PayPal Giving Experiments
This research was completed with funding from the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect official positions or policies of the Bill & Melinda Gates Foundation.

Executive Summary

This report describes insights gleaned from the Data Fellows collaboration among PayPal, Northwestern University’s Kellogg School of Management, the Golub Capital Social Impact Lab at Stanford University’s Graduate School of Business, and ImpactMatters. By embedding researchers in PayPal’s charitable giving team, we co-designed and executed experiments to generate generalizable knowledge about donor behavior. This report describes the results of several experiments focused on addressing the following question: Does information about the cost-effectiveness, or “impact,” of a charity increase donations?

We find, across different contexts and for both well-known and lesser-known charities, that cost-effectiveness information increases micro-donations. We discuss the implications of these findings for nonprofits and platforms trying to improve charitable giving.
Description of the Data Fellows Model

The Data Fellows model was launched in 2019 with two goals: generating insight into the impact of appeals for micro-giving as a way to encourage charitable giving; and advancing specific approaches to using a payments platform to promote more, and more effective, charitable giving. With funding from The Bill & Melinda Gates Foundation, this collaboration with PayPal, the Kellogg School of Management, and the Golub Capital Social Impact Lab was led by ImpactMatters (now Impact Audit Partners, but herein referred to as ImpactMatters), a nonprofit that connects donors to high-impact nonprofits. The model embedded research “fellows” in a firm (in this case, PayPal) to co-design and execute experiments targeting the goals articulated above.

Through iterative experiments on the PayPal platform, we explored how to guide donors to realize their aspirations for giving more and giving more effectively. This research agenda is predicated on two related assumptions: (1) most people aspire to give more than they do (the “quantity” of giving);¹ and (2) most people aspire for their gifts to make an impact on society (the “quality” of giving).²

The research was led by Susan Athey, the Economics of Technology Professor at Stanford Graduate School of Business, and Dean Karlan, Professor of Economics and Finance at the Kellogg School of Management at Northwestern University. Data Fellows from the Golub Capital Social Impact Lab were embedded in the PayPal charitable giving team to advance the design and execution of experiments. The Data Fellows worked closely with PayPal data analysts and engineers to explore trends in user behavior and experimental design, conduct experiments, and shed light on effective strategies to increase charitable giving. The experiments used data on charity cost-effectiveness, in the form of impact statements, provided by ImpactMatters.

In addition to generating insight on charitable giving behavior, this new collaboration model has the potential to address an information blockage: When platforms run their tests, the results are often internally focused and not shared with peers, nonprofits, or funders promoting charitable giving. This partnership has produced and shared insight on donor behavior that can advance the field, while also providing proof of concept of the efficacy of this Data Fellows model.

Designing Experiments to ‘Give at Checkout’

Three-quarters of Americans say they donate to charity every year. About one-third donate when presented with opportunities to do so while checking out at the grocery or drug store.³ This type of “point-of-sale” fundraising has become widespread both in person and in online contexts. Using a point-of-sale experience known as “Give at Checkout” on PayPal’s online checkout platform, we tested different ways of increasing both the quantity and quality of giving among PayPal users.

More than 350 million customers across more than 200 countries and regions transact on PayPal’s platform each year. PayPal launched the Give at Checkout product in the US in 2019 and quickly expanded to other markets. The Give at Checkout feature’s primary objective is to help nonprofits raise funds by making it easy for consumers to donate a small amount during a purchase transaction. When online shoppers decide to “check out” and pay through PayPal, they are sent

¹ Davis K., Kim, A., & Warren, A. “Is There a $250 Billion Gap in Charitable Giving in the U.S.?”
² Konrath, S., & Hardy, F. “The development and validation of the motives to donate scale.”
³ 2019 YouGov Survey. “Statistics every cause marketer should know - Cause marketing statistics.”
to a PayPal webpage to complete their transactions. Users who receive the Give at Checkout experience are shown the opportunity to donate $1 to support a particular charity as part of their checkout transaction.

During this partnership, we co-designed and ran several experiments on PayPal’s Give at Checkout platform. We ran experiments that featured a particular charity and varied the information different users saw about that charity. Our outcome of interest in these experiments is whether a user donates — by clicking the donate button in **Figure 1** with the checkmark — thus adding $1 to go towards supporting the charity. We conducted experiments featuring both well-known global nonprofits and less well-known organizations. All experiments were conducted on PayPal users; applicable sections in this report define the subset of users for each experiment. The data presented here were collected in 2020, so we add a note of caution about broadly generalizing the results of these experiments that were conducted during the COVID-19 pandemic.

The experiments were designed to test what kinds of information improve both the quantity and quality of giving. To increase the quantity, or number of donations, we tested whether different kinds of information about the charity helped increase donation rates. Note that a given user may receive many requests, corresponding to many transactions where the user makes a purchase using PayPal; by donation rate, we mean the ratio of the number of donations to the number of requests. To simplify the interpretation, we focus on donation behavior for the first transaction where a user is potentially exposed to the donation appeal.

The experiments tested, for example, whether a content line that provides information about the general activities of the charity encourages more donations than a content line informing users that the charity is responding to a particular humanitarian crisis or natural disaster. We also examined whether providing more information about the charity increases rates of giving at checkout compared with showing less information. To test mechanisms to improve the quality of giving, we presented information about charity quality and cost-effectiveness (“impact”), as well as its rating by third-party organizations, in the content line (as shown in **Figure 1**).

**Figure 1**

Sample Give at Checkout Donation Request

![Sample Give at Checkout Donation Request](source: PayPal)
**Figure 1** illustrates one example of a Give at Checkout experience featuring a food bank. In our experiments, when a user checked out with PayPal, they were randomly assigned to a particular charity and a “content line” presenting information about the charity. In **Figure 1**, the content line informs users that their donation “helps provide food for families in need.” Although it may seem obvious that users would care about how their donation is used and its effectiveness, academic evidence on the success of these types of impact statements increasing donations is mixed. Several studies find that impact information has an overall null effect on donation rates (Karlan and Wood, 2016; Horn and Karlan, 2018; Metzger and Günther, 2019). For instance, Karlan and Wood (2016) finds that adding impact information to a marketing mailer from an international poverty charity has no overall effect on donations of prior donors. Karlan and Wood (2016) does, however, find heterogeneity, where impact information increases donations among larger prior donors but decreases donations among smaller prior donors. Similarly, Metzger and Günther (2019) finds that providing information on the impact of aid does not significantly change average donations. Yet this null effect masks policy-relevant heterogeneity, as donors who demand this kind of information respond positively to high-impact projects and negatively to low-impact projects. Critically, other scholars find negative effects of impact information on donations (Small, Loewenstein, and Slovic, 2007). Some studies seek to explain these unintuitive null and negative findings by suggesting that people value cost-effectiveness information but find it difficult to evaluate in the absence of any kind of comparison (Caviola et al., 2014). Building upon these studies, we compare how well cost-effectiveness information performs compared with several other types of information, including signals of the charity’s quality (rating) from a third-party organization.

Collaborating with PayPal created the opportunity to conduct this research with millions of users in the U.S. and Australia. To date, few studies have examined the drivers of micro-giving at this scale (one notable exception is Horn and Karlan, 2018). We classify these $1 donations at checkout as “impulsive” or “intuitive” donations because users make a yes or no decision about giving $1 to go towards supporting the charity they are shown while they are in the process of accomplishing another task. This quick decision is different from other instances of giving, in which donors research the charities, choose between nonprofits, and deliberate on how much to donate. Even a donor who typically applies careful consideration to a giving choice might not do so when offered donation opportunities in a context where a donation was not the primary goal. We therefore suggest that the results described below can be extrapolated to other instances of impulsive giving but may not apply to contexts of more deliberate giving. The next section describes our main experimental findings and the specific experiments we conducted that led to these results.
Experimental Results

**KEY TAKEAWAY**

Providing users with information about the cost-effectiveness of their donation increases donation rates.

The first insight is that information about the impact of a $1 donation increases donation rates among PayPal users. We come to this conclusion by comparing donation rates among users who were randomly assigned to see cost-effectiveness information with rates among those who were randomly assigned to see only the charity’s name and logo, general information about the charity’s mission, or the charity’s rating. We ran these experiments for several different charities. Below we highlight the results from experiments featuring three different charities: UNICEF, Evidence Action, and TechnoServe.

In all of the analyses described below, we subset the data to the first observation (transaction) for each individual, to analyze the main effect of the treatment (content line) the first time an individual sees it. In future analyses, we plan to observe how the frequency of seeing the same and different content lines affects giving behavior.
Case Study 1
Give at Checkout in Australia with UNICEF

Between March 20 and April 8, 2020, we ran a Give at Checkout experiment in Australia featuring UNICEF. PayPal users who were part of this experiment were randomly assigned to one of three conditions that each provided different information about the charity:

- **No information line**: A control condition that provided no additional information.
- **Purpose**: “Support the education and protection of disadvantaged children.”
- **Cost per outcome**: “$1 provides clean water to a child and their family for a month.”

**Figure 2** presents average donation rates for PayPal users in Australia who were part of this experiment. We find that both the purpose and cost per outcome information increase donation rates above the control (no information line) condition. The purpose treatment achieves a higher donation rate (3.1%) than the no information line treatment (2.9%). This represents a 7% increase over the donation rate of users who did not see any content line, and we can reject the hypothesis that the treatments have the same outcome at a 5% significance level (P-value = 0.0232). The cost per outcome treatment achieves an even larger donation rate (4.2%) — a 45% increase.

**Figure 2**
Donation Rates by Treatment Condition among Australian Users Who Saw the Give at Checkout Experiment with UNICEF

**NOTE**: Each bar represents the donation rate of the different scripts in the experiment. The value of the donation rates is on top of the bar. Between brackets, we include the value of the donation rate as a percent of the no information line (control) donation rate (2.9%). Grey thin bars represent 95% confidence intervals.
These results suggest that providing concrete information about achievements from a $1 donation increases donation rates among potential donors in this impulsive giving context. One remaining question, however, is whether the donations are motivated by specific information about charity effectiveness or something else. For instance, it could be that PayPal users are more likely to give to organizations that provide clean water to children than to support the education of children. Because there were several differences between the purpose and cost per outcome lines, we need additional tests to determine whether concrete quantification of “impact” influences donors’ decisions. The next section describes the experiments run with U.S. users on Give at Checkout to gain additional insights into what drives impulsive charitable giving.

### Case Study 2

**Give at Checkout in the U.S. with TechnoServe and Evidence Action**

Between October 26 and November 23, 2020, we ran two experiments on the Give at Checkout platform featuring two charities that fight global poverty: [Evidence Action](https://evidenceaction.org) and [TechnoServe](https://technoserve.org). We showed users one of six different content lines or no information line (only the charity’s name and logo), to see what information would increase donation rates. Provided in Table 1, content lines included information about the activities of the charities, the cost-effectiveness of the $1 donation, and validation of the charity’s quality based on ratings from a third party.  

**Figure 3** plots the average donation rates for each treatment condition by charity. The numbers on top of the bars indicate the donation rate among users who saw that content line. Donation rates for each condition are less than 1%. Although small, this magnitude of “click rate” is common on technology platforms in which most users do not click most of the time. We see that 0.9% of the users who saw the cost per outcome content line for Evidence Action donated, whereas the donation rate of the cost per outcome content for TechnoServe was 0.76%. Percentages in the brackets on top of each bar indicate the percent increase in donation rates that content line achieved compared with the baseline donation rate in the control (no information line) condition. For example, among users who saw the activity line for TechnoServe, donation rates are three times greater than those in the control condition. For Evidence Action, the activity line more than doubles donation rates relative to the control condition.

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4 The information provided in the scripts is specific to Evidence Action’s Dispensers for Safe Water program, which delivers free and reliable safe water access to nearly 4 million people living in rural Kenya, Uganda, and Malawi.
Table 1
Content Lines for Each Treatment Presented for Evidence Action and TechnoServe to U.S. Users

<table>
<thead>
<tr>
<th>Label</th>
<th>Evidence Action</th>
<th>TechnoServe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>No information line.</td>
<td>No information line.</td>
</tr>
<tr>
<td>Activity</td>
<td>“Evidence Action provides free and reliable access to safe water.”</td>
<td>“TechnoServe increases the earnings of a person living in poverty.”</td>
</tr>
<tr>
<td>Validation with stars</td>
<td>“Rated 5/5 stars by a charity rating group.”</td>
<td>“Rated 5/5 stars by a charity rating group.”</td>
</tr>
<tr>
<td>Cost per outcome</td>
<td>“$1 provides 2 people with free and reliable access to safe water for a year.”</td>
<td>“$1 increases the earnings of a person living in poverty by as much as $33.”</td>
</tr>
<tr>
<td>Activity + validation with stars</td>
<td>“Evidence Action provides free and reliable access to safe water. Rated 5/5 stars by a charity rating group.”</td>
<td>“TechnoServe increases the earnings of a person living in poverty. Rated 5/5 stars by a charity rating group.”</td>
</tr>
<tr>
<td>Cost per outcome + validation with stars</td>
<td>“$1 provides 2 people with free and reliable access to safe water for a year, earning it 5/5 stars from a charity rating group.”</td>
<td>“$1 increases the earnings of a person living in poverty by as much as $33, earning it 5/5 stars from a charity rating group.”</td>
</tr>
<tr>
<td>Cost per outcome + validation without stars</td>
<td>“$1 provides 2 people with free and reliable access to safe water for a year, as estimated by a charity rating group.”</td>
<td>“$1 increases the earnings of a person living in poverty by as much as $33, as estimated by a charity rating group.”</td>
</tr>
</tbody>
</table>

**Source:** Statements provided by ImpactMatters in consultation with the charities.
Figure 3
Donation Rates among U.S. PayPal Users Who Saw Evidence Action and TechnoServe Content Lines


Note: Each bar represents the donation rate of the different scripts in the experiment for each charity. The value of the rates is on top of the bar. Between brackets, we include the value of the donation rate as a percent of the control (no information line) donation rate for each charity (0.22% for Evidence Action and 0.18% for TechnoServe). Grey thin bars represent 95% confidence intervals.

Figure 4 plots the same data, pooled across charities. We find that providing cost per outcome information leads to the highest donation rates. Across both charities, cost per outcome information increases donation rates by four times those observed in the control condition. Compared with the donation rate achieved when providing information about the charity’s activity (0.52%), cost per outcome information leads to a substantially higher donation rate (0.82%). These rates are more than two and four times larger than the no information line rate (0.2%), respectively. Compared with the five other content lines we tested and the no information line control condition, cost per outcome information performs the best overall.
The data also reveal additional insights. First, we observe that more information is not always better. In particular, adding validation information to the activity content line (Activity + validation with stars) does not increase performance over just the activity line. More generally, the effect of validation varies by the additional information paired with it. In Figure 4, we see that providing only validation information does marginally better than our no information line (control) condition, and substantially worse than all the other content lines we tested. We also see that adding validation with stars to the cost per outcome line performs better than adding validation of the estimate by stating "...as estimated by a charity rating group" (without stars).
Figure 5
Donation Rates by Treatment Condition for Prior Donors and Non-donors

<table>
<thead>
<tr>
<th>Treatment Condition</th>
<th>Donation Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior donors</td>
<td>0.71% (274%)</td>
</tr>
<tr>
<td>Prior non-donors</td>
<td>0.30% (114%)</td>
</tr>
</tbody>
</table>

We can also consider how different subgroups respond to the scripts. In particular, we thought that perhaps users who had donated on PayPal in the past (prior donors) might react differently to the scripts than users who had never donated through PayPal (prior non-donors). Figure 5 presents donation rates across treatment conditions for prior donors and prior non-donors. We define prior non-donors as PayPal users who did not donate to support a charity through PayPal’s donation products in 2020, outside of Give at Checkout, before the start of our experiment. Prior donors are users who donated to charity through PayPal’s donation products any time in 2020 before the start of our experiment.

The main takeaway from Figure 5 is that donation rates are higher, overall, among prior donors. This result leads to an intuitive insight: If you have minimal resources for any kind of giving appeal and care about maximizing donations, you may want to target prior donors. This means that for nonprofits that have lists of prior donors, it may be most efficient, from a resource perspective, to allocate resources to target these people with giving appeals. Figure 5 shows similar patterns in the relative performance of the scripts for prior donors versus prior non-donors.

We had initially hypothesized that validation information might increase donation rates, compared with the same scripts without validation information, more among users who had not previously donated through PayPal (i.e., prior non-donors) since they may not initially trust cost per outcome estimates. This does not appear to be the case.

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Conclusion

Should solicitations for charitable donations present quantification of impact information, such as cost per outcome estimates? We provide evidence from multiple countries and different charities that suggests that in an impulsive giving context, the answer is “yes.” We find that cost per outcome information increases donation rates compared with providing unquantified activity information, presenting only the charity name and logo, or including signals of charity quality from charity raters. We do not suggest generalizing these results to deliberative giving settings, or to charities whose work is more difficult to quantify (e.g., advocacy organizations). Further research would benefit from expanding to more deliberative environments, to more difficult-to-quantify charities, and to different users to learn more about differential and predictable donor responses.

References


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**STANFORD GOLUB CAPITAL SOCIAL IMPACT LAB**

The Golub Capital Social Impact Lab is a lab and research initiative of affiliated academics, staff, researchers, and students who are passionate about applying technology and social science research to improve the effectiveness of leading social sector organizations. The lab is based out of the Stanford Graduate School of Business and collaborates with a wide range of organizations, from large firms to smaller startups, for-profits to nonprofits, and NGOs to governments, to foster collaborative original research.

**PAYPAL**

PayPal has remained at the forefront of the digital payment revolution for more than 20 years. By leveraging technology to make financial services and commerce more convenient, affordable, and secure, the PayPal platform is empowering more than 375 million consumers and merchants in more than 200 markets to join and thrive in the global economy. For more information, visit [paypal.com](http://paypal.com).

**IMPACT AUDIT PARTNERS**

Impact Audit Partners (formerly ImpactMatters) was a nonprofit organization that estimated the impact of nonprofit organizations to help guide donors to more effective charities. ImpactMatters was acquired by Charity Navigator in October 2020.

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The Bill & Melinda Gates Foundation is a private foundation founded by Bill and Melinda Gates. Its mission is to create a world where every person has the opportunity to live a healthy, productive life.

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The Global Poverty Research Lab is an academic hub for empirical development economics at Northwestern University. The lab aims to use empirical evidence and interdisciplinary engagement to understand drivers, consequences, and solutions to poverty issues around the world. It works to address the challenges of overcoming poverty and improving well-being in the developing world. The lab’s goal is accomplished by supporting graduate student and faculty research, providing undergraduate research opportunities, coordinating a seminar series, and promoting policy engagement.

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