medallion of no real value. For notational convenience, let the capital letters in parentheses, (N), (C), (F) and (M), denote the groups of mail recipients who receive no coins, a 100 won coin, a 500 won coin, and a 500-won-sized medallion, respectively. The charity’s logo image was embossed on the medallion (Figure 4), and the medallion is similar to 500 won in diameter and weight. Groups (N) and (C) consisted of 5,000 mail recipients, group (F) of 2,000, and group (M) of 4,000. In total, 16,000 solicitation letters were sent to households randomly selected from the population of Seoul, South Korea. From the day of the mailing (February 24, 2015), the charity collected data for two months. One possible concern is that the medallion may have subjective nonzero value to some recipients. We prevent this possibility by designing the medallion in a way that it cannot be used as a souvenir. The charity is not popular enough to have a brand effect from the logo.

Solicitation letters were sent to 40 randomly selected condominiums, one to nine condominiums per each district (called *gu*) of Seoul.<sup>10</sup> Seoul comprises 25 *gu*. The charity sent 640 solicitation letters to randomly selected households in each *gu*. Among the 640 letters, 200 were letters without any attachment, 200 were letters with 100 won attached, 160 had a coin-sized medallion attached, and 80 were with 500 won attached. The charity selected households in a way that neighboring households do not receive any

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<sup>8</sup>Who We Are. (2016). *Human in Love*.

<sup>9</sup>100 won is approximately equivalent to 10 cents USD.

<sup>10</sup>In 19 out of 25 *gu*, the charity randomly picked condominiums whose household units are more than 1,000. For example, *Shinhyundai* was the condominium chosen in Gangnam-*gu*, and it comprises 1,924 household units. In three *gu*, Yongsan, Dongjak and Mapo, the sizes of condominiums are relatively smaller, so the charity randomly chose two condominiums in each of these *gu*. Since Jongro-*gu*, the commercial district, doesn’t have a large condominium, the charity selected nine small condominiums.



Figure 4: *Human in Love*'s Logo and the Medallion

The medallion is designed in a way that it has no real value. It has neither a ring to hang it nor a magnet on the back panel. The embossed logo of the charity does not work as a signaling device to others.

solicitation letters and the closest neighbor who received a solicitation letter received a different one.<sup>11</sup> I believed that conducting the field experiment in South Korea would provide cleaner data for several reasons. First, South Korea is free from several problems that interpret results harder. For example, if a similar experiment were to be conducted in the United States, where some letter recipients recognize the forms and styles of typical solicitation letters of the charity, we could not distinguish the effect of the coin strategy from the responses to the changes of styles and forms. In South Korea, sending direct mail for solicitation is less common so it may capture the effect of solicitation letters without any endogeneity problems. Second, since it is known that the annual income of households and education level vary significantly by *gu*, I can utilize that information as controlling factors. We deliberately chose the period of data collection, late February to April, to minimize any seasonal/holiday effects. We also excluded November and December because taxes are due then and we did not want the possibility of a tax exemption to confuse the interpretation of the results. During this period, the charity did not conduct any other fundraising campaigns. The experimental design is summarized in Table 1.

Images of *Human in Love*'s solicitation letters, return forms, and envelopes are in Appendix.

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<sup>11</sup>For example, if the charity randomly selected a household in apartment unit 1203 and sent a solicitation letter without an attachment, then households in unit 1202 and unit 1204 did not receive a solicitation letter. Households in unit 1201 and unit 1205 may have received a solicitation letter with an attachment, but this was dependent on the size of each condominium.

<b>Charity</b>	<b>N</b>	<b>Group</b>	<b>Attachment</b>	<b>#Letters to Each District</b>
Human in Love	5,000	(N)	—	200
	5,000	(C)	100 won	200
	4,000	(M)	Medallion	160
	2,000	(F)	500 won	80

- Diameter of 100 won (500 won, and the medallion): 24mm (26.5mm, and 27mm)  
 - Mailed on February 24, 2015  
 - Data collection: until April 30, 2015

Table 1: Summary of Experimental Design

### 3 Analysis

Table 2 summarizes the responses by letter type.

<b>Letter Type</b>	<b># Letters<sup>†</sup></b>	<b># Donations</b>	<b># Active Returns (%)</b>
(N)	4,929	0	107 (2.1708%)
(M)	3,931	1	93 (2.3658%)
(C)	4,916	0	137 (2.7868%)
(F)	1,942	0	44 (2.2657%)
<b>Total</b>	<b>15,718</b>	<b>1</b>	<b>381 (2.4240%)</b>

Table 2: Responses by Letter Type

†: The number of letters sent excludes letters returned for delivery failure such as unidentified mailing addresses and addresses without current residents.

The charity collected a total of 382 responses in eight weeks. The charity collected only one donation from 15,718<sup>12</sup> households. Thus, in terms of reciprocity initiatives, I could not conclude anything further than that the coin strategy did not bring any significant effect and that feeling involuntary indebtedness by itself without positive sentiments may not prompt people to be pro-social. The donation was made from a household received the letter with a medallion attachment. No other related donations were made. There were no instances, for example, of an online donation indicating the solicitation letter was the reason for donation. For fundraising organizations currently using the coin strategy or considering its use, this result may suggest that they should focus on soliciting previous donors or consider other cost-effective solicitation strategies.

<sup>12</sup>282 out of 16,000 letters were returned to the charity for logistic reasons.

The charity collected 381 ‘actively returned’ letters out of 15,718 during the data collection period. Returning the letter involves the mail recipient’s intentional action. The Korean mail delivery system allows mail recipients to return unopened letters for free by putting them in a designated return box.<sup>13</sup> In these cases, although it raises some social costs, neither the sender nor the receiver pays the extra cost of the return process. Even if mail recipients open an envelope, they can return it at the sender’s expense. In this case, the sender must pay 110% of what a postage stamp costs. Only 6 opened letters were returned. An interesting observation is that a significantly larger proportion of the letters with 100 won were returned than those without any attachment. This difference is statistically significant at the 5% level under a null hypothesis for the same return rate (Two-sample test for equality of proportions,  $z = 1.98$ ,  $\hat{p}_1 = 0.0279$ ,  $\hat{p}_2 = 0.0217$ ,  $n_1 = 4916$ ,  $n_2 = 4929$ ). Although other differences are statistically insignificant, the letters with either a 500 won coin or the medallion were returned more often than those with no attachment, but less often than those with 100 won. Since 500 won coins and the medallion are similar in diameter and weight, the mail recipients would recognize both as 500 won before opening the envelope. With those two observations above, I claim that the coin attachment appeals to the mail recipients’ inequity aversion. That is, recipients who received 100 won were reluctant to keep 100 won because keeping the coin marginally exacerbates the inequity between the potentially benefited person through the charity and the mail recipient. Such reluctance decreased as the monetary payoff went up. The following subsection elaborates.

### 3.1 Generalized Inequity Aversion and Returned Letters

This section elaborates (1) how inequity aversion predicts more returned letters with a coin attachment and (2) how the effect of the coin attachment, even if it were to exist, cannot be explained by inequity aversion. Fehr and Schmidt (1999) postulated that people are self-interested but dislike inequity between themselves and others, so they make decisions to minimize inequity. The “linear inequity aversion” model for Player 1 in a two-player game is described by the following utility function:

$$U_1(x, y) = x - \alpha_1 \max\{x - y, 0\} - \beta_1 \max\{y - x, 0\},$$

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<sup>13</sup>The US mail delivery system also allows returning letters to the sender. However, most residents do not usually have a return box, so they leave the letter in the mailbox and write clearly on the envelope that they want to return it to the sender and why they want to do so. Since this return process requires more action than throwing a letter, we cannot assume the decision, in this case, is a choice between throwing the letter into a trash can and returning it.

where  $x$  and  $y$  are, respectively, Player 1's and Player 2's monetary payoffs,  $\alpha_1$  captures the averseness of advantageous inequity, and  $\beta_1$  captures the averseness of disadvantageous inequity. Player 2's utility function is analogous, and  $\beta_i \geq \alpha_i$  is assumed for  $i = 1, 2$ .

The model implicitly assumes that there is no inequity between players before the game starts. For our case of responding to a solicitation from the charity, it is more reasonable to assume that a potential giver is wealthier than a potential recipient. Instead of a difference in monetary payoffs, I assumed inequitable outcomes based on their current situations or reference points. For simplicity, I assumed further that givers only take one corresponding recipient into account when they receive a solicitation. Let  $g \in \mathbb{R}_+$  denote an amount of reallocation. Then the net utility from this reallocation given current economic states,  $v(g|x, y)$ , is defined by  $U_1(x - g, y + g) - U_1(x, y)$ . Consider a case  $x > y$  without loss of generality.

$$\begin{aligned}
v(g|x, y) &= U_1(x - g, y + g) - U_1(x, y) \\
&= x - g - \alpha_1 \max\{x - g - (y + g), 0\} - \beta_1 \max\{y + g - (x - g), 0\} \\
&\quad - [x - \alpha_1 \max\{x - y, 0\} - \beta_1 \max\{y - x, 0\}] \\
&= -g - \alpha_1 \max\{x - y - 2g, 0\} - \beta_1 \max\{y - x + 2g, 0\} + \alpha_1(x - y) \\
&= \begin{cases} (2\alpha_1 - 1)g & \text{if } g \leq \frac{x-y}{2} \\ (\alpha_1 + \beta_1)(x - y) - (2\beta_1 + 1)g & \text{if } g > \frac{x-y}{2} \end{cases}
\end{aligned}
\tag{1}$$

Hence the prediction of this simple inequity aversion model is straightforward: if  $\alpha_1 < 1/2$ ,  $g^* = 0$  is optimal, while if  $\alpha_1 \geq 1/2$ ,  $g^* > 0$ .<sup>14</sup> This prediction is natural, so it may explain why people donate. However, it still cannot explain why direct mail with coins gets returned more. When the giver receives  $\varepsilon > 0$ , and the current economic state becomes  $(x + \varepsilon, y - \delta\varepsilon)$ , where  $\delta \in (0, 1]$  is the proportion of charity's funds directed to the recipient if it were not to be used for solicitation, he still will not donate when his averseness to advantageous inequity is not large enough. Even if the aversion to advantageous inequity is sufficiently large, sending it back makes him less likely to feel indebted, given that the giver did not initially plan to give. Therefore the inequity aversion may explain why more solicitation letters with a coin attachment were returned, but can neither explain the increased response rates nor the increased returns.

This claim holds for an extended model of inequity aversion with impure altruism.

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<sup>14</sup>In this linear model,  $g^* = \frac{x-y}{2}$ , so that both players would have the same final outcome. However, this overstated result is mainly due to the linearity assumption.

Let  $g \geq 0$  denote an amount of charitable giving,  $W \geq 0$  and  $y \geq 0$  denote, respectively, the giver's and the recipient's wealth, and  $\delta \in (0, 1]$  denote the proportion of donations directed to the recipient. Then the giver's utility function is

$$U(g|W, y) = u(W - g) + \psi_i(g) + \alpha_i(1 + \delta)g\mathbb{1}_{g \geq 0} + \beta_i(1 + \delta)g\mathbb{1}_{g < 0}, \quad (3)$$

where  $u(\cdot)$  is utility from his own wealth,  $\psi_i(\cdot)$  is the giver  $i$ 's utility by giving, and the last two terms capture the inequity aversion based on the current inequity. When the giver donates  $g$ , his final wealth becomes  $W - g$ , while the recipient's wealth becomes  $y + \delta g$ , so the inequity between the giver and the recipient is  $W - g - y - \delta g$  and it decreases inequity by  $(1 + \delta)g$  compared to  $W - y$ . A negative  $g$  would not happen in general, but it represents the cases where the giver receives a little money from the coin attachment and keeps it. Consider first person  $i$  who decides not to donate when solicited without a coin attachment. It implies that

$$u(W) \geq u(W - g) + \psi_i(g) + \alpha_i(1 + \delta)g \quad \text{for any } g \geq 0. \quad (4)$$

Suppose that person  $i$  receives a solicitation letter with a coin whose value is  $\epsilon$ . If he keeps the coin without donation, his utility will be  $u(W + \epsilon) - \beta_i(1 + \delta)\epsilon$ . Even though there may exist  $g^*$  such that  $g^* \geq \epsilon$  and  $u(W + \epsilon - g^*) + \psi_i(g^*) + \alpha_i(1 + \delta)(g^* - \epsilon) > u(W + \epsilon) - \beta_i(1 + \delta)\epsilon$ , such  $g^*$  must be equal to  $\epsilon$  due to (4). Now consider person  $j$  who decides to donate  $\hat{g} > 0$  when solicited without a coin attachment. It implies that

$$u(W - \hat{g}) + \psi_i(\hat{g}) + \alpha_i(1 + \delta)\hat{g} \geq U(g|W, y) \quad \text{for any } g \geq 0. \quad (5)$$

In this case, the contribution level is generally determined by the warm-glow effect and the aversion to advantageous inequity, but it will not be affected by the value of the attached coin,  $\epsilon$ , as long as  $\hat{g} > \epsilon$ . All other possible variations, including inequity aversion models with an endogenous reference point, cannot explain the leveraged effect of the coin attachment. In summary, the main issue is that in the context of charitable giving, the aversion to disadvantageous inequity,  $\beta_i$ , which is usually assumed to be greater than the aversion to advantageous inequity,  $\alpha_i$ , plays no role.

Nontrivial cases arise when  $\hat{g} \leq \epsilon$ , that is, when the actual willingness to donate is less than 500 won, in my experimental setup. Unlike the case where  $\hat{g} > \epsilon$ , now the marginal utility of keeping the 500 won is greater than the indirect utility from the optimal donation decision that maximizes the giver's utility. Therefore the giver with  $\hat{g} \leq 500$  would not return the solicitation letter with 500 won. If the utility from the warm-glow effect is additively separable to that from the inequity aversion, it implies

that the magnitude of inequity aversion is greater than 100 won but less than 500 won for some givers.

## 4 Discussion on Low Donation Rates

The return was surprisingly low, both when compared to the project expenses and when compared to similar studies. The project expenses were more than \$12,000, and the donor who responded to the solicitation letter made monthly donations of \$10. The proportion of mail recipients who donated in previously reported studies of a similar field experiment vary from 2.07% (Karlan and List, 2007) to 66.46% (Meier, 2007). See Table 3. To minimize the sample selection bias, the charity sent its solicitation letters to households randomly selected from the entire population of the city. Similar studies selected samples within a narrower set of the population. Almost all of the previous researchers who conducted a natural field experiment sent solicitation letters to those already in an organization's database (List and Lucking-Reiley, 2002; Chen et al., 2006; Karlan and List, 2007; Falk, 2007; Meier, 2007; Rondeau and List, 2008; Eckel et al., 2014; Chao, 2017). The results are by themselves meaningful from the perspective of the fundraising organizations because most of the organizations sent solicitation letters to those in the existing database. However, such sample households may not represent the entire population. Rather, the sample from the existing database represents the population which feels the "warm glow" (Andreoni, 1989). I claim that the results from the previous studies should be extrapolated with extra care due to the potential sample selection bias.

The selected sample of Chen et al. (2006) is the closest to a random sample of the population, and therefore that study was relatively free from sample selection bias. They sent solicitation e-mails to those who visited the Internet Public Library (IPL) regardless of whether they had contributed to IPL or not.<sup>15</sup> Their low response rate, 25 out of 153,183, is perhaps due to random sampling and may suggest that the single donation of my study is also due to the randomness of the sampling.

There are other plausible reasons for the low donation rate. The period of data collection (late February–April) was selected to control for seasonal and holiday effects, but it coincides with seasons of low donations. In the United States, the proportion of total 2013 online giving was highest in December (18.8%), and more than 35% of online giving occurred in October, November, and December 2013 (*Giving USA*, 2014).

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<sup>15</sup>Still, we cannot say that their sample is random in a strict sense. Since the visitors' contribution will eventually help to improve the IPL that they have already visited, it naturally features a voluntary provision of public goods.

	Sample Size	#Responses	Response Rate	Season	Features	Main Treatment	Random Sample?
LL02	3,000	183	6.10%	Dec	New building construction at a local university	Seed money	No
KL07	50,083	1,035	2.07%	Aug–Sep	A politically liberal nonprofit organization in the US	Matching Grant	No
M07	11,379	7,563* <sup>1</sup>	66.46%	7 registering periods	Support to students (including themselves)	Matching Grant	Yes/No* <sup>2</sup>
F07	10,000	1,553	15.53%	Dec–Jan	Support to children in need	Postcards* <sup>3</sup>	No
RL08	3,000	137	4.57%	Jun–Jul	Education program by the Sierra Club of Canada	Matching and challenge gifts	No
C14	19,636	787	4.01%	May–Jul	A public radio station’s membership renewal	Thank-you gifts	No
EHM14	16,005	896	5.60%	Dec	Seeking alumni support for the university	Option to direct a gift	No
CLM06	153,183	25	0.0163%	Oct–Jun	Seeking user support to the Internet Public Library	Matching, seed money, Gifts	Yes* <sup>4</sup>
This Study	15,718	1 donations (382 responses)	0.00636% (2.4303%)	Feb–Apr	Charity’s name/mission changed recently	Coin attachment	Yes

Table 3: Summary of Previous Studies

\*1: When paying the compulsory tuition fee for a new semester’s registration, students at the University of Zürich are asked to choose to contribute to one of two social funds. Since those two funds aim to financially support some students at the University, response rates have been consistently high. The number of responses is inferred from the response rate reported in the paper.

\*2: In the sense that the treatment group here is randomly selected regardless of whether subjects contributed to the fundraising in the previous semesters or not, this could be regarded as a random sample from the population of the University of Zürich. However, a majority of the sample had donated to the social funds at least once. Since the purpose of social funds is to help students at the University, there is a chance for the donors to be a beneficiary of the funds.

\*3: Postcards showed colored paintings drawn by children in need.

\*4: The sample of this study is the closest to a random sample of the population. However, their contributions will eventually help to improve the Internet Public Library they have already visited and relied upon, so it naturally features a voluntary public good provision.

LL02: List and Lucking-Reiley (2002) KL07: Karlan and List (2007) M07: Meier (2007) F07: Falk (2007)  
RL08: Rondeau and List (2008) C14: Chao (2017) EHM14: Eckel et al. (2014) CLM06: Chen et al. (2006)

Provided that the monthly giving trend in Korea is similar to that in the US, the solicitation letters might have brought less attention. Results from the previous studies confirm this claim. The response rates of experiments conducted in December varied from 5.60% (Eckel et al., 2014) to 15.53% (Falk, 2007), while those in the other months varied from 2.07% (Karlan and List, 2007) to 4.57% (Rondeau and List, 2008). The reputation of the charity could also be the reason for the low return, but it is untestable whether the results would have been different with a widely recognizable charity.

## 5 Conclusions

The critical aspects of this experiment were to make people feel involuntarily indebted while neither making them happier nor urging them to make active choices. The natural field experiment was a primary data generation methodology because observations from controlled laboratory experiments or existing data cannot be generated under a proper situation to satisfy all of the aspects described above. The experiment was designed to answer the following question: Was an overshooting response to the feeling of involuntary indebtedness the main driving force to make people behave prosocially, or was it driven by the happier mood produced by an unexpected favor from others? Unfortunately, I did not find any significant evidence that the coin attachment could bring more responses.

Still, this study has at least two contributions. First, it confirms that the coin strategy appeals to mail recipients' inequity aversion. A significantly larger proportion of the letters with 100 won were returned than those without any attachment. Some recipients who received 100 won were reluctant to keep 100 won because keeping the coin marginally exacerbates the inequity between the potentially benefited person and the mail recipient; at the same time, the negligible monetary gain does not significantly increase their utility. Since such reluctance decreases when the monetary payoff increases fivefold, this methodology may provide a clearer idea of measuring inequity aversion in general situations. In this particular context, I could claim that the disutility from recognizing the inequity is higher than keeping 100 won but smaller than keeping 500 won. Second, considering the project's expenses of more than \$12,000, charities would have been better off by examining other cost-effective solicitation strategies. If this inefficiency of direct marketing could be applied to a large body of start-up charities that do not have lists of potential donors, it may call our attention to the choice between the private provision and the public provision of public goods. In addition to the project expenses, many returned letters raised some social costs that were defrayed

by the Korea Post service. It would be interesting if further studies could provide evidence as to whether the private provision of public goods works well in charitable giving, even after taking overhead expenses into account.

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## Appendix

Images of the solicitation letters are shown below. The solicitation letters are written in Korean, so some supplementary notes are provided.



Figure 5: The Solicitation Letter

(Left: Front page) At the top of the front page, this letter shows images of coins to emphasize that the amount of the coins may not be of much worth to the reader but could matter significantly to those in need. (Right: Back page) This shows how the charity used the funds raised by individual donations, with relevant photos.



Figure 6: The Application Form

(Left: Inside) The form also provided information on how to donate online or by phone. (Right: Outside) The form by itself works as a self-sealing return envelope. Since a postage stamp is not required, one who wants to donate can simply fill out the form, fold it, and put it in a mailbox.



Figure 7: Four Types of Letters: No Visible Differences

Clockwise from top left: Letter with 100 won, letter with 500 won, letter without an attachment, and letter with the medallion

