Title: Using Coin Flipping to Increase Charity Giving

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Abstract: Since ancient times, randomization devices such as coin flipping have been widely adopted as means for making decisions. This study presents the first experimental test of coin flipping as a nudge to help resolve choice difficulty in the setting of charity giving. We conduct a field experiment in which potential donors were given the option of coin flipping to determine which of two similarly favorable charities to donate to. We find that the inclusion of the coin flipping option increases the donation rate by 20 percent. Laboratory experiments replicate the observed patterns and shed further light on the underlying psychological mechanism. More generally, our results point to the power of coin flipping as a nudge when people must make difficult choices.

Introduction

Imagine that an equally hungry and thirsty ass is placed exactly midway between a stack of hay and a pail of water, and the ass will only go to whichever is closer. It then dies of both hunger and thirst, since it cannot choose between the hay and water. This thought experiment, known as Buridan's Ass Paradox, is used to describe the paradoxical consequence that can result from choosing between two equally desirable alternatives. The paradox resembles choice difficulty in daily life, ranging from small decisions—such as which clothes to wear and what to have for dinner—to important decisions, such as which career path to take and whom to marry. When faced with difficult choices, it is commonly observed that one tends to select the more justifiable alternative (*1*), to exceedingly seek new alternatives (*2*), to choose the default option (*3, 4*), or to procrastinate making the decision (*5*). For example, low participation in 401(k) plans has been partially attributed to choice difficulty over various investment options (*3, 6, 7*). Moreover, when facing more options, physicians exhibit a tendency to maintain the status quo when making treatment recommendations for patients (*4*).

Since ancient times, randomization techniques have been used to make decisions. These include coin flipping, rolling a die, consulting the Magic 8 Ball, and finding a quotation in a holy book. In group decision settings, these devices have commonly been used to allocate resources, assign tasks, and resolve disputes (*8-10*). In individual decision settings, theories have been proposed that individual decision makers may deliberately randomize, so as to minimize regret, or hedge across uncertainty about the values of options or the minds of the decision makers (*11-14*). Despite being practically popular and theoretically appealing, there is a lack of systematic empirical research on whether and how preference for randomization can be put to work (*14-16*)

In this paper we present the first experimental study on coin flipping as a "nudge" toward resolving choice difficulty in the setting of charity giving. Our experiment adopts a 2 × 2 factorial design, in which subjects decide whether to keep a fixed sum of money or to donate the money to a charity. In the "hard" treatment, if subjects are to donate, they must choose between two charities: the Alzheimer's Disease Association of Singapore (ADAS) or the Diabetic Society of Singapore (DSS). As these two local charities both pertain to chronic diseases related to aging, subjects probably do not have a preference for one over the other, and face choice difficulty when they are asked to choose. In the "easy" treatment, to reduce choice difficulty, a 100% matching donation is made to one of the charities to break the tie. In the "coin" treatment, subjects are provided an additional option of coin flipping to decide which organization to donate to. More specifically, if the coin lands on the head, the donation will be given to ADAS; if it lands on the tail, the donation will be given to DSS. In the "no-coin" treatment, the coin flipping option is not available. To sum, our 2 × 2 factorial design entails four conditions: hard/no-coin, easy/no-coin, hard/coin, easy/coin. We hypothesize that coin flipping increases the donation when the choice is hard, but not when choice is relatively easy.

Results

In the field experiment, we include two additional conditions, in which instead of presenting two charity options, we present only one charity option to participants. That is, they only had to decide whether to keep the fixed amount of money or to donate it to one charity: ADAS in one condition or DSS in the other condition. 1,464 street survey respondents were randomly assigned to one of six conditions using a between-subjects design (see the supplementary materials for details). First,

we observe that there is no significant difference in the basic demographic information across treatments (Table S1), which supports the validity of random assignment. In the two additional conditions with only one charity, we observed that 58.0% and 57.7% of participants chose to donate to ADAS and DSS, respectively (Table S2). The proportion of donating in two treatments is not significantly different from each other ($z = 0.004$, $P = 0.95$), which indicates that on average, one charity is not predominately more attractive than the other.

Figure 1 (left panel) plots the proportion of participants choosing to donate for each of the four conditions. In the hard/no-coin condition, 52.7% of participants chose to donate, which is slightly lower than the average of the two additional conditions with one charity ($z = 1.33$, $P = 0.18$). In the hard/coin condition, in which the coin flipping option was introduced, 63.5% of the participants chose to donate, which is significantly higher than the hard/no-coin condition ($z = 2.46$, $P = 0.01$). That is, providing a coin flipping option significantly increases the donation rate by 20%. In contrast, for the easy conditions is which matching is introduced to reduce choice difficulty, the proportion of participants choosing to donate is 63.9% for the easy/no-coin condition and 63.0% for the easy/coin condition, which is not significantly different between the two conditions ($z = 0.2$, $P = 0.84$). This supports our hypothesis that coin flipping increases donation when the choice is hard, but not when the choice is easy. Regression analysis further confirms the above results (Table S3). Figure 2 (left panel) plots the proportion of participants choosing to donate for the two conditions with coin flipping. In the hard/coin condition, 24.3% chose the coin flipping option. In contrast, in the easy/coin condition, 14.5% chose to flip a coin, which is significantly lower than in the hard/coin condition ($z = 7.53$, $P < 0.01$). The results suggest that participants are more

likely to choose coin flipping when the choice is hard, but not when it is easy (see supplementary materials for details).

To examine the replicability of the study and to shed further light on the psychological mechanism, we conducted a laboratory experiment. In a within-subject design with the same aforementioned four conditions, 106 university students underwent a series of decision-making tasks in random order. Figure 1 (right panel) plots the proportion of participants who chose to donate for the four treatments. The coin flipping option leads a significant increase in donation, from 22.1% in the hard/no-coin condition to 30.4% in the hard/coin condition ($z = 3.07$, $P < 0.01$). In contrast, when 100% matching funds were provided, the rate of donation increased slightly, from 42.0% in the easy/no-coin condition to 45.7% in the easy/coin condition ($z = 1.71$, $P = 0.09$). Figure 2 (right panel) plots the proportion of participants choosing to donate for the two conditions with coin flipping. Consistent with findings in the field experiment, participants were significantly more likely to choose the coin flipping option in the hard/coin condition (17.4%) than in the easy/coin condition (6.6%) ($z = 6.68$, $P < 0.001$). The results are further supported by regression analysis (Table S3). To sum, the observations in the laboratory experiment using a within-subject design replicate those in the field experiment using a between-subject design.

We further examined the underlying psychological mechanism of coin flipping from three perspectives. First, we used participants' response time to measure the difficulty subjects face when making the choice (*17, 18*). In particular, we found that participants took more time to reach a donation decision in the hard conditions than in the easy conditions (Figure S2). More specifically, we investigated whether the response time in the no-coin conditions would predict

the tendency to flip a coin in the coin conditions. Figure 3 presents the relationship between response time in the no-coin condition and the proportion of choosing coin flipping in the coin condition. As the figure shows, longer response time in the hard/no-coin condition is associated with higher likelihood of flipping a coin in the hard/coin condition ($\beta = 0.082$, $P < 0.05$, regression analysis in Table S8), whereas this is not the case in the easy/coin condition ($\beta = 0.027$, $P = 0.14$). The results suggest that when participants were presented with hard choices, reflected in longer response time, they were more likely to choose coin flipping (Table S8).

Second, after the decision-making tasks, we asked participants a hypothetical question: "*Suppose someone has $1,000,000, and this person would like to donate to the two charity organizations (ADAS and DSS). How would you like this person to allocate money to these two organizations*?" The option varied from donating 0% to DSS (therefore, 100% to ADAS) to 100% to DSS (therefore, 0% to ADAS). If participants decide that the two charities are equally deserving of the donation, they are more likely to equally allocate the budget. We hypothesized that budget allocation to the charities has an inverted U-shaped relationship with coin flipping decisions: The more even the budget, the more likely participants are to choose coin flipping. Figure 4 presents the relationship between budget allocation and the proportion that chose coin flipping, and suggests that the more equally participants allocated the budget, the more likely they were to flip a coin when the choice is hard, but not when the choice is easy. This finding is further confirmed by the significance of quadratic terms using regression analysis and the two-line test (*19*) (see regression analysis in Table S8 for quadratic term and two-line test results in Table S9).

Third, in the post-experiment questionnaire, we directly asked participants to write their reasons for coin flipping, then divided the reasons into groups based on similarity (see supplementary materials for details). Of the participants who gave reasons, 58.7% were motivated by indecisiveness-related terms, 26.1% mentioned equity-related terms, and the remaining 15.2% gave others reasons. These results support our hypothesis that subjects flip a coin for hard choices.

Discussion

Since ancient times, such as in the writings of the *I Ching* or the Bible, random devices have been widely adopted as means for resolving disputes and discerning divine guidance. In modern times, random devices are commonly used for random selection in politics, sports, and public policy. In an experimental study (*16*), subjects were shown to make different choices when facing the same binary choices three times in a row when the choices are hard. This indicates a preference for randomization for choice difficulty. In a large-scale randomized field experiment (*15*), subjects flipped a coin to decide whether to make a change or to maintain the status quo. Interestingly, based on self-report data, those who were instructed by the coin toss to make a change were much more likely to do so and were happier six months later. In both field and laboratory experiments, we find that participants were more likely to choose the coin flipping option for hard choices. In this regard, our study contributes to previous research on the use of nudges to resolve choice difficulty (*20*-*22*).

Our study also contributes to recent behavioral literature on charitable giving (*23*, *24*). Various novel mechanisms have been examined to promote prosocial giving, such as introducing seed money and refunds (*25*), covering overhead costs (*26*), increasing observability (*27*), and

enhancing group identity (*28*). Our findings, from both the field and laboratory experiments, support the hypothesis that inclusion of a coin flipping option could increase donation for a difficult choice. Our proposed nudge is particularly relevant, given that the number of charities has increased to a high level over time. For example, based on the National Center for Charitable Statistics in the United States, the number of public charities rose from 597,236 in 1998 to 1,097,689 in 2016. While this surge in the number of charities may serve diverse needs of potential donors, it may also lead to choice difficulty and psychophysical numbing (*29, 30*). In this regard, our study suggests that randomization can potentially be used as a nudge to increase donation.

There are several possible explanations for why the inclusion of coin flipping could help resolve choice difficulty. In particular, in the no-coin treatment, a decision maker can randomize internally, by flipping a coin in her brain. In this regard, the difference between the no-coin treatment and the coin treatment could be attributed to various ways that internal randomization and external randomization may differ (see Machina (*9*) for detailed discussions). First, internal randomization may give rise to the issue of commitment. More specifically, when a decision maker randomizes internally, the resolution of initial randomization leads to the matter of further randomization. We report an additional experiment to test this hypothesis in our supplementary materials, and observe that commitment is unlikely to be the behavioral mechanism underlying the difference between internal and external randomization. Second, internal randomization is unobservable. In contrast, external randomization is more useful, if a decision maker wants to appear fair to observers. Third, internal randomization may be cognitively challenging, as people have difficulty internally generating random sequences (*31*). In this regard, external randomization may be more convenient

to implement. Future studies are needed to better understanding randomization, which is "an intentional choice to make the decision by a nonintentional mechanism" (*8*).

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Supplementary Materials

Figures

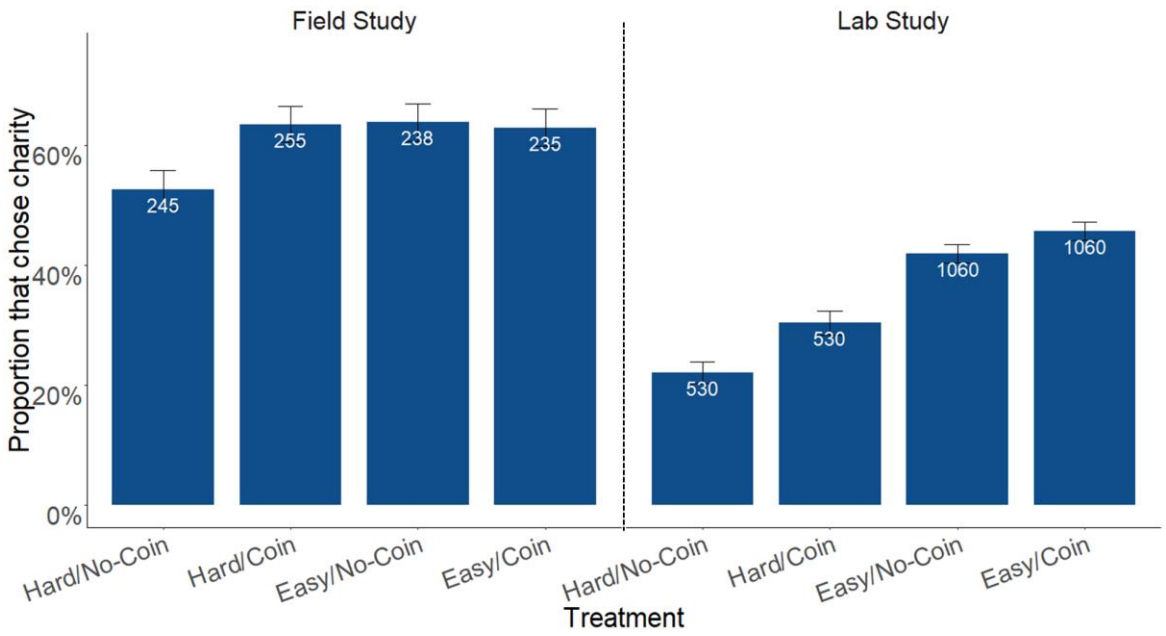

Fig. 1. Proportion Choosing Donation by Treatments. The left (right) panel presents the proportion choosing the donation option in the field (laboratory) experiment. Error bars are ±1 SEM. Number of observations in each condition is shown on its respective bar.

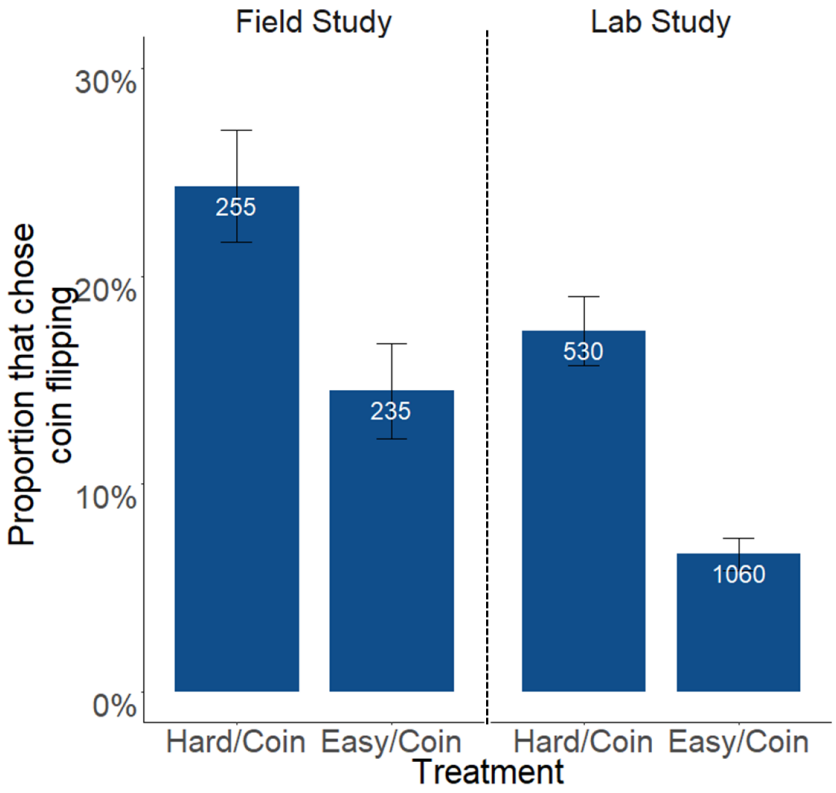

Fig. 2. Proportion Choosing Coin Flipping by Treatment. The left (right) panel presents the proportion choosing the coin flipping option in the field (laboratory) experiment. Error bars are ±1 SEM. Number of observations in each condition is shown on its respective bar.

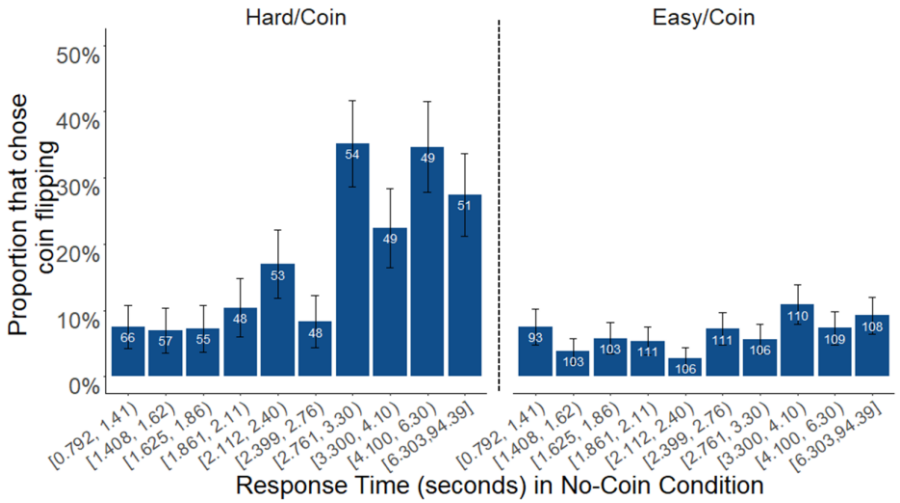

Fig. 3. Response Time and Choice of Coin Fipping by Treatment. The response time is divided into 10 intervals with equal numbers of observations. The left (right) panel presents the proportion choosing the coin flip in the Hard/Coin (Easy/Coin) condition. Error bars are ±1 SEM. Number of observations in each condition is shown on its respective bar.

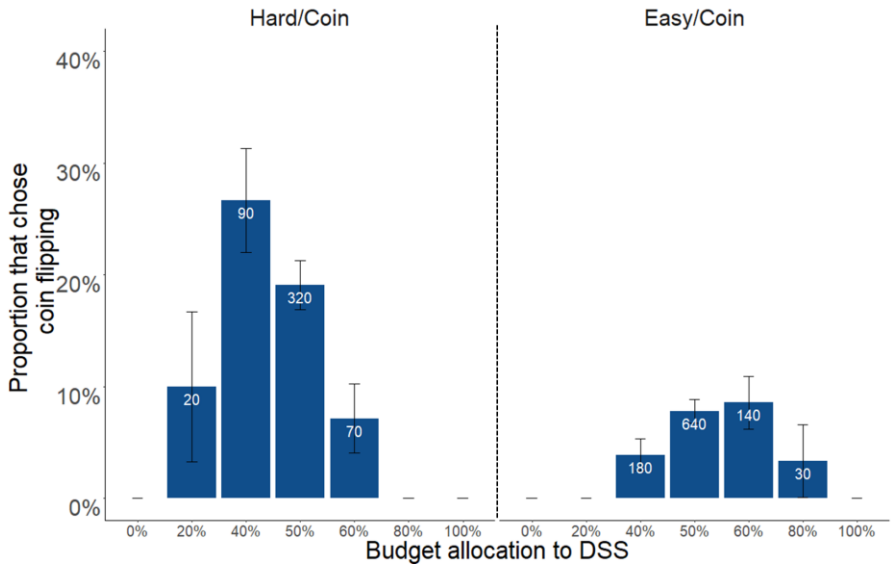

Fig. 4. Budget Allocation and Choice of Coin Flipping by Treatment. The x-axis is the budget allocation to DSS in the post-experiment question. The left (right) panel presents the proportion of choosing the coin flip in the Hard/Coin (Easy/Coin) condition. Error bars are ±1 SEM. Number of observations in each condition is shown on its respective bar.

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Materials and Methods

Study 1 – Field Experiment

Participant The field experiment was conducted with 1,464 street survey respondents (53% female, mean age = 27.7) in Singapore from June to August 2017. The survey was carried out by 16 undergraduate research assistants at several sites, including subway stations, residential areas, and shopping malls. The research assistants were unaware of the hypotheses of the study. Participants were invited to complete a 5-10 minute survey in exchange for 5 Singapore dollars (S$) (≈ 3.7 US dollars). The survey contained questions on economic behavior, fertility intentions, and demographic information in a two-page, double-sided format. The questions on economic behavior and fertility intentions will be used in another project, which is unrelated to this study. One purpose of presenting the donation choice after participants have be paid to complete a survey is to induce a sense of entitlement: Participants have earned the S$5, and as a result, the option of keeping the S$5 as compensation would be perceived as the default option by participants.

Procedure After participants completed the survey, they were asked whether they would like to keep the S$5 or donate it to a charity. Two charities are included in the study: the Alzheimer's Disease Association of Singapore (ADAS) and the Diabetic Society of Singapore (DSS). We adopted a 2 (hard vs. easy) × 2 (no-coin vs. coin) factorial design with four conditions. We manipulate two factors: whether the choice is difficult to make, and whether an option of coin flipping is included.

More specifically, in the "hard/no-coin" condition, subjects choose to keep the money, donate it to ADAS, or donate it to DSS. In the "easy/no-coin" condition, subjects also face three options. In this condition, 100% matching is provided to ADAS to increase the attractiveness of the option, and thus reduce the conflict. That is, if they choose to donate the S$5 to ADAS, we add S$5 on top of their donation. In the "hard/coin" condition, an additional option of coin flipping is added to the "hard/no-coin" condition as follows: If the coin lands on the head, the donation will be given to ADAS; if it lands on the tail, the donation will be given to DSS. In the "easy/coin" condition, similarly, an additional option of coin flipping is added to the "easy/no-coin" condition. If the coin lands on the head, the donation will be given to ADAS and 100% matching will be provided as well. We included two additional conditions, in which we presented only one charity, either ADAS or DSS, to participants. That is, participants were making binary choices, either to keep the S$5 or donate the S$5 to a charity. We randomly assigned participants to one of six treatment conditions (see the Experimental Instructions below for details).

Study 2 – Laboratory Experiment

Participant The laboratory experiment was conducted with 106 university students (36% female, mean age = 22.6) at the National University of Singapore in September and October of 2017. We posted the recruitment advertisement on a website for students looking for part-time jobs or opportunities as research subjects. In the advertisement, participants were invited to participate in an economic decision-making experiment. Participants received a S$8 show-up fee independent of the decisions they made in the experiment. Upon arrival at the lab, each subject's informed consent was obtained via a consent form approved by the National University of Singapore.

Procedure The lab experiment differs from the field experiment in several ways. First, the upfront survey was not included in the laboratory experiment. This partially enables us to examine generalizability with respect to entitlement. Second, in the lab experiment, we used a within-subject design. That is, participants underwent four treatment conditions (hard/no-coin, hard/coin, easy/no-coin, and easy/coin). Using a within-subject design, we are able to link participants' response in one condition to the other conditions, which allows us to investigate underlying psychological mechanisms. Third, we vary the amount of money participants were considering donating to include S$2, S$4, S$6, S$8, and S$10. In the easy condition, we either doubled the donated amount to ADAS or to DSS. That is, in five of the choice situations, if they chose to donate to ADAS, their donation would be doubled, and in the other five choice situations, if they chose to donate to DSS, their donation would be doubled. Fourth, participants completed the decision tasks on a web portal using Qualtrics.com on a computer. Qualtrics.com's web application allows us to record the participants' response times when making their choices.

As a result, participants made 30 choices in different choice situations: five choices under the hard/no-coin condition; five choices under the hard/coin condition; five choices under the easy/no-coin condition, in which matching funds were provided to ADAS; five choices under the easy/no-coin condition, in which matching funds were provided to DSS; five choices under the easy/coin condition, in which matching funds were provided to ADAS; and five choices under the easy/coin condition, in which matching funds were provided to DSS. The five choices correspond to the five dollar amounts stated above. The 30 choice tasks were presented in random order to participants.

To provide incentive for the tasks, one out of the 30 choices was randomly chosen to be implemented based on the choice of the participant. To avoid participants' randomizing among the 30 choices, we used the *prior incentive system (1)* as follows: Before starting the decision-making tasks, we first asked participants to randomly pick one envelope from 30 envelopes. The 30 envelopes corresponded to all 30 choices they would encounter in the choice tasks. That is, they made their 30 choices after having picked the choice situation that would be implemented. We informed participants that we would unseal the envelope and reveal the actual choice situation only after they completed the tasks. Since all decisions are equally likely to be chosen, they were reminded that they should make each decision as if it would be the "decision that counts."

At the end of the experiment, we included a questionnaire on demographic information along with several further questions, as follows. First, to examine how participants perceived the two charities, we asked a hypothetical question: *"Suppose someone has $1,000,000, and this person would like to donate to the two charity organizations. How would you like this person to allocate money to these two organizations?*" The option varied from donating 0% to DSS (therefore, 100% to ADAS) to 100% to DSS (therefore, 0% to ADAS). Second, we asked participants to write down their motivation for coin flipping. Third, we asked whether participants had family members who had Alzheimer's or diabetes. We included these variables along with demographic information as covariates in the regression analyses.

Study 3 – Follow-up Laboratory Experiment

Participants The follow-up experiment was conducted with 146 university students (60.3% female, mean age = 22.5) at the National University of Singapore on April 11, 2018. The recruitment procedure was similar to Study 2. Participants received a S$8 show-up fee independent of the decisions they made in the experiment.

Procedure Similar to Study 2, we used a within-subject design. Participants completed the decision tasks on a web portal designed using Qualtrics.com on a computer. One out of 15 choices was randomly chosen to be implemented based the participant's choice using the *prior incentive system*, similar to the procedure in Study 2.

In the follow-up experiment, we mainly focused on the hard/no-coin and hard/coin conditions. We added another coin-flipping condition, in which if participants chose to toss a coin, they could toss as many times as they wanted, and the correspondence between the outcome of the coin flip (heads or tails) and the charity organization (ADAS or DSS) was not specified. We label this new coin-flipping condition the coin-no-commitment condition.

The amounts participants could choose to donate included $2, $4, $6, $8, and $10. As a result, participants made 15 choices in different choice situations: five choices under the hard/no-coin condition, five choices under the hard/coin condition, and five choices under hard/coin-no-commitment.

Supplementary Text

Study 1 – Field Experiment Results

Statistical Method The data analysis in the paper was conducted in R3.4.3, and we used the "lfe" package (*2*) for the regression analysis and "ggplot2" to generate the figures. We used linear probability models to examine the results by controlling for covariates, in addition to the statistical testing reported in the main text. Our results are robust for the probit regression models.

The dependent variables of interest are binary variables: donation decision (= 1 if participants chose to donate; otherwise = 0), and the coin flipping decision (= 1 if participants chose to flip a coin; otherwise = 0). We focus on two independent variables based on the 2 × 2 factorial design, *Coin flip* (= 1 if in the hard/coin or easy/coin condition; otherwise = 0) and *Hard* (= 1 if in the hard/no-coin or hard/coin condition; otherwise = 0). In the regression, we controlled for participants' age and gender. We also controlled for data collectors' and dates' fixed effect. Standard errors are clustered at data collector and date level, which is designed to take into account potential serial correlation within data collectors and dates. The significance level of the results is robust to exclude the fixed effect or to use non-clustered standard errors in the inference.

Summary Statistics Table S1 presents the distribution of age and gender across treatments. We observe no significant difference between the treatment conditions at the 0.05 level, which provides support for the validity of random assignment across the six conditions. Table S2 presents the choice proportion of each option by treatment.

Donation Decision Table S3 presents regression results with donation decision as the dependent variable. Column 1 shows that the main effect of *Coin flip* is positive but not statistically significant at the 0.05 level. The coefficient on *Hard* is significantly negative, indicating that offering matching funds increases the tendency to donate. The magnitude of effect of matching funds is consistent with prior literature (*3*). We hypothesized that offering a coin flipping option would increase the likelihood of choosing charity when the choice is difficult. As can be seen in Column 2, there is a significant, positive interaction effect between *Coin flip* and *Hard* on the decision to donate. Since the interactions between *Coin flip* and *Hard* are significant and positive, this suggests that offering a coin flipping option is more likely to increase the likelihood of donation under conditions in which no matching funds are provided (i.e., the hard/no-coin condition).

We further analyzed the data separately by whether we offered matching funds for the donation, i.e., hard and easy conditions. We observe that compared to the hard/no-coin condition, participants were 9.8% more likely to choose to donate in the hard/coin condition (Column 3). The coin flipping option increases the propensity to donate by 20%, a magnitude that is comparable to the impact of providing matching funds. There is no significant difference between the easy/no-coin condition and easy/coin condition (Column 4). Overall, these results suggest that coin flipping increases donation when the choice is hard, but not when the choice is easy.

Coin Flipping Decision Table S4 presents regression results with the coin flipping decision as a dependent variable. More specifically, we test whether participants are more likely to choose the coin flipping option in the hard/coin condition than the easy/coin condition. We find that the

significant and positive effect of choice difficulty on the decision to flip a coin is both unconditional on donating (Column 1) and conditional on donating (Column 2), which supports our hypothesis that participants are more likely to choose the coin flipping option when the decision is hard.

Study 2 – Laboratory Experiment Results

Statistical Method The statistical package and methods used are the same as in Study 1. In the regression, we controlled for participants' age, gender, and family history of diseases. We also controlled for fixed effect of the experimental sessions. Standard errors are clustered at the individual level, which is designed to take into account potential serial correlation across different choices made by the same individual. The significance level of the results is robust to excluding the fixed effect or to use non-clustered standard errors in the inference.

Donation Decision The choice proportion for each option by treatment is summarized in Table S2. Table S5 presents regression results with the donation decision as a dependent variable. In Column 1, we observe a significant and positive effect of *Coin flip* on decision to donate, suggesting that offering a coin flipping option generally increased the tendency to donate. In Column 2, we included an interaction term between *Coin flip* and *Hard*. Similar to the results in the field reported in Table S3, the marginally significant, positive coefficients suggest that the coin flipping option was more likely to increase donation when no matching funds were provided, i.e., the hard/coin condition. We further analyzed the data separately by whether we offered matching funds for the donation. As can be seen in Columns 3 and 4, *Coin flip* increases donation in both

hard and easy conditions, but the smaller coefficient suggests that it increases less so in the easy condition. Similar to results in the field experiment, the coefficient on *Hard* is negative and significant, i.e., providing matching funds increases donation. In the lab experiment, we varied the amount of money that could be kept or donated to charity. We found a negative effect—that is, the larger the amount, the less likely that participants would choose to donate.

Donation Decision and Budget Allocation. Fig S1 plots the relationship between the budget allocation question and the likelihood of donation when the coin flipping option is absent. As we asked participants hypothetically the percentage of the $1,000,000 to be allocated to DSS (with the remaining percentage allocated to ADAS), we contend that the more equally participants allocate the budget, the more equally attractive they would perceive the two charities to be, and hence the more conflict they would experience when they making their decisions in the choice tasks. As Tversky and Shafir (*4*) note, the conflict in choice will reduce the motivation to make an active choice. As a result, we hypothesize that participants who equally allocate the budget would be less likely to choose a charity.

As shown in Figure S1, the more even the budget allocation, the less likely the participants were to donate, consistent with our hypothesis. Across the hard/no-coin and easy/no-coin conditions, when participants had a strong preference for either ADAS or DSS (allocating 0% to DSS or 100% ADAS), there was a more than 50% chance that they would choose to donate. They became less likely to donate when they allocated a more even budget. The U-shaped relationship is further formally tested using regression. We include a quadratic term for the budget allocation, *Budget*, as the independent variable. As shown in Table S6, the quadratic term is positive and significant.

As Simonsohn (*5*) points out, using a quadratic term may result in a high chance of getting a false-positive U-shaped relationship. To perform a rigorous test of the relationship, we use the "two-line" method developed by Simonsohn. Since our independent variable—the budget allocation—is a discrete variable, we can simply split the sample into two parts: participants who allocate 50% or less to DSS (budget ≤ 50%), and those who allocate more than 50% (budget > 50%). We conduct two regressions testing the relationship between budget allocation and donation while controlling for other covariates. If there is a U-shaped relationship between budget allocation to DSS and the tendency to donate, we should observe a significant and negative coefficient on the budget for the first sample (budget ≤ 50%), and a significant and positive coefficient on the budget for the second sample (budget > 50%).

Table S7 presents results for the two-line test. We report the coefficients on the budget for both samples (budget ≤ 50% and budget > 50%), controlling for other covariates. As can be seen, for the no coin conditions, the two coefficients are significant and have opposite signs when pooling the hard and easy conditions (Model 1). The coefficients for the first sample (budget ≤ 50%) are not significant at the 5% level when separating the sample by the hard and easy condition (Models 2 and 3). The coefficients for the first sample (budget ≤ 50%) are not significant at the 5% level for the coin conditions (Models 4-6), as expected.

Coin Flipping Decision. Table S9 presents regression results with the coin flipping decision as the dependent variable. Column 1 shows that the coefficient on *Hard* is positive and significant,

consistent with the results in the field showing that participants are more likely to choose coin flipping when the decision is hard.

Coin Flipping Decision and Response Time. To investigate the underlying mechanism of coin flipping, we include participants' response time (RT) in the analysis. Fig S2 shows the logged RT conditional on donation across conditions. As can be seen, participants took longer to make a donation decision under hard conditions than easy conditions, irrespective of whether the coin flip option is present ($M_{\text{hard/no-coin}} = 1.31$ vs. $M_{easy/no-coin} = 1.17$, $t = 2.1$, $p < 0.05$; $M_{\text{hard/coin}} = 1.41$ vs. $M_{easy/coin} = 1.23$, $t = 2.7$, $p < 0.01$). The results justify our experimental design: It is more difficult for participants to reach a donation decision without matching funds than with matching funds.

We include response times in the regression in Table S8. We hypothesize that since RT in the hard/no-coin condition reflects the choice difficulty participants faced, the RT in the hard/no-coin condition would predict the tendency to flip a coin in the same choice situation when the coin flipping option is provided. As shown in Column 1, the coefficient on the Logged RT in the no-coin condition is significant and positive, which confirms our hypothesis. In Column 2 of Table S8, we control for RT for decision making in the coin-condition, which does not affect the results. In Column 3, we added an interaction term between RT in the no-coin condition and *Hard* dummy variable. The positive coefficient suggests that the positive correlation between RT in the no-coin condition is larger in the hard/coin condition than in the easy/coin condition, which confirms the pattern in Fig 3. In columns 4 and 5, we further split the data by the hard/coin and easy/coin condition. As can be seen, the longer RT in the hard/no-coin condition is significantly associated

with the higher likelihood of flipping a coin in the hard/coin condition, whereas this is not the case in the easy/coin condition.

Coin Flipping Decision and Budget Allocation. We hypothesize that the more even the budget allocation, the more likely participants would be to choose to flip a coin. To test the inverted-U-shaped relationship, we included a quadratic term of budget in the regression model. As Table S8 shows, the quadratic term is negative and significant, which confirms our hypothesis that participants are more likely to flip a coin when the two charities are equally attractive.

We conduct two-line test on the inverted-U-shaped relationship between budget allocation and the tendency to choose coin flipping. We split the data into two parts, participants who allocate 40% or less to DSS (budget $\leq$ 40%), and those who allocate more than 40% (budget > 40%). We conduct two regressions testing the relationship between budget allocation and choice of coin flipping while controlling for other covariates. If there is an inverted-U-shaped relationship between budget allocation to DSS and the tendency to flip a coin, we should observe a significant and positive coefficient on the budget for the first sample (budget $\leq$ 40%), and a significant and negative coefficient on the budget for the second sample (budget > 40%).

Results for the two-line test are presented in Table S9. We report the coefficients on the budget for both samples (budget $\leq$ 40% and budget > 40%) controlling for other covariates. The two coefficients are significant and have opposite signs when pooling the hard and easy conditions (Model 1). For the hard condition, both coefficients are significant at the 5% level, indicating an inverted-U-shaped relationship. For the easy condition, the coefficient on budget for the second

sample is not significant. The results suggest that the more even the budget allocation, the more likely participants would be to choose to flip a coin in the hard condition, but not in the easy condition.

Coin Flipping Decision and Self-reported Reasons. After the decision tasks, we asked participants to write their reasons for choosing to flip the coin at least once. Table S11 presents the text of participants' responses. We grouped reasons based on similar themes. If they mentioned "hard to determine," "indifferent," "don't have a preference," "cannot decide," or related terms, we categorized the reason as indecisiveness. Of the 47 participants who gave reasons, 58.7% were motivated by indecisiveness-related terms. "Equal chance" or related terms were mentioned by 26.1% of participants, and we categorized these as equity concerns. The remaining 15.2% of participants gave other reasons, such as "Just to try a different option" or "misunderstanding of the instructions." The reasons given by participants further support our hypothesis that the coin flipping option is chosen to resolve choice conflict.

Study 3 – Follow-up Laboratory Experiment Results

Results from Studies 1 and 2 show that decision makers are more likely to flip a coin when the choice is hard compared to when the choice is easy. However, in the no-coin treatment, a decision maker can randomize internally, by flipping a coin in her brain . In this regard, the difference between the no-coin treatment and coin treatment may be attributed to various ways internal randomization and external randomization differ (see Machina (*6*) for a detailed discussion). First, internal randomization may raise the issue of commitment. More specifically, suppose a decision

maker prefers randomizing between charity A and charity B to choosing either A or B. Should a head appear when flipping a coin in her brain, she would choose A. However, the decision maker may still prefer randomizing between A and B again to following the instruction of the coin flip to choose A. In this sense, internal randomization may raise the commitment issue. Second, internal randomization is unobservable. More specifically, an observer—for instance, the experimenter—cannot infer whether the choice of the donation to charity A reflects the consequence of randomization between A and B or a strict preference for A over B. In this regard, should the decision maker want to appear fair to observers, internal randomization is not sufficient to serve the purpose. Third, internal randomization may be cognitively challenging, as a number of studies have consistently shown that people have difficulty internally generating random sequences (*7*). Compared to internal randomization, external randomization is considerably more convenient and less cognitively demanding for reaching a randomized decision. To shed light on these differences, we compare the hard/coin condition and hard/coin-no-commitment condition in Study 3.

Donation Decision. The choice proportion for each option by treatment is summarized in Table 2S, and regression results are presented in Table S10. First, we observe that the proportion of choosing coin flipping in the hard/coin condition (13%) is significantly higher than in the hard/coin-no-commitment condition (9%) (Column 3, Table S10). Overall, this result suggests that decision makers in general prefer a randomization device by which they can either commit to the realized outcome or make their choice of randomization more observable to other people. Second, we observe that the proportion of donation is 30% in the hard/no-coin condition, 35% in the hard/coin condition, and 34% in the hard/coin-no-commitment condition. We replicate our result in Studies 1 and 2 that coin flipping significantly increases donation (Column 1, Table S10). While

decision makers prefer a randomization device in the hard/coin condition more than in the hard/coin-no-commitment condition, we do not observe a significant difference in donation between the hard/coin condition and the hard/coin-no-commitment condition (Column 2, Table S10). This suggests that on the one hand, coin flipping in the hard/coin condition may be more convenient than internal randomization, and on the other hand, the presence of the coin flipping option in the hard/coin-no-commitment condition may increase the saliency of decision making through randomization and induce a higher take-up rate of internal randomization that leads to the increased donation.

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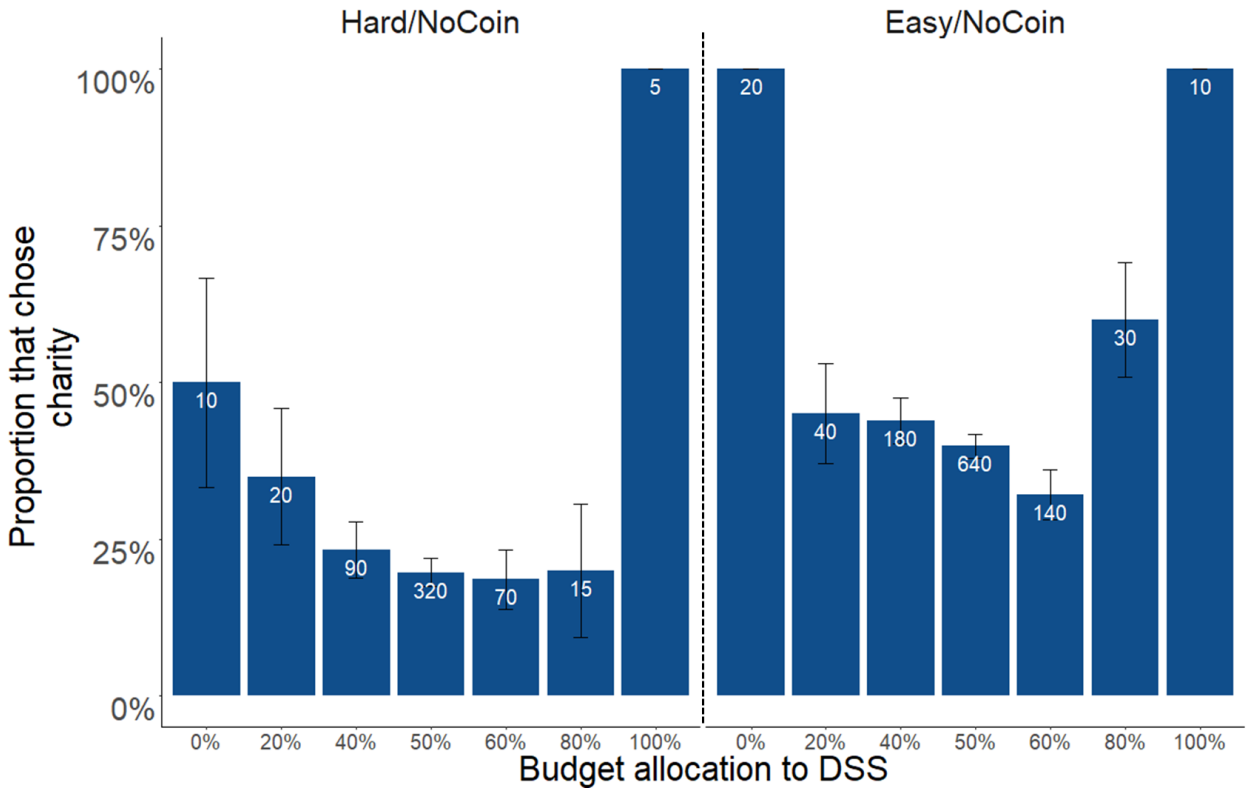
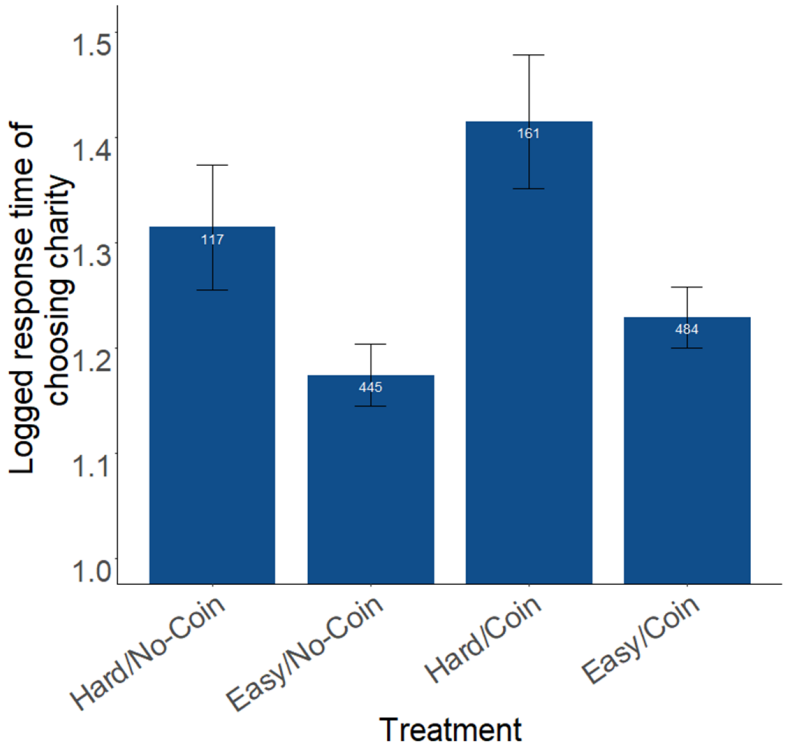
Fig. S1. Budget allocation and proportion choosing donation.



Note: Error bars are ±1 SEM. Number of observations is shown on its respective bar.

Fig. S2. Response Time and Donation Decision.



Note: Error bars are ±1 SEM. Number of observations in each treatment condition is shown on its respective bar.

Table S1. Demographics by experimental condition in the field experiment

Treatment	Average Age (SD)	% of Female	*N*
ADAS	28.7 (12.2)	53%	257
DSS	27.7 (12)	56%	234
Hard/No-Coin	26.8 (9.6)	52%	245
Hard/Coin	27.4 (10.2)	53%	255
Easy/No-Coin	28.5 (12.5)	54%	238
Easy/Coin	27.3 (10.8)	54%	235

Note: In ADAS treatment condition participants were making binary choice: keep the S$5 or donate it to the Alzheimer's Disease Association of Singapore (ADAS). In DSS condition, participants were choosing either to keep the S$5 or donate it to Diabetic Society of Singapore (DSS). N represents number of participants.

Table S2. Choice proportion for each option by treatment across experiments

		Study 1		Study 2		Study 3	
Treatment	Option	N	Percentage	N	Percentage	N	Percentage
ADAS	Keep	108	42%	-	-	-	-
	ADAS	149	58%	-	-	-	-
DSS	Keep	99	42%	-	-	-	-
	DSS	135	58%	-	-	-	-
Hard/No-Coin	Keep	116	47%	413	78%	509	70%
	ADAS	86	35%	67	13%	125	17%
	DSS	43	18%	50	9%	96	13%
Hard/Coin	Keep	93	36%	369	70%	474	65%
	ADAS	68	27%	31	6%	91	12%
	DSS	32	13%	38	7%	67	9%
	Coin flip	62	24%	92	17%	98	13%
Easy/No-Coin	Keep	86	36%	615	58%	-	-
	ADAS	112	47%	223	21%	-	-
	DSS	40	17%	222	21%	-	-
Easy/Coin	Keep	87	37%	576	54%	-	-
	ADAS	86	37%	206	19%	-	-
	DSS	28	12%	208	20%	-	-
	Coin flip	34	14%	70	7%	-	-
No-Commitment	Keep	-	-	-	-	481	66%
	ADAS	-	-	-	-	104	14%
	DSS	-	-	-	-	77	11%
	Coin flip	-	-	-	-	68	9%

Note: In Study 1, N represents number of participants who chose respective option. In Study 2 and 3, N represents number of times the corresponding option was chose.

Table S3. Regression results on donation in field experiment

	(1) Full Sample	(2) Full Sample	(3) Hard Condition	(4) Easy Condition
Coin-flip	0.049	-0.005	0.098***	-0.028
	(0.032)	(0.043)	(0.024)	(0.047)
Hard	-0.063**	-0.116***		
	(0.032)	(0.034)		
Coin-Flip × Hard		0.106***		
		(0.040)		
Age	0.003*	0.003	0.001	0.004*
	(0.002)	(0.002)	(0.003)	(0.002)
Female	0.031	0.031	0.046	0.031
	(0.032)	(0.032)	(0.049)	(0.047)
Num. obs.	972	972	500	472
R^2	0.191	0.194	0.246	0.262

*Note: We include fixed effects such as data collector, date of the experiment. Standard errors are clustered at data collector and date level. P-value: * <0.1,**<0.05,***<0.001*

Table S4. Regression results on choice of coin flipping

	Field		Lab	
	(1) Unconditional on Donation	(2) Conditional on Donation	(3) Unconditional on Donation	(4) Conditional on Donation
Hard	0.084**	0.133**	0.108***	0.409***
	(0.042)	(0.067)	(0.025)	(0.064)
Age	-0.005**	-0.009***	-0.001	0.022
	(0.003)	(0.003)	(0.006)	(0.015)
Female	-0.038	-0.040	0.004	0.119
	(0.032)	(0.048)	(0.042)	(0.087)
Observations	489	309	1,590	645
R^2	0.176	0.285	0.045	0.237

*Note: We include fixed effects such as data collector, date of the experiment. Standard errors are clustered at data collector and date level. P-value: * <0.1,**<0.05,***<0.001*

Table S5. Regression results on donation decision in lab experiment

	(1) Full Sample	(2) Full Sample	(3) Hard Condition	(4) Easy Condition
Coin-flip	0.052***	0.037**	0.083***	0.037**
	(0.015)	(0.016)	(0.025)	(0.016)
Hard	-0.176***	-0.199***		
	(0.031)	(0.034)		
Coin-flip × Hard		0.046*		
		(0.025)		
Amount to Keep	-0.041***	-0.041***	-0.035***	-0.044***
	(0.005)	(0.005)	(0.005)	(0.006)
Age	-0.030***	-0.030***	-0.008	-0.041***
	(0.010)	(0.010)	(0.012)	(0.011)
Female	-0.147**	-0.147**	-0.024	-0.208***
	(0.062)	(0.062)	(0.066)	(0.073)
Family-Alzheimer	-0.072	-0.072	-0.015	-0.100
	(0.095)	(0.095)	(0.083)	(0.121)
Family-Diabetes	0.044	0.044	0.013	0.059
	(0.058)	(0.058)	(0.064)	(0.067)
Family-Both	0.162	0.162	0.164	0.161
	(0.119)	(0.119)	(0.140)	(0.129)
Family-Unknown	-0.060	-0.060	0.019	-0.099
	(0.191)	(0.191)	(0.169)	(0.206)
Num. obs.	3180	3180	1060	2120
R^2	0.161	0.162	0.087	0.179

*Note: We control for experimental session fixed effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S6. Budget allocation and donation in Study 2

	Dependent variable: Donation	
	(1) No-Coin Condition	(2) Coin Condition
Budget Squared	0.020***	0.018***
	(0.006)	(0.006)
Budget	-0.246***	-0.216***
	(0.076)	(0.080)
Easy	0.199***	0.153***
	(0.034)	(0.033)
Amount to Keep	-0.041***	-0.040***
	(0.005)	(0.005)
Age	-0.015	-0.021*
	(0.011)	(0.012)
Female	-0.091	-0.136*
	(0.061)	(0.073)
Observations	1,590	1,590
R^2	0.204	0.184

*Note: We control for other factors such as whether participants knew the national campaign, whether there is family history of diabetes or the Alzheimer's diseases, and experimental session fixed effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S7. Two-line test on budget allocation and donation in Study 2

	No Coin			Coin		
	(1)	(2)	(3)	(4)	(5)	(6)
	Both	Hard	Easy	Both	Hard	Easy
Budget (Budget ≤ 50%)	-0.073**	-0.068	-0.076*	-0.053	-0.062	-0.049
	(0.036)	(0.044)	(0.041)	(0.038)	(0.044)	(0.042)
Budget (Budget > 50%)	0.139***	0.159***	0.129***	0.174***	0.093**	0.214***
	(0.017)	(0.041)	(0.017)	(0.024)	(0.046)	(0.027)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

*Note: We control for amount to keep, age, gender, family history and the disease, experimental session effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S8. Regression results on choice of coin flipping in Study 2

	(1) Full Sample	(2) Full Sample	(3) Full Sample	(4) Hard Condition	(5) Easy Condition
Hard	0.109***	0.109***	0.027		
	(0.025)	(0.025)	(0.026)		
Log RT in No-Coin	0.046**	0.042**	0.014	0.082**	0.025
	(0.020)	(0.021)	(0.019)	(0.038)	(0.018)
Log RT in Coin		0.017	0.017	0.048*	-0.001
		(0.015)	(0.015)	(0.026)	(0.015)
Log RT in No-Coin × Hard			0.083**		
			(0.035)		
Budget Squared	-0.006***	-0.006***	-0.006***	-0.012***	-0.004**
	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)
Budget	0.069***	0.070***	0.070***	0.115**	0.050**
	(0.024)	(0.023)	(0.024)	(0.046)	(0.022)
Amount to Keep	-0.011***	-0.011***	-0.011***	-0.018***	-0.007**
	(0.003)	(0.003)	(0.003)	(0.005)	(0.003)
Age	-0.004	-0.004	-0.004	-0.013	0.001
	(0.006)	(0.006)	(0.006)	(0.012)	(0.005)
Female	0.000	0.003	0.002	-0.055	0.032
	(0.042)	(0.042)	(0.042)	(0.061)	(0.041)
Family-Alzheimer	-0.016	-0.018	-0.016	0.113	-0.081**
	(0.062)	(0.061)	(0.059)	(0.139)	(0.036)
Family-Diabetes	0.015	0.015	0.013	-0.007	0.024
	(0.039)	(0.039)	(0.039)	(0.064)	(0.036)
Family-Both	-0.050	-0.050	-0.054	-0.128	-0.016
	(0.049)	(0.049)	(0.049)	(0.094)	(0.043)
Family-Unknown	-0.044	-0.040	-0.042	-0.023	-0.047
	(0.068)	(0.068)	(0.068)	(0.111)	(0.057)
Num. obs.	1590	1590	1590	530	1060
R^2	0.073	0.074	0.081	0.116	0.043

*Note: We control for experimental session effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S9. Two-line test on budget allocation and choice of coin flipping in Study 2

	(1) Both	(2) Hard	(3) Easy
Budget (Budget ≤ 40%)	0.060***	0.144***	0.018**
	(0.021)	(0.050)	(0.008)
Budget (Budget > 40%)	-0.036**	-0.072***	-0.018
	(0.016)	(0.027)	(0.015)
Control Variables	Yes	Yes	Yes

*Note: We control for amount to keep, age, gender, family history and the disease, experimental session effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S10. Regression results in Study 3

	(1) Donation	(2) Donation	(3) Coin flipping
Coin-Commit.	0.05**		
	(0.02)		
Coin-No.Commit.	0.04**	-0.01	-0.04**
	(0.01)	(0.01)	(0.01)
Amount to Keep	-0.05***	-0.05***	-0.02***
	(0.01)	(0.01)	(0.00)
Age	-0.05***	-0.06***	-0.02*
	(0.02)	(0.02)	(0.01)
Female	-0.18**	-0.18**	-0.06
	(0.06)	(0.06)	(0.04)
Family-Alzheimer	0.08	0.07	-0.05
	(0.08)	(0.09)	(0.04)
Family-Diabetes	0.09	0.08	0.02
	(0.05)	(0.05)	(0.03)
Family-Both	0.06	0.05	0.10
	(0.09)	(0.09)	(0.08)
Family-Unknown	-0.13	-0.15*	0.01
	(0.08)	(0.08)	(0.06)
Num. obs.	2190	1460	1460
R^2	0.17	0.17	0.07

*Note: We control for experimental session effects. Standard errors are adjusted for clustering at the individual level; *** p<0.01, ** p<0.05, * p<0.1.*

Table S11. Self-reported reasons for coin flipping

Classification	Self-reported reason
Indecisiveness	It is hard to determine which charitable organization needs the money more, so let fate decide!
Indecisiveness	no difference between the donating options, and i wasn't going to keep the money for myself
Indecisiveness	The monetary value is the same for the two options and i don't have a preference between the two organizations
Indecisiveness	i was indifferent to both choices
Indecisiveness	since both choices for donation were the same amount, and I do not have any preference for any of the charity organisation, I would leave the decision making to the experimenter.
Indecisiveness	I feel strongly for both charity organizations and could not decide between the both
Indecisiveness	Assuming that the 2 charities are equal, it does not make any difference as to which charity will receive the money. Hence i would rather use probability to allocate the money than be unbiased
Indecisiveness	Because I would like to donate, but the type of charity organization chosen does not make any difference to me.
Indecisiveness	Since i wasn't able to make a decision on which org i should contribute to
Indecisiveness	Unable to decide
Indecisiveness	I couldn't decide who to donate it to when the amount was the same
Indecisiveness	Because I had no preference in choosing any organization. I just wanted to donate so any organization would be ok
Indecisiveness	the options are about the same , so leave it to chance
Indecisiveness	I was indecisive as both diseases needs help
Indecisiveness	Because the amount allocated for each organisation was the same, and I couldnt decide which one to choose. Hence, I picked the toss a coin to help me decide.
Indecisiveness	I would want to donate to both but i wasn't sure on which criteria to base my decision on, so i let luck decide instead.
Indecisiveness	I could not decide which organisation to choose
Indecisiveness	To test my luck.undecisive
Indecisiveness	The money (hopefully) will improve someones life. So it does not matter to me which organisation the money goes to if the amount is the same.
Indecisiveness	The donation amount was the same; easier to decide with a coin flip.
Indecisiveness	Because I don't know which one is better and I feel that two options should have equal chance to be chosen.
Indecisiveness	I can't really make a decision on which organization deserves the donation because they both are equally deserving, and partly

	because i don't know the background knowledge to either organization to decides who deserves more. Hence I tossed a coin.
Indecisiveness	I can't really make a choice between the options
Indecisiveness	I don't think I am in the capacity to decide which beneficiary should receive the payment
Indecisiveness	I don't know which charity to donate to, both equally needs the money.
Indecisiveness	To me, the donation to either charity is the same. I do not feel very strongly for either Alzheimer's Disease or Diabetes as the people around me have not encountered them. I also did not take the costs of either charity into account, hence the coin flip when the value donated would be the same.
Indecisiveness	almost both donation was same and previous donation also came in mind which association get money for this time don't matter.
Equity concern	I will be donating equal amounts to either organizations and ceteris paribus, there is nothing that will lead me to prefer the Alzheimer organization over the Diabetic organization (or vice versa).
Equity concern	i have chosen this open when there is equal opportunity of distributing the equal money based on luck factor
Equity concern	To give both of them equal priority and chance
Equity concern	I have equally donated the amount . To solve a dilemma before seeing a situation. I would not toss if i have seen the organization wealth exists before
Equity concern	Equal amount to either organisation.
Equity concern	Both associations have equal importance in my opinion,thus giving equal chances in donating
Equity concern	The payout was equal so it does not matter which organisation to donate to
Equity concern	I feel that both organisations are equally deserving and in need of external help, and in the situations whereby I chose that option, the donation amounts are identical/similar so the amount of money was a less significant factor which affected my decision. As such, I decided to do it through luck.
Equity concern	Because the amount that will be given to both organization is the same, and both organizations are equally likely to need the money. If the amount that will be given to one organization is higher than the other, I will choose one organization that was given higher amount of money.
Equity concern	Both have equal amounts for donation... This situation is good for selecting the charity organization by tossing a coin..
Equity concern	so both organizations have equal chance of getting the money
Equity concern	It indicates that either of an organisation will receive money instead of with me.
Other reasons	Just to try a different option

Other reasons	Only when the SUM of amount is equal and less, at that point i choose to toss the coin. This is because our decision doesnt hold strong there and can leave it for coin to decide.
Other reasons	The amount donated is the same, so either way the same amount will be donated to the organisations.
Other reasons	Cause the amount is the same, and I will only be able to donate to one of the organisation
Other reasons	Increase the chances of me getting paid
Other reasons	To try out the decision making based on probability
Other reasons	when the returns were the same for both choices and the amount that i needed to invest was not greater than $6 (which was my threshold) i'll let the dice decide
Other reasons	This is because in that situation (if I remember correctly), the amount of money donated for Alzheimer is doubled that of diabetic. Hence, in the end, both society will still receive the same amount of help.Thus, I have decided to let the coin decide.

Experimental Instructions for Study 1

In the end of the survey questionnaire, we randomly assigned the participants to one of six treatment conditions. The question started as:

You can either keep the $5, or donate it to a charity organization. Please indicate the option that you prefer with a tick (√):

In treatment one – the ADAS condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to the Alzheimer's Disease Association of Singapore

In treatment two – the DSS condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to the Diabetic Society of Singapore

In treatment three – the hard/no-coin condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to

A. the Alzheimer's Disease Association of Singapore (ADAS)

B. the Diabetic Society of Singapore (DSS)

In treatment four – the hard/coin condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to

A. the Alzheimer's Disease Association of Singapore (ADAS)

B. the Diabetic Society of Singapore (DSS)

C. one of two organizations above randomly by tossing a coin (Head for ADAS; Tail for DSS)

In treatment five – the easy/no-coin condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to

A. the Alzheimer's Disease Association of Singapore (ADAS) + $5

B. the Diabetic Society of Singapore (DSS)

Note: if you choose to donate to ADAS, we will add $5 on top of your donation, and as a result, your donation to ADAS will become $10.

In treatment six – the easy/coin condition, we gave the following options:

1) I would like to keep $5 for myself

2) I would like to donate $5 to

A. the Alzheimer's Disease Association of Singapore (ADAS)+$5

B. *the Diabetic Society of Singapore (DSS)*

C. *one of two organizations above randomly by tossing a coin (Head for ADAS; Tail for DSS)*

Note: If you choose to donate to ADAS, or if you choose to toss a coin and the coin lands on Head (ADAS), we will add $5 on top of your donation, and as a result, your donation to ADAS will become $10.

Experimental Instructions for Study 2

Thank you for participating in this study on economic decision-making. The instructions are simple and please read it carefully. You will receive $8 show-up fee and potentially extra monetary rewards depending on your decisions. The procedure mentioned in the experiment will be implemented truly and faithfully. There is no right or wrong answer for any of these decisions.

Choice Situation

You are to make 30 choices in different choice situations. Each choice situation concerns how you would like to deal with certain amount of money $X ($X = $2, $4, $6, $8 or $10). You have the options to keep the money to yourself or donate it to a charity organization. Choice situations also vary in terms of which organization being considered to donate to.

Situation 1: You choose whether you want to donate to one of two charity organizations as the example below.

I would like to

A. keep $2 for myself

B. donate $2 to the Alzheimer's Disease Association of Singapore

C. donate $2 to the Diabetes Hong Kong

In this example, if you choose Option A, you will keep $2 for yourself. If you choose Option B, you will donate $2 to the Alzheimer's Disease Association of Singapore. If you choose Option C, you will donate $2 to the Diabetes Hong Kong – the charity organization in Hong Kong.

Situation 2: You choose whether you want to donate to one of two charity organizations, or to randomly choose one of the two charity organizations by tossing a coin as the example below.

I would like to

A. keep $4 for myself

B. donate $4 to the Alzheimer's Disease Association of Singapore

C. donate $4 to the Diabetes Hong Kong

D. donate by tossing a coin (Head for Option B; Tail for Option C)

In this example, if you choose Option A, you will keep $4 for yourself. If you choose Option B, you will donate $4 to the Alzheimer's Disease Association of Singapore. If you choose Option C, you will donate $4 to the Diabetes Hong Kong.

If you choose Option D, the experimenter will toss a coin to decide to which organization you are to donate. If it is head, you will donate $4 to the Alzheimer's Disease Association of Singapore (Option B); if it is tail, you will donate $4 to the Diabetes Hong Kong (Option C).

Payment

We will randomly pick one choice out of the 30 choices to pay you as follows. Before the start of decision-making tasks, you will first randomly pick 1 envelope from 30 envelopes. The 30 envelopes correspond to all the 30 choices you will encounter in the choice tasks. After you pick an envelope, you make the 30 choices. That is, you will make a decision for each possible content in your envelope. After you finish the choice tasks, we will then unseal the envelope and reveal

the actual choice situation to determine your payment. Since all decisions are equally likely to be chosen, you should make each decision as if it will be the decision-that-counts.

Your final payment consists of two parts. The first part is $8 show-up fee. The second part depends on the selected choice situation and your choice in that situation.

Before we start:

- Please make sure that you have picked an envelope.
- Please **DO NOT UNSEAL** the envelope until the experimenter tells you to do so.
- Do you have any questions?

Experimental Instructions for Study 3

Thank you for participating in this study on economic decision-making. The instructions are simple and please read it carefully. You will receive $8 show-up fee and potentially extra monetary rewards depending on your decisions. The procedure mentioned in the experiment will be implemented truly and faithfully. There is no right or wrong answer for any of these decisions.

Choice Situation

You are to make 15 choices in different choice situations. Each choice situation concerns how you would like to deal with certain amount of money – $X ($X = $2, $4, $6, $8 or $10). You have the options to keep the money to yourself or donate it to a charity organization.

Situation 1: You choose whether you want to donate to one of two charity organizations as the example below.

I would like to
D. keep $2 for myself
E. donate $2 to the Alzheimer's Disease Association of Singapore
F. donate $2 to the Diabetic Society of Singapore

In this example, if you choose Option A, you will keep $2 for yourself. If you choose Option B, you will donate $2 to the Alzheimer's Disease Association of Singapore. If you choose Option C, you will donate $2 to the Diabetic Society of Singapore.

Situation 2: You choose whether you want to donate to one of two charity organizations, or to randomly choose one of the of two charity organizations by tossing a coin as the example below.

I would like to
E. keep $2 for myself
F. donate $2 to the Alzheimer's Disease Association of Singapore
G. donate $2 to the Diabetic Society of Singapore
H. donate by tossing a coin (Head for Option B; Tail for Option C)

In this example, if you choose Option A, you will keep $2 for yourself. If you choose Option B, you will donate $2 to the Alzheimer's Disease Association of Singapore. If you choose Option C, you will donate $2 to the Diabetic Society of Singapore.

If you choose Option D, the experimenter will toss a coin to decide to which organization you are to donate. If it is head, you will donate $2 to the Alzheimer's Disease Association of Singapore (Option B); if it is tail, you will donate $2 to the Diabetic Society of Singapore (Option C).

Situation 3: You choose whether you want to donate to one of two charity organizations, or to randomly choose one of the of two charity organizations by tossing a coin as the example below.

I would like to

A. keep $2 for myself
B. donate $2 to the Alzheimer's Disease Association of Singapore
C. donate $2 to the Diabetic Society of Singapore
D. donate by tossing a coin (You can toss as many times as you want, and choose the outcome you prefer)

In this situation, if you choose Option D, we will provide a coin to you. You can toss the coin as many times as you want to decide which organization you are to donate. You can consider Head as Option B and Tail as Option C, or Head as Option C and Tail as Option B. It is up to you to choose the outcome you like. After you make the decision, you return the coin to us.

Payment

We will randomly pick one choice out of the 15 choices to pay you as follows. Before the start of decision-making tasks, you will first randomly pick 1 envelope from 30 envelopes. 15 envelopes correspond to all the 15 choices you will encounter in the choice tasks. The other 15 envelopes are the exact copies of the first 15 envelopes. This is to make sure that you have equal chance of picking any one of the 15 choices.

After you pick an envelope, you make the 15 choices on the computer. That is, you will make a decision for each possible content in your envelope. After you finish the choice tasks, we will then unseal the envelope and reveal the actual choice situation to determine your payment. Since all decisions are equally likely to be chosen, you should make each decision as if it will be the decision-that-counts.

Your final payment consists of two parts. The first part is $8 show-up fee. The second part depends on the selected choice situation and your choice in that situation.
Before we start:

- Please make sure that you have picked an envelope.
- Please **DO NOT UNSEAL** the envelope until the experimenter tells you to do so.
- Do you have any questions?