

## PSYCHOLOGY

# Boosting the impact of charitable giving with donation bundling and micromatching

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The most effective charities are hundreds of times more impactful than typical charities. However, most donors favor charities with personal/emotional appeal over effectiveness. We gave donors the option to split their donations between their personal favorite charity and an expert-recommended highly effective charity. This bundling technique increased donors' impact without undermining their altruistic motivation, boosting effective donations by 76%. An additional boost of 55% was achieved by offering matching donations with increasing rates for allocating more to the highly effective charity. We show further that matching funds can be provided by donors focused on effectiveness through a self-sustaining process of micromatching. We applied these techniques in a new online donation platform (GivingMultiplier.org), which fundraised more than \$1.5 million in its first 14 months. While prior applied research on altruism has focused on the quantity of giving, the present results demonstrate the value of focusing on the effectiveness of altruistic behavior.

## INTRODUCTION

Each year, hundreds of thousands of people die from malaria (1), millions suffer from debilitating parasitic worm infections (2, 3), and more than a million lose vision due to trachoma (4). These diseases can be prevented at low cost. Consequently, charities focused on these problems can be hundreds of times more effective than typical charities, saving or substantially improving many more lives per dollar (5, 6). For example, it costs ~\$50,000 to train a guide dog to help a blind person in a rich nation, but \$100 can save a person in a less wealthy nation from trachoma-induced blindness (5). Americans alone donate ~\$450 billion (2% of gross domestic product) each year (7), but relatively little goes to the most effective charities. Why do people not give more effectively, and how might giving become more effective?

Applied research on charitable giving has focused primarily on strategies for increasing the amount given (8, 9). By contrast, here, we focus on the effectiveness of giving. For many charities, effectiveness can be measured using tools developed to measure the relative effectiveness of medical treatments (e.g., quantifying outcomes in terms of quality-adjusted life years or, abbreviated QALYs per dollar). Comprehensive effectiveness assessments may also include well-being measures and estimates of the indirect and long-term impacts. For the present research, we rely primarily on effectiveness estimates from GiveWell, a nonprofit whose research team currently directs more than \$250 million per year. Whether it is good for donors to give more effectively in this sense is a value judgment that goes beyond the scope of this paper (10, 11). Here, we examine psychological factors and corresponding techniques that promote more effective giving in this sense.

Charitable giving is less effective than it could be for several reasons (12). First, many people are unaware of the massive differences in effectiveness across charities (6). However, even when informed of such differences, few donors are motivated to give based on effectiveness (13). Likewise, few are willing to pay to learn about

the effectiveness of charity options (14). Providing effectiveness information can even reduce giving (15), and some donors may use effectiveness measures as an excuse not to give (16). Rather than focusing on effectiveness, most donors favor charities that are personally meaningful and emotionally appealing (9, 13).

Donors do value effectiveness, however, when choosing among charities that serve the same personally meaningful cause (e.g., favoring a more effective cancer charity over a less effective one), but donors are far less willing to prioritize effectiveness when this requires directing resources toward a different cause (e.g., supporting the distribution of malaria nets over cancer research) (13). The greatest opportunities for impact, however, come from supporting highly effective causes, which are rarely the most emotionally appealing causes (10–12). Thus, the primary challenge from an effectiveness perspective is to encourage support for more effective causes while recognizing that feelings of personal connection are the primary drivers of altruism (9, 17, 18).

Although prior research indicates that typical donors have little interest in supporting the most effective causes, this may underestimate the appeal of effective giving. We hypothesize that donors care primarily about supporting personally/emotionally appealing causes but that donors also have a significant, and largely untapped, secondary motivation to support highly effective causes. More specifically, we hypothesize that many donors may be unexpectedly willing to support the most effective charities (and the causes that they serve), as long as they can also support their personal favorite charities.

This suggests a strategy for increasing the effectiveness of giving using a specific kind of bundled donation: providing donors with the option to split their donation between a personal favorite charity and an expert-recommended highly effective charity ("favorite-effective" bundles). Prior research has shown that people like donation bundles and that offering bundled options can increase donation amounts (19, 20). Here, we use bundling for a different purpose: increasing the effectiveness of giving by directing donations to more effective (but typically less appealing) causes. We note that the potential for increasing donation effectiveness with bundling is much greater than the potential for increasing

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donation amounts. This is because the most effective charities are, once again, orders of magnitude more effective than typical charities (5, 6).

This approach, unlike simply directing people to more effective charities, aims to work with people's motivations rather than attempting to displace them (21). We hypothesize that favorite-effective bundles will be appealing because they satisfy donors' desire to support a personally meaningful cause while also satisfying a secondary desire to engage in altruism that is highly effective. Studies 1 to 5 test our mixed motivation hypothesis. Study 1 demonstrates that offering favorite-effective donation bundles can increase effective giving. Studies 2 to 5 examine the psychological mechanisms behind the increased appeal of favorite-effective bundles. Our findings suggest that favorite-effective bundles offer donors an appealing combination of giving with the "heart" and giving with the "head."

Studies 6 and 7 and a real-world proof-of-concept demonstration address the real-world applicability of increasing effective giving using the bundling technique. Even if donors choose favorite-effective bundles when presented with this option in a laboratory setting (as in studies 1 to 4), real-world donors are unlikely to consider this option spontaneously. To address this challenge of application, we consider the use of matching incentives. Matching incentives may be used, first, to advertise the opportunity to make favorite-effective bundled donations and, second, to incentivize such donations once the opportunity is known. Prior research on donation matching has produced mixed findings. Offering to match donations sometimes increases the likelihood and/or the amount of giving (22–24), but matching can also crowd out donations, leading to lower amounts given (25, 26). As with bundling, our use of matching is crucially different from its use in prior research or in philanthropy more broadly. Here, we use matching not to increase the amount that donors give but to increase the effectiveness of giving by shifting donations toward highly effective charities.

Financial incentives are often used to advertise opportunities and to motivate people to act on them. Thus, it would not be unexpected if the offer of matching incentives can further shift donations to more effective charities. However, the use of matching incentives has a chicken-egg problem: To fundraise using matching incentives, one must first fundraise the matching funds. Moreover, it only makes sense to offer matching funds if they generate a positive return. To address these challenges of application, we have devised and tested a technique that we call micromatching. Matching funds are typically provided by a single large donor working directly with a charity. Micromatching aims to democratize the matching process, allowing many ordinary donors to provide matching incentives for other donors.

Our use of micromatching leverages variation in donors' priorities. Among donors willing to make favorite-effective bundled donations, some may care primarily about their personal favorite charities, while others may care primarily about effectiveness. We propose micromatching as a way of coordinating the actions of donors that differ in this way. Donors focused primarily on effectiveness may be willing to supply matching funds, especially if this multiplies their own effectiveness: Instead of directly supporting effective charities, supplying matching funds could incentivize others to donate even more to effective charities. In turn, donors who are primarily focused on their personal favorite charities may be

incentivized toward greater effectiveness by the offer of matching funds for favorite-effective bundled donations. Thus, micromatching aims to produce a sustainable, win-win exchange between donors with different, but compatible, altruistic priorities. Study 6 shows that matching incentives, when combined with favorite-effective bundles, can increase the effectiveness of donations [as distinct from the quantity of donations (22, 23)]. Study 7 provides evidence that many donors are willing to provide matching funds, enough that a micromatching system could be financially self-sustaining.

Although the two key techniques introduced here, favorite-effective donation bundling and micromatching, may seem unrelated, there is an underlying connection. Both techniques rely on the prevalence of mixed motivations, whether within people (bundling) or between people (micromatching). Bundling boosts effective giving by appealing to donors' conflicting desires to support personally meaningful causes and to support highly effective causes. Micromatching boosts effective giving by coordinating the altruism of donors who differ in the relative strength of these two preferences: Those who care relatively more about effectiveness can provide matching funds, which can then incentivize effective giving by donors who care relatively more about personally meaningful causes. Our final step is to combine these techniques in a real-world proof of concept. For this purpose, we custom-built a new donation platform (GivingMultiplier.org), which remains publicly available.

## RESULTS

### Bundling to increase effective giving

Study 1a ( $N = 895$ ) asked whether donation bundling can increase effective giving. Here and in all subsequent studies, participants were informed that they could donate up to \$100 to charity or keep all or a part of it for themselves (i.e., paid out as a bonus). They could then decide how to allocate the amount that they decided to give between two charities. Participants were informed that the decisions of one randomly selected participant would be executed (27–29), enabling us to use more substantial donation amounts. At the end of the study, we asked participants whether they believed that the stakes were real and excluded those who did not.

Study 1a had five conditions. Under the baseline giving condition, participants could only donate to their personal favorite charity (or keep the funds). This reflects the typical real-world context in which donors consider their personal favorite charities but not charities backed by research on effectiveness (6, 12). In the control condition, participants had two donation options: donating exclusively to their personal favorite charity (all-favorite) or exclusively to a highly effective charity (all-effective). This condition follows previous research on (in)effective giving in which participants have two charity options and cannot split between them (13, 30). It also reflects the options typically considered by effective altruists who recommend supporting highly effective charities instead of personal favorite charities (10, 11). In the primary experimental condition (the three-option bundle condition), participants had the two options available in the control condition (all-favorite and all-effective) plus the option to donate with a 50/50 favorite-effective bundle. Study 1 included two alternative experimental conditions. The two-option bundle condition lacked the all-effective

option. The free-split bundle condition replaced the 50/50 bundle option with one in which participants could adjust the favorite/effective ratio.

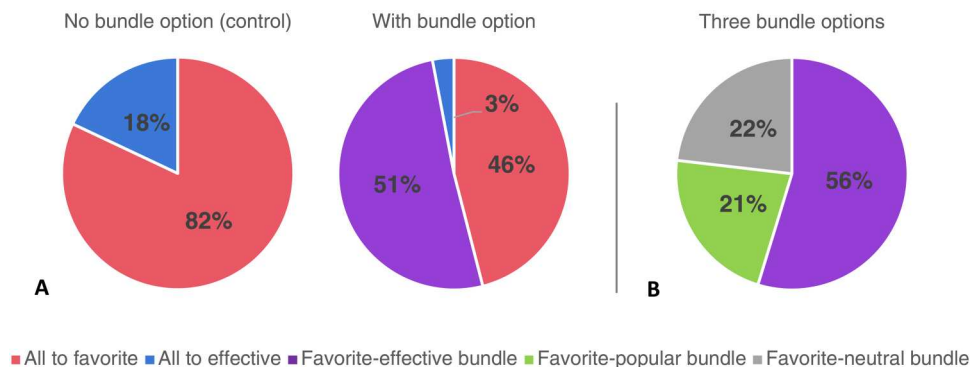
In the control condition, 82.3% of participants gave everything to their favorite charity, and 17.7% gave everything to the effective charity. In the primary experimental condition (the three-option bundle condition), 45.6% gave everything to their favorite charity, 51.6% chose the 50/50 bundle, and 2.7% gave everything to the effective charity (Fig. 1A). In the two-option bundle condition, 49.5% gave everything to their favorite charity, and 50.5% chose the 50/50 bundle. The median response in the free-split bundle condition was to give 75% to the favorite and 25% to the effective charity. In addition to choosing an allocation proportion (e.g., 50/50 bundle), donors chose a total donation amount (e.g., \$80 of \$100) and thus an amount for each charity (e.g., \$40 favorite/\$40 effective).

Adding the bundle option increased total donations to the effective charity by 76% (three-option bundle:  $M = \$14.51$  and  $SD = 19.4$  versus control:  $M = \$8.23$  and  $SD = 22.2$ ;  $\chi^2 = 177.31$ ,  $df = 4$ , and  $P < 0.001$ ). The results from the two other experimental conditions did not significantly differ from the three-option bundle condition (two-option bundle:  $M = 13.59$  and  $SD = 17.16$ ; free-split bundle:  $M = 11.96$  and  $SD = 14.15$ ). Total donation amounts (across charities) did not differ across all five conditions. However, we found that participants who chose the bundle option (in the two-option and three-option conditions) tended to give higher total amounts ( $M = 51.81$  and  $SD = 30.79$ ) than participants in the same condition who donated exclusively to their favorite charity ( $M = 39.23$  and  $SD = 34.44$ ;  $P < 0.001$ ; for detailed results, see the Supplementary Materials). In short, study 1 demonstrated that simply allowing donors to split their donation between their favorite charity and a highly effective charity, rather than forcing them to choose between the two, can substantially boost effective giving.

We conducted four follow-up studies based on the design of study 1. Here, we briefly summarize these findings (see the Supplementary Materials for detailed results). Study 1b varied the type of charity designated as the effective charity. We found that the increase in donations to the effective charity did not differ significantly depending on whether the effective charity focused on global poverty, animal welfare, or global catastrophic risk. This suggests that favorite-effective bundles are similarly effective regardless

of which particular effective charity is included in the bundle. Study 1c asked participants to identify a charity that they “would consider donating to” rather than the charity that they “care most about.” This change in wording yielded a similar pattern of results to the original study 1, suggesting that the bundling technique can also boost effective giving even when donors identify their favorite (or first choice) charity in a way that signals less commitment. In study 1d, we investigated individual differences related to participants’ values, cognitive styles, ages, genders, and political orientations. Among other findings (see the Supplementary Materials), we observed that participants who donated higher amounts (in general) also allocated higher proportions to the effective charity. In other words, these high-contribution donors were more likely to choose the bundle or give exclusively to the effective charity. Study 1e explored cross-cultural differences by comparing the responses of U.S. participants with those of Indian participants. We found that Indian participants were much more likely than U.S. participants to allocate some or all of their donation to the effective charity. For example, even in the control condition, 42.1% of Indian participants chose the effective charity, whereas only 17.7% of U.S. participants did so. We found that offering the bundle option to Indian participants did not further increase their donations to the effective charity, but this may be due to their high levels of baseline effective giving. This study was exploratory. Future research will be necessary to confirm and better characterize the stark cross-cultural differences observed here.

Study 2a ( $n = 227$ ) asked whether people find favorite-effective bundles especially appealing or whether they simply like to split their donations across different options, consistent with prior research (19, 31). Here, participants were presented with three 50/50 bundles side by side and had to choose one. Each bundle included the participant’s favorite charity plus a second charity. The three second charities were always the same three charities, but we randomly varied which one was described as highly effective versus highly popular or without additional description. That is, participants chose one of three bundles: favorite-effective, favorite-popular, or favorite-neutral. Participants also rated each charity for perceived effectiveness and popularity. Participants preferred the favorite-effective bundle, which was chosen by 56% of participants, with 21% choosing the favorite-popular bundle ( $\chi^2 = 36.36$ ,



**Fig. 1. The strong appeal of bundling a personal favorite charity with a highly effective charity.** Pie charts show the percentages of participants who chose each donation option. (A) In study 1, only 18% of participants chose the highly effective charity over a personal favorite charity when given only these two options (control condition). When participants were given the additional option to donate with a 50/50 favorite-effective bundle, a majority selected this option, resulting in a 76% increase in the total amount given to the effective charity. (B) In study 2, bundling a favorite charity with a charity described as effective was more appealing than bundling a favorite charity with a charity described as popular or described neutrally.

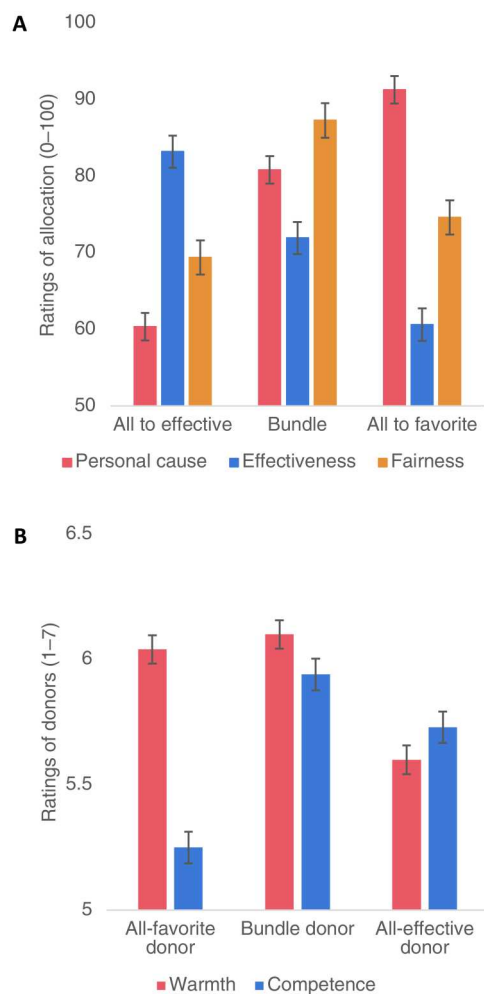
df = 1, and  $P < 0.001$ ) and 22% choosing the favorite-neutral bundle ( $\chi^2 = 33.12$ , df = 1, and  $P < 0.001$ ) (Fig. 1B). Only effectiveness ratings predicted participants' choices ( $\beta = 0.82$  and  $P < 0.001$ ; popularity,  $\beta = -0.13$  and  $P = 0.51$ ; see the Supplementary Materials).

We conducted two follow-up studies based on the design of study 2. Here, we briefly summarize these findings (see the Supplementary Materials for detailed results). In study 2a, all three charities used were highly effective, and none was highly popular. Study 2b used a genuinely highly popular charity as the popular charity. This study produced comparable results to those of study 2a. Study 2c replaced the popular charity with a charity that was sponsored by a relevant credible organization, thus adding to its legitimacy. This study produced results comparable to those of studies 2a and 2b. Studies 2a to 2c thus indicate that the preference for favorite-effective bundles observed in study 1 cannot be fully explained by a general preference for bundled donations alone. While we found

no evidence that other types of bundles are as appealing as favorite-effective ones, such bundles may exist. However, our aim here is to better understand the appeal of favorite-effective bundles, not to demonstrate that they are uniquely appealing.

Study 3 ( $n = 242$ ) asked why favorite-effective bundles are appealing, testing the hypothesis that giving higher proportions to one's favorite charity yields diminishing returns of value for the donor. In other words, we tested the hypothesis that donors want to give a substantial proportion of their donation to their favorite charity but that giving to the favorite charity beyond this point yields less and less additional value. This, in turn, makes it more attractive to direct some of the donation to the effective charity, which offers a different kind of value. Using a within-participant design, all participants made four decisions, in each case choosing between an all-favorite donation and a favorite-effective bundle. The bundle options varied in their proportions (favorite/effective) as follows: 10/90, 40/60, 60/40, and 90/10. This facilitated a simple test for diminishing returns: We compared an increase of 30 percentage points in the proportion allocated to the favorite charity in the lower range (10% versus 40%) versus the upper range (60% versus 90%). As expected, participants preferred bundles with higher allocations to their favorite charity. However, crucially, participants were more sensitive to a 30% shift in the lower range versus the upper range, consistent with diminishing returns. An additional 15% of participants chose the favorite-effective bundle when it was split 40/60 versus 10/90 (46% of participants versus 31%). By contrast, only an additional 5% of participants chose the bundle when it was split 90/10 versus 60/40 (64% of participants versus 59%), a significant difference of differences ( $b = -0.96$ ,  $z = -2.48$ , and  $P = 0.01$ ). Overall, most donors wanted to give at least half of their donation to their favorite charity, but after that point, most were willing to support the expert-recommended effective charity.

Giving to one's favorite charity succumbs to diminishing returns, making room for a second charity, but why are effective charities especially appealing as second charities, as shown in study 2? In study 4 ( $n = 265$ ), participants responded to a version of the three-option bundle condition from study 1. Here, however, they rated each option for effectiveness, supporting a personal cause, fairness, and for overall appeal. As in study 1, many participants (49% of the sample) chose the favorite-effective bundle, while 47% chose all-favorite, and 4% chose all-effective. Here, we focus on the 49% who chose the bundle. As expected, the donors who chose the favorite-effective bundle rated it as overall more appealing than the all-effective option [ $t(220) = 7.28$ ,  $P < 0.001$ , and  $d = 0.62$ ]. However, donors who chose the bundle rated the bundle option as only slightly (and not significantly) more appealing than the all-favorite option [ $t(220) = 2.04$ ,  $P = 0.11$ , and  $d = 0.20$ ]. This is consistent with our hypothesis that bundle donors are primarily motivated to support a personally meaningful cause. Consistent with the mixed motivation hypothesis, the overall appeal of the bundle was independently predicted by feelings of supporting a personal cause [ $t(107) = 3.25$ ,  $P = 0.002$ , and  $\beta = 0.30$ ], perceived effectiveness [ $t(107) = 2.24$ ,  $P = 0.03$ , and  $\beta = 0.19$ ], and also perceived fairness [ $t(107) = 3.13$ ,  $P = 0.002$ , and  $\beta = 0.28$ ]. Critically, when rating their options for supporting a personally meaningful cause, the bundle donors saw the bundle as closer to the all-favorite option (difference = 10.41) than to the all-effective option (difference = 20.50), a significant difference of differences [ $t(110) = 10.96$ ,  $P < 0.001$ , and  $d = 1.51$ ] (Fig. 2A, red bars). We



**Fig. 2. Explaining the appeal of favorite-effective donation bundles.** (A) In study 4, bundle donors (49% of the sample) viewed bundled donations as an appealing compromise, supporting a personally meaningful cause (red) while giving effectively (blue), and also being fair (orange). (B) In study 5, a donor who chose to split their donation between the two charities (favorite-effective bundle) was perceived as more warm (red) than a donor who gave exclusively to the effective charity (all-effective donor) and more competent (blue) than a donor who gave exclusively to their favorite charity (all-favorite donor). All error bars show the SEM.

observed this even though the bundle option is objectively a 50/50 mix of the all-favorite and all-effective options. This subjective asymmetry is consistent with the diminishing returns for supporting the favorite charity observed in study 3: Giving half to one's personal favorite charity feels almost as personally meaningful as giving all to one's personal favorite charity. When bundle donors rated their options for effectiveness, the pattern was critically different. The bundle donors saw the bundle as intermediate in effectiveness, exactly halfway between all-effective (difference = 11.3) and all-favorite (difference = 11.3), with no significant difference of differences [ $t(110) = 0.01$ ,  $P = 0.99$ , and  $d < 0.01$ ] (Fig. 2A, blue bars). Bundle donors also saw the bundle as the most fair (orange bars), consistent with prior research (19, 20, 31) (as expected, these patterns were not observed in donors who did not choose the bundle; see the Supplementary Materials). Thus, consistent with our mixed motivation hypothesis, those who choose the favorite-effective bundle saw it as offering an appealing compromise, with much greater effectiveness (and fairness) than the all-favorite option but little sacrifice of personal meaning.

Moving from psychological motivations to corresponding interpersonal judgments, study 5 ( $n = 394$ ) examined the perceptions of donors with different altruistic motivations. Participants read a hypothetical vignette about three donors. One donated exclusively to a personally meaningful favorite charity (all-favorite donor). One donated exclusively to a highly effective charity (all-effective donor). In addition, the third donor split their donation 50/50 between the two charities (bundle donor). Participants rated the warmth and competence (32) of all three people. The bundle donor was seen as particularly high in both warmth and competence, while the all-effective donor was seen as less warm [ $F(2, 786) = 56.87$  and  $P < 0.001$ ], and the all-favorite donor was seen as less competent [ $F(2, 786) = 61.14$  and  $P < 0.001$ ] (Fig. 2B) (33). Thus, favorite-effective bundle donations may be appealing because they are suggestive of good overall character to others and perhaps to the donors themselves (34). More specifically, the bundled donations may indicate an appealing balance of traits, paralleling the appealing balance of motivations observed in study 4: Those who choose the favorite-effective bundle are seen as highly competent but with no sacrifice of apparent warmth (Fig. 2, A and B, red versus blue bars).

### Micromatching to incentivize bundling

Next, we examined the use of matching incentives as a way to advertise and incentivize favorite-effective bundled donations. Study 6 ( $n = 421$ ) asked whether and to what extent an offer of matching funds can induce donors to give more effectively through bundled donations (or all-effective donations). To increase the incentive to give effectively, we offered donors a higher matching rate for allocating more to the effective charity (5% for all-favorite, 25% for 50/50 favorite-effective bundle, and 50% for all-effective). The control condition offered no matching, following study 1's three-option bundle condition.

In the control condition, 13% chose all-effective, 40% chose all-favorite, and 47% chose the favorite-effective bundle. In the matching condition, 28% chose all-effective, 21% chose all-favorite, and 51% chose the favorite-effective bundle. The offer of matching funds produced a 55% increase in funds donated to the effective charity (no matching,  $M = \$17.77$  and  $SD = 22.67$ ; matching,  $M = \$27.47$  and  $SD = 29.32$ ). Total amounts donated did not

differ significantly between the two conditions [ $t(345) = 1.04$ ,  $P = 0.30$ , and  $d = 0.11$ ].

That subsidizing effective donations can increase effective donations is not unexpected. A more probative goal of study 6 was to examine the feasibility of donor coordination through micromatching. Could a dollar invested in a matching fund cause more than an additional dollar to be donated to a highly effective charity? We found that in the matching condition, the average matching funds required per participant were \$3.73 ( $SD = 4.06$ ). However, in the matching condition, compared to the control condition, donations to the effective charity increased by an average of \$9.70 per participant. Thus, the rate of return for a hypothetical matching funder focused on effectiveness, who would otherwise simply donate to an effective charity, is 2.6 times the initial investment ( $9.70/3.73$ ) or a 160% rate of return. This high rate of return suggests that a micromatching system could be self-sustaining, provided that enough donors are willing to provide matching funds.

Study 7 ( $n = 145$ ) further tested the feasibility of micromatching by giving donors the option to support a matching fund for subsequent donors. Here, we asked whether donors' support of the matching fund would be sufficient to cover the costs of matching. Similar to the free-split bundle condition of study 1, participants decided whether to donate and how to allocate their donation between their favorite charity and a highly effective charity. Next, they were asked whether they would like to direct the part of their donation that they allocated to the effective charity into the matching system. We found that 34% of participants were willing to provide matching funds. For every dollar donated, 34 cents were provided as matching funds. On average, 8 cents in matching funds were required for each dollar donated. Thus, there was a matching surplus of 26 cents (34 minus 8) for each donated dollar. Put another way, participants in this sample provided four times the matching funds needed to cover the costs of matching in this sample.

### Proof of concept in a real-world application

Could these techniques work in the real world? Would real donors be willing to make favorite-effective bundled donations? Likewise, would real donors be willing to supply matching funds sufficient to incentivize such donations? To find out, we created a publicly accessible online donation platform, Giving Multiplier (<https://GivingMultiplier.org>), designed to encourage effective giving through bundling and micromatching. To be clear, this proof-of-concept demonstration is not a controlled experiment, as we could not publicly advertise Giving Multiplier's essential features and then randomize would-be donors into a control condition in which those features are absent. Our aim here was not to compare Giving Multiplier's strategy to an alternative strategy but, more modestly, to determine whether its strategy is at all viable in the real world.

Giving Multiplier users select their favorite charity, any U.S. 501(c)(3), and one of nine expert-recommended highly effective charities. They select a total donation amount and can use a slider to allocate that amount between the two charities (Fig. 3). The slider mechanism indicates the variable matching rate and matching amount. Before finalizing their donation, donors have the option to redirect the designated effective part of their donation into the matching fund.



**Fig. 3. The Giving Multiplier slider mechanism.** Before using the slider, users select a personal favorite charity (e.g., Guide Dogs for the Blind). They then select an expert-recommended highly effective charity (e.g., Against Malaria Foundation) from a menu of options covering several high-impact causes. Users then enter the total amount that they intend to donate. Users then use the slider mechanism shown to allocate their donation between the two charities. The more funds allocated to the highly effective charity, the higher the matching rate. As users adjust the slider, it dynamically displays the matching rate, total matching funds, total for each charity, and total donated. After selecting an allocation, but before finalizing their donation, users have the option to support the matching fund instead of supporting the selected highly effective charity.

We launched Giving Multiplier in November 2020, advertising it primarily through social media and unpaid media coverage. By 31 December 2021, Giving Multiplier had fundraised more than \$1.5 million from 3450 donations, with more than \$1 million going to expert-recommended highly effective charities (35). Analyses reported here cover 2422 donations made before 1 January 2022 from donors who consented to the use of their data for research. The median donation was \$100 ( $M = \$494$  and  $SD = 2881$ ). The median split ratio was 60% to the effective charity. Seventy-three percent of the total went to recommended effective charities. Sixty-five percent of the total went to effective charities counterfactually, meaning that donors indicated that they would not have supported these charities without Giving Multiplier. Consistent with this, 73% of donors indicated that they had not previously heard of the effective charity to which they donated, indicating that most donors were not previously oriented toward effective giving. Thirty-eight percent of donations included support for the matching system. The mean amount provided into the matching system was \$185 (median = \$0). The mean amount required from the matching system was \$49 (median = \$10). Thus, Giving Multiplier was financially self-sustaining during this period.

## DISCUSSION

In seven experiments and a real-world proof-of-concept demonstration, we developed and deployed a new strategy for increasing the effectiveness of charitable giving, one of the most widespread and important forms of human altruism (7). Our strategy is based on our hypothesis that donors typically have mixed motivations for charitable giving. People primarily want to support charities that are personally meaningful and emotionally appealing, but they also care about the effectiveness of their giving, although this is not always apparent (9, 12, 13, 17, 36).

By offering donors the option to make a bundled donation, split between a personal favorite charity and a highly effective charity recommended by experts, donors can markedly increase their effectiveness without undermining their primary motivation for giving. These favorite-effective bundled donations strike an appealing balance between the heart and the head. Bundles allow donors to support highly effective charities while doing little to diminish their sense that they have supported a personally meaningful cause.

Whereas favorite-effective donation bundling appeals to mixed motivations within people, donor coordination through micro-matching appeals to mixed motivations between people. Donors focused on effectiveness can offer matching funds for others,

encouraging them to give more effectively by making favorite-effective bundled donations (or all-effective donations). Other donors can benefit from receiving these matching funds, which allow them to direct more resources to the charities they have selected, both personal favorite charities and expert-recommended highly effective charities. In our proof-of-concept demonstration, we found that many donors chose to play both roles, receiving matching funds for the two charities that they selected and then choosing to convert their donation to the expert-recommended charity into a matching fund donation. It is possible that such donors were motivated by indirect reciprocity (37), a desire to “pay it forward” for other donors by supporting the matching fund after receiving matching funds. This possibility may be explored in future research. About a third of donors were willing to support the matching fund with some or all of their donation. This provided enough matching funds to cover the matching funds received by donors, making the micromatching system self-sustaining.

Our aim has been to develop a technique for increasing effective giving, focusing on donors who are open to effective giving but primarily motivated to support personally appealing charities. While we succeeded at developing and deploying such a technique, some important questions remain open.

First, we presented evidence supporting our mixed motivation hypothesis by showing that donors find effective charities especially appealing as a complement to personally appealing charities (study 2), that donors aim to balance the proportions going to personally appealing versus effective charities (study 3), that donors who choose the bundle see the bundle as having an appealing balance of attributes (study 4), and that donors who choose the bundle are seen as having an appealing balance of character traits (study 5). However, this evidence is not definitive. One might wonder, for example, whether donors are merely attempting to appear balanced to others (e.g., the experimenters) or to themselves. Likewise, one might wonder whether participants merely want their decisions to seem justifiable, especially when given explicit information about differences in charity effectiveness. On the latter point, we note that in study 1, participants gave relatively little to the effective charity in the control condition (with no bundle option), although the control condition was identical to the experimental condition (with a bundle option) in terms of information about charity effectiveness and the observability of the participant’s decision. Second, our proof of concept addresses these concerns to some extent, demonstrating the real-world appeal of bundled donations to donors who can refrain from donating (effectively or otherwise) without any recording of their choice. This is not to deny, however, that donors’ decisions likely reflect an internalized concern for reputation. On that view, the mixed motivation hypothesis could be a proximate explanation, with reputational concerns featuring in an ultimate (possibly evolutionary) explanation (34, 38).

Second, although our technique had a substantial effect on average, a substantial minority of participants chose to give exclusively to their favorite charity. Here, our focus is not on individual differences, but we did find that those who chose the bundle tended to give higher amounts than those who gave exclusively to their favorite charity. This suggests a link between general altruism and a preference for effective giving. This and other individual differences may be explored in future research (see also the Supplementary Materials for study 1 and study 1d).

Third, our studies investigated the immediate effect on people’s donations when offered the option to donate with a favorite-effective bundle. Future research could examine the longer-term effects of introducing people to effective giving through donation bundling: How might this affect people’s long-term charitable giving and their motivation to support highly effective charities?

Despite a long history of altruism, including centuries of organized philanthropy, humans have only recently attempted to systematically measure the cost-effectiveness of altruistic endeavors with the goal of doing as much good as possible (10, 11). The seven studies and proof-of-concept demonstration presented here suggest that effective giving has the potential for increased appeal among donors whose altruism is not primarily motivated by effectiveness. Our results suggest that effective giving can be a satisfying complement to giving based on personal feelings, adding a “competence glow” (32) to the proverbial “warm glow” of giving. Some donors are willing to incentivize bundle donations in others, promoting a chain of giving that is both personally meaningful and effective. Once again, it is not our purpose here to argue that effective giving in this sense is good. However, whatever one’s values, the stakes are high. The limited proof-of-concept demonstration reported here raised funds sufficient to provide 100,700 deworming treatments and 17,500 malaria nets, among other benefits (see the Supplementary Materials). A better understanding of moral motivation and how to channel it could markedly increase the impact of human altruism.

## MATERIALS AND METHODS

All reported main studies, including the final proof of concept, were preregistered, except for study 7 (which was a pretest for the proof of concept). For more detailed descriptions of the methods and results, please refer to the Supplementary Materials available at <https://osf.io/zu6j8/>. In all studies (apart from the proof of concept), the sample size was determined before data collection. Across studies 1 to 7, we recruited participants using Amazon Mechanical Turk (MTurk). All participants were taken from different samples. The financial stakes in studies 1 to 7 were probabilistically implemented (executed by lottery), enabling the use of higher stakes (27–29). As per our preregistrations, participants in studies 1 to 7 were excluded for either failing the attention check or (where applicable) for indicating that they did not believe that the financial stakes were real. All key results held when no participants were excluded (see the Supplementary Materials). Unless otherwise specified, all conducted *t* tests were two-sided. Our studies, including the proof-of-concept demonstration, were approved by Harvard’s Committee on the Use of Human Subjects, and for all studies, informed consent was obtained.

### Study 1

We recruited 1039 U.S. American participants online via MTurk. They received \$0.47 in payment for their participation. A total of 144 participants were excluded for either failing the attention check or for indicating that they did not believe that the financial stakes were real, leaving a final sample of 895 (432 females and 463 males,  $M_{\text{age}} = 40.5$  and  $SD_{\text{age}} = 12.84$ ). This study was preregistered at <https://aspredicted.org/ks3ez.pdf>.

There were five conditions: (i) the favorite-only baseline condition in which participants simply had the option to donate to their

favorite charity; (ii) the control condition in which participants could donate exclusively to their favorite charity (all-favorite) or exclusively to the expert-recommended highly effective charity (all-effective); (iii) the three-option bundle condition, which included the option to make a 50/50 bundle donation (favorite-effective) along with the all-favorite and all-effective options; (iv) the two-option bundle condition, which included the 50/50 favorite-effective option and the all-favorite option; and (v) the free-split bundle condition, which included the all-favorite option, the all-effective option, and a favorite-effective option in which participants can freely choose the allocation proportion.

First, participants identified their favorite charity by entering its name and website URL. In all conditions apart from the favorite-only condition, participants were presented with a short and accurate description of one of the world's most effective charities: Evidence Action's Deworm the World Initiative (see the Supplementary Materials). Participants were also informed that this charity is, according to experts, approximately 100 times more effective than typical charities (see <http://GiveWell.org>).

Next, it was explained to participants that they will be given the option to donate up to \$100 to charity and that, at the end of the study, we will randomly select one participant and execute their decision. Participants were then presented with the donation allocation options, which varied by condition. For example, in the three-option bundle condition, they were presented with three options: donate all to the effective charity, split 50/50, and donate all to their favorite charity. In the favorite-only condition, participants skipped this part.

On the next page, participants chose a donation amount (\$0 to \$100) to be allocated in the proportion previously specified. Critically, participants had the option to keep the money for themselves. It was explained that any amount not donated will be allocated to the participant in the form of an Amazon voucher, should they be the randomly chosen participant. Thus, this task has real stakes for the donor and not just for the charities. After responding to some exploratory questions (see the Supplementary Materials), they responded to an attention check question, a question about whether they believed that the financial stakes were real, and to a set of demographic questions.

## Study 2

We recruited 294 U.S. participants online via MTurk. They received \$0.90 in payment for their participation. A total of 67 participants were excluded for either failing the attention check or for indicating that they did not believe that the financial stakes were real, leaving a final sample of 227 people (123 females and 104 males,  $M_{\text{age}} = 38.84$  and  $SD_{\text{age}} = 12.47$ ). This study was preregistered at <https://aspredicted.org/zd2py.pdf>.

As in study 1, participants first entered the name and URL of their favorite charity. On the next page, they were presented with three new charities. All three charities are real charities, and they were described by their names and a short description of their activities. In addition to the basic description, one charity (the effective charity) was said to be one of the world's most cost-effective charities according to experts. Another charity (the popular charity) was said to be a particularly popular charity, endorsed by many people and organizations. The third charity (the neutral charity) was not described as having an additional positive feature. Which of the three charities was presented as effective,

popular, or neutral was randomized. All three charities were highly effective charities, and when they were presented as effective, their effectiveness was described accurately. Likewise, when the charities were described as popular, their popularity was described accurately.

Participants were told that they could donate \$100 to charity and that their decision could have real-world consequences. They were presented with three donation options: 50/50 split between their favorite charity and the charity described as effective, 50/50 split between their favorite charity and the charity described as popular, and 50/50 split between their favorite charity and the charity with no additional description (neutral).

On the next page, participants indicated the perceived effectiveness of the three charities, relative to their favorite charity. That is, participants were asked three times ("Which charity do you think is more effective according to experts?") and responded on a seven-point scale (1, [favorite charity] is much more effective; 4, both charities are equally effective; 7, [alternative charity] is much more effective). Participants also indicated the perceived relative popularity of the three charities compared to their favorite charity. That is, participants were asked three times (once for each bundle type; "Which charity do you think is more popular?") and responded on a seven-point scale (1, [favorite charity] is much more popular; 4, both charities are equally popular; 7, [alternative charity] is much more popular).

We conducted a first follow-up study (see the Supplementary Materials) in which we used real charities that differ strongly in their actual levels of effectiveness and popularity, thus enabling us to ensure that the popular charity is perceived as more popular, while the effective charity is once again perceived as more effective. This study yielded the same patterns of results.

## Study 3

We recruited 299 U.S. participants online via MTurk. They received \$0.85 in payment for their participation. A total of 67 participants were excluded for either failing the attention check or for indicating that they did not believe that the financial stakes were real, leaving a final sample of 242 people (118 females and 124 males,  $M_{\text{age}} = 40.24$  and  $SD_{\text{age}} = 13.36$ ). This study was preregistered at <https://aspredicted.org/u6uu4.pdf>.

Similar to study 1, participants first entered the name and URL of their favorite charity. On the next page, participants were presented with a short description of one of the world's most effective charities: Evidence Action's Deworm the World Initiative. Participants were also informed that this charity is, according to experts, approximately 100 times more effective than typical charities. Next, it was explained to participants that they will be given the option to donate \$100 to charity. They were told that they will be presented with four questions asking how they would like to divide the donation between their favorite charity and the highly effective charity. They were also informed that, at the end of the study, we will randomly select one participant and execute one of their decisions, also chosen at random.

Next, participants were presented with the four decision questions. For each question, participants had to choose between donating exclusively to their favorite charity (all-favorite) and donating with a favorite-effective bundle option (favorite-effective). The bundle options varied for each of the four decision questions. More specifically, we examined the effect of increasing the



proportion going to the favorite charity by 30% in the lower range (from 10 to 40%) and in the upper range (from 60 to 90%). This implements a 2 (range: lower versus upper)  $\times$  2 (within-range proportion: low versus high) within-subjects design. Thus, the four decisions were as follows: (i) all to favorite versus bundle with 10% favorite/90% effective (low within lower range), (ii) all to favorite versus bundle with 40% favorite/60% effective (high within lower range), (iii) all to favorite versus bundle with 60% favorite/40% effective (low within upper range), and (iv) all to favorite versus bundle with 90% favorite/10% effective (high within upper range).

As indicated above, the proportion going to the favorite charity is always below 50% in the lower range, and the proportion going to the favorite charity is always above 50% in the upper range. The proportion is never 0, 50, or 100% to avoid these special values.

#### Study 4

We recruited 301 U.S. participants online via MTurk. They received \$0.47 in payment for their participation. A total of 36 participants were excluded for either failing the attention check or for indicating that they did not believe that the financial stakes were real, leaving a final sample of 265 people (94 females and 171 males,  $M_{\text{age}} = 38.50$  and  $SD_{\text{age}} = 11.69$ ). This study was preregistered at <https://aspredicted.org/et5ss.pdf>.

Study 4 focused on donors who chose the favorite-effective bundle and aims to understand their motivations. We tested the hypothesis that these donors primarily want to support their personal favorite charities but that the bundle option allows them to satisfy their secondary motivation for effectiveness with relatively little sacrifice of their primary motivation. The study had only one condition, and therefore, its statistical methods are descriptive and correlational. Its purpose was to test predictions about how bundle donors perceive their options and how those perceptions predict their overall satisfaction. As in study 1's primary experimental condition, participants in study 4 chose among three donation options: all-favorite, all-effective, and a 50/50 favorite-effective bundle.

The materials and procedure were identical to those in the three-option bundle condition of study 1. The only differences were the follow-up questions. After participants made their donation decisions, those who donated more than \$0 were asked: (i) how good they feel overall about the donation, (ii) how effective they believe the donation will be according to experts, (iii) to what extent they feel that they have supported a cause they personally care about, and (iv) how fair they think the decision was. Each of these questions was asked three times: once for the donation option that the participant chose (e.g., bundle) and then for the other two donation options (e.g., donating exclusively to their favorite charity or the effective charity). The effectiveness question (#2) asks about effectiveness "according to experts" rather than simply asking participants for their own assessments of effectiveness, as we expected that to yield a less biased assessment of effectiveness, where "biased" is understood as relative to the assessments of experts. In the Supplementary Materials, we report an otherwise identical follow-up study in which participants first rate the option attributes and then make their donation choices.

#### Study 5

We recruited 495 U.S. participants online via MTurk. A total of 101 participants were excluded because they failed the attention check,

leaving a final sample of 394 (177 females and 217 males,  $M_{\text{age}} = 39.96$  and  $SD_{\text{age}} = 12.77$ ). They received \$0.50 in payment for their participation. The study was preregistered at <https://aspredicted.org/he4zx.pdf>.

Participants read a hypothetical vignette about three people, all of whom were planning to donate \$100 to charity. They have similar backgrounds and do not know each other. Each feels a strong emotional pull toward supporting a local orphanage housing a small number of children ("Harmony Home"). All three of the soon-to-be donors know that Harmony Home is not particularly effective according to independent charity experts. They have heard about "The Deworm the World Initiative," which is considered by such experts to be one of the world's most effective charities. Each of the three people is unsure which of these two charities to support. One person decides to donate \$100 to Harmony Home and nothing to The Deworm the World Initiative. Another person decides to donate \$100 to The Deworm the World Initiative and nothing to Harmony Home. In addition, the third person decides to donate \$50 to Harmony Home and \$50 to The Deworm the World Initiative (i.e., the bundle option). Participants rated each of these three people on six character traits using a seven-point scale: caring, warm, empathic, competent, rational, and effective. The first three items were aggregated to form a warmth score, and the last three items were aggregated to form a competence score.

#### Study 6

We recruited 421 U.S. participants online via MTurk. They received \$0.45 in payment for their participation. A total of 62 participants were excluded for either failing the attention check or for indicating that they did not believe that the financial stakes were real, leaving a final sample of 359 people (158 females and 201 males,  $M_{\text{age}} = 39.47$  and  $SD_{\text{age}} = 12.25$ ). This study was preregistered at <https://aspredicted.org/tf289.pdf>.

The study had two between-subjects conditions: matching and control. Apart from minor changes in wording, the materials and procedure of the control condition were identical to those of the three-option bundle condition of study 1. In the matching condition, participants were informed that we will match their donations. The matching rate was 5% for donating exclusively to the favorite charity, 25% for choosing the 50/50 bundle, and 50% for donating exclusively to the effective charity. For the bundled donations, matching funds were applied to both charities at the 25% rate. In the control condition, no matching was offered.

#### Study 7

We recruited 172 U.S. participants online via MTurk. They received \$0.50 in payment for their participation. A total of 27 participants were excluded for not entering the correct completion code at the end of the survey, leaving a final sample of 145 people (59 females and 86 males,  $M_{\text{age}} = 35.74$  and  $SD_{\text{age}} = 10.82$ ).

Participants were informed that they would be directed to a website that allows users to make donations to charity. Participants were told that they could donate any amount between \$0 and \$10 and that we would randomly pick 10 participants and execute their decisions. For the selected participants, any portion of the \$10 not donated would be given to the participant in the form of an Amazon voucher. Participants were then directed to a preliminary version of our website, GivingMultiplier.org, and asked to follow the instructions there (see the "Proof of concept" section).

After participants submitted the donation form, they were asked whether they would like to support the matching system by directing the part of their donation that they allocated to an effective charity into our matching system, so that it can be used to incentivize others to make donations to effective charities. It was explained to participants that doing this would allow them to double their impact because a dollar spent on matching indirectly raises two dollars for effective charities (as indicated by the results of study 6). It was explained that donations directed to the matching system will not be matched but will instead be used to match other people's donations. Participants could choose between the options yes and no.

### Proof of concept

We refer to this study as a "proof of concept" because it is not a controlled experiment. Given our need to publicly advertise Giving Multiplier and its essential features, we could not randomize prospective donors into a control condition in which Giving Multiplier's essential features are absent. Our aim, then, is not to compare Giving Multiplier's performance to a prespecified benchmark. Rather, our more modest aim is to determine whether the psychological principles behind Giving Multiplier are at all applicable to the real world.

The proof-of-concept demonstration was preregistered at <https://aspredicted.org/h4tk3.pdf>. We promoted the donation website GivingMultiplier.org through word of mouth, primarily on social media, and through unpaid media coverage. For example, the website was promoted in articles in the *LA Times* and *Vox.com* and in episodes of the podcasts *Happiness Lab*, *Waking Up*, and *Mindspace*. Note that the aim of this proof of concept is not to attract a nationally representative sample, as few charities (if any) have a pool of donors that is representative of the national population. We note that only 27% of our donors indicated that they had heard of their chosen effective charity before visiting Giving Multiplier.

Once on the website, donors were first asked to specify their favorite charity using a search field that contained all legally recognized U.S. charities. Next, they were asked to select one of nine recommended highly effective charities. Next, they specified the amount that they want to donate (with a minimum of \$10). Next, they were asked to specify how they would like to divide their donation between the two previously selected charities using a slider. The matching rates increased linearly with the proportion allocated to the effective charity. At the time of launch, the rate was 30% for allocating everything to the effective charity, 15% for allocating 50% to the effective charity, and 3% for allocating 10% to the effective charity. Matching rates were subsequently increased. Donors had to allocate at least 10% to their selected effective charity.

After donors submitted the donation form, they were asked a set of follow-up questions. First, they were asked whether they had heard of the effective charity before and how much they would have donated to it had they not known about our website. This allows us to more precisely estimate the impact of the website, providing information about which amounts directed to highly effective charities are "counterfactual" (i.e., pass a counterfactual test for incremental value). Second, donors were asked whether they would like to support the matching system by redirecting the part of their donation that they allocated to an effective charity into our matching system. It was explained that these funds could be used to

incentivize others to make donations to effective charities. It was explained to donors that doing this would allow them to have a greater impact because a dollar spent on matching indirectly raises more than one dollar for effective charities. It was explained that donations directed to the matching system will not be matched but will instead be used to match other people's donations. Donors could choose between the options yes and no.

### Supplementary Materials

#### This PDF file includes:

Supplementary Materials and Methods

Tables S1 to S14

Figs. S1 to S4

Supplementary Text

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