THE POWER OF PROMPTS

Using Behavioral Insights to Encourage People to Participate

OPRE Report 2015 75

August 2015

BIAS BEHAVIORAL INTERVENTIONS TO ADVANCE SELF SUFFICIENCY

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OVERVIEW

This report presents findings from two behavioral interventions designed to increase the number of participants who attended an informational meeting about a program they enrolled in called the Paycheck Plus Demonstration. The tests are part of the Behavioral Interventions to Advance Self-Sufficiency (BIAS) project, which is the first major opportunity to use a behavioral economics lens to examine programs that serve poor and vulnerable people in the United States.

The first round of experimentation lasted one month. The meetings were offered in person at several locations throughout New York City. The BIAS team designed two kinds of postcards to invite participants to attend these meetings — one that incorporated concepts from behavioral economics (the "behavioral" version), and one that did not (the "standard" version). Half of the sample was sent behavioral postcards and the other half was sent standard postcards. In addition, half of the people within each of these groups were also sent four text message reminders. The messages within the texts were either behavioral or standard, depending on the type of postcards the participant were sent. The study found that:

- Behavioral messaging led to a statistically significant increase of 7 percentage points (or 38 percent) in meeting attendance, compared with standard messaging.
- Sending text messages with postcards produced a statistically significant impact of 5 percentage points (or 26 percent), compared with sending only postcards.
- The highest intensity outreach (behavioral postcards together with behavioral texts) improved meeting attendance by 12 percentage points (or 73 percent), when compared with the lightest-touch approach (only standard postcards).

Behavioral messaging led to a significant and quite large increase in the percentage of participants who attended the meeting. However, the overall number of participants who responded to any outreach effort was still lower than the program operators desired. In an attempt to build on the initial response, a second round of outreach was launched immediately. Participants who did not attend a meeting during Round 1 were randomly assigned to attend either a meeting by phone or a meeting in person. *All participants in Round 2* received communications that were designed using behavioral concepts. The study found that:

- Participants in the phone group responded to the marketing materials more quickly than those in the in-person group, but this effect diminished as the deadline approached.
- In the end, there was no statistically significant difference in response rates between the phone and in-person research groups.

These behavioral experiments reinforce previous findings about the power of behavioral techniques to help people to follow through on an action. At the same time, they demonstrate the challenge of engaging a low-income, urban population in a supplemental informational meeting, even when offered by phone.

CONTENTS

LIST OF EXHIBITS

Table

Figure

Box

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The Authors

EXECUTIVE SUMMARY

The Behavioral Interventions to Advance Self-Sufficiency (BIAS) project is the first major opportunity to use a behavioral economics lens to examine programs that serve poor and vulnerable people in the United States. Sponsored by the Office of Planning, Research and Evaluation of the Administration for Children and Families in the U.S. Department of Health and Human Services and led by MDRC, the project applies behavioral insights to issues related to the operations, implementation, and efficacy of social service programs and policies. The goal is to learn how tools from behavioral science can be used to deliver programs more effectively and, ultimately, to improve the well-being of low-income children, adults, and families.

This report presents findings from behavioral interventions designed to increase the number of participants who attended an informational meeting about a program they enrolled in called the Paycheck Plus Demonstration. The Paycheck Plus Demonstration is evaluating whether offering single New Yorkers a generous earnings supplement on top of the existing earned income tax credit (EITC) improves their economic well-being and encourages employment. Eligible participants qualify to receive up to $2,000 a year for three years if they work, earn wages within an income cap, and file taxes. Enrollment into the program took place in late 2013 and early 2014. Since participants enrolled about a year before they could receive their first bonus payment (in the spring of 2015), Paycheck Plus program operators invited them to a meeting to remind them of the program's benefits, review its participation requirements, and encourage them to find work or to continue working if they were already employed. The meeting was optional and there was a $50 incentive to encourage attendance.

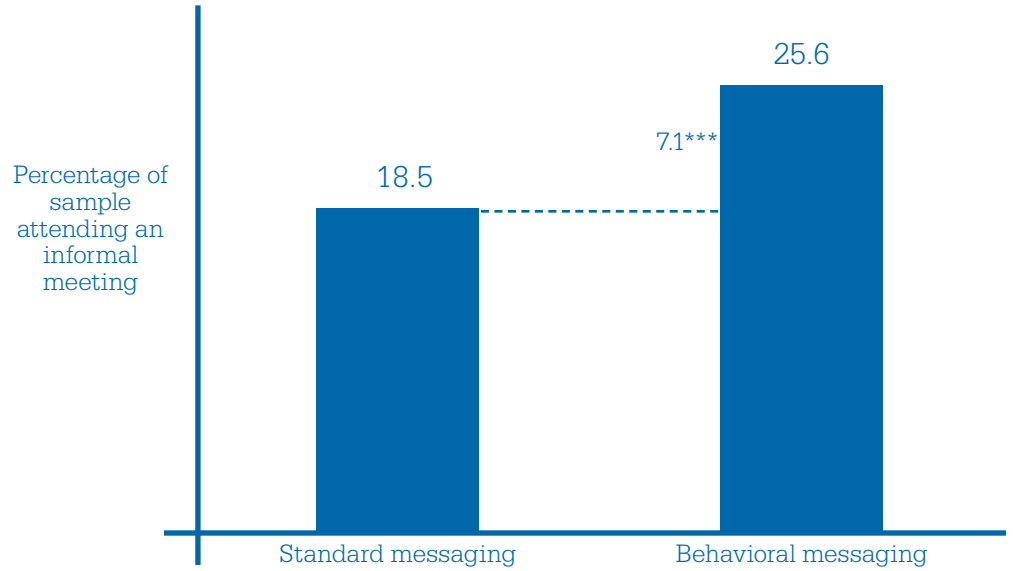
Program operators anticipated that many participants would not attend the meeting, even when they explained the purpose and offered a monetary incentive. The central question for this BIAS intervention is whether behavioral techniques can be used to increase the attendance rate. Using a process called behavioral diagnosis and design, the team collected quantitative and qualitative data about the EITC and Paycheck Plus programs, and spoke to participants, administrators, and experts. To identify areas where bottlenecks may have occurred, the BIAS team mapped the steps participants needed to take to complete a meeting and hypothesized behavioral reasons for not attending.

The first round of experimentation started in March 2014 and lasted one month. The BIAS team designed two types of postcards: one meant to reflect a typical message that program operators would have produced in the absence of a BIAS intervention (the "standard" version), and one that incorporated concepts from behavioral economics (defined in Appendix Table A.1), including implementation prompting, loss aversion, and prominent deadlines (the "behavioral" version). Additionally, half of the participants were sent text messages. The study contained four research groups. Group 1 was sent only behavioral postcards, and Group 2 was sent behavioral postcards and behavioral text messages. Group 3 was sent only standard postcards, and Group 4 was sent standard postcards and standard text messages.

Figure ES.1 shows the overall effect of using any type of behavioral messaging (Group 1 and Group 2), compared with using any type of standard messaging (Group 3 and Group 4). Behavioral messaging led to a 7 percentage point increase in meeting attendance (over a base of 18.5 percent), compared with standard messaging.

FIGURE ES.1
IMPACT OF BEHAVIORAL MESSAGING, ROUND 1

PAYCHECK PLUS



NOTE: Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.

Figure ES.2 presents a further breakdown by each research group. The strongest outcomes were found for the group that was sent *both* behavioral postcards and behavioral text messages. Employing the highest-intensity outreach — sending both behavioral postcards and behavioral texts — resulted in 28.5 percent of the Group 2 sample participating, compared with 16.5 percent who participated in the postcards-only group. As a result, the highest intensity outreach improved response by 12 percentage points (or 73 percent), when compared with the lightest touch, sending only standard postcards. Figure ES.2 also shows that sending text messages with postcards produced statistically significant impacts, compared with sending only postcards, regardless of the type of messaging.

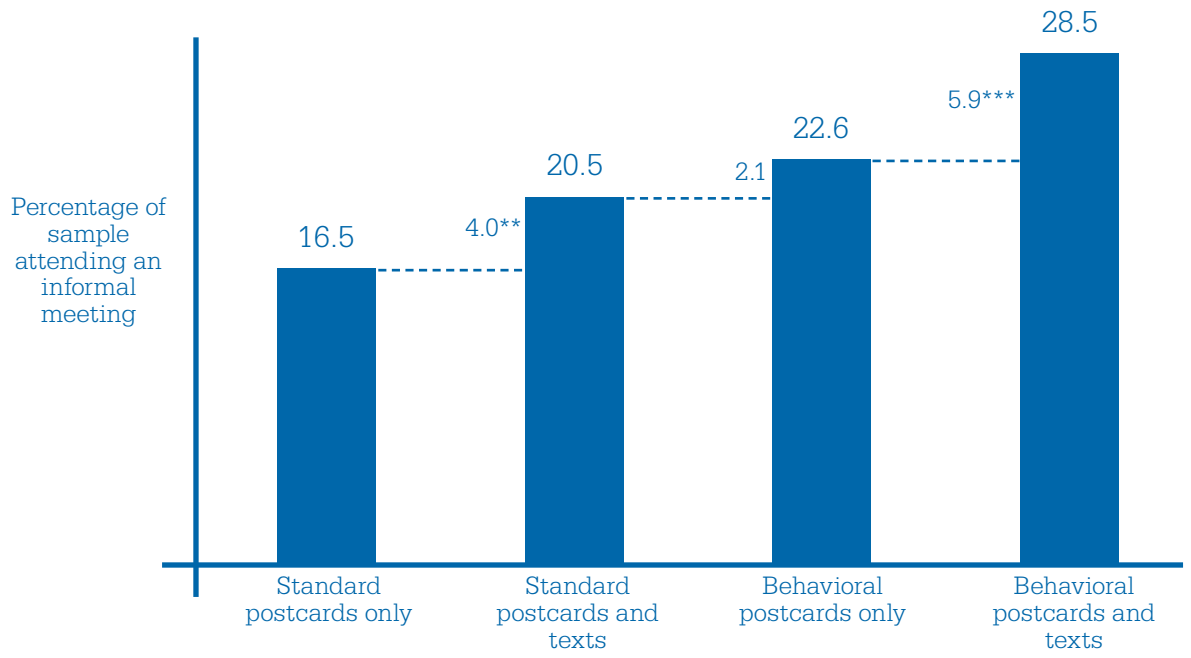
Behavioral messaging led to a large, statistically significant increase in the percentage of participants who attended the meeting. Yet, the overall number of participants who responded to any outreach was still lower than the program operators desired, so the BIAS team immediately launched a second round of outreach to those who did not respond to the first.

Based on a review of findings and feedback from a limited number of participants, the team proposed an intervention that aimed to significantly reduce hassle factors associated with in-person meeting participation by offering a phone conversation instead.

Participants who did not attend a meeting during Round 1 were randomly assigned to one of two conditions: (1) meeting by phone, or (2) meeting in person. In light of the effectiveness of the behavioral

FIGURE ES.2
IMPACTS BY RESEARCH GROUP, ROUND 1

PAYCHECK PLUS



NOTE: Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.

principles used in Round 1, *all participants in Round 2* received communications that were designed using behavioral concepts. This round included several different forms of outreach using all communication channels for which the participant had provided contact information and consent — mail, e-mail, text, and robocalls.

The second round of experimentation started in May 2014 and lasted six weeks. The findings showed that:

- Launching a second round of outreach increased the total number of participants who attended a meeting; 655 participants responded to marketing in Round 1 and an additional 832 participants responded to marketing in Round 2.
- Participants in the phone group responded to the marketing materials more quickly than those in the in-person group, but this effect diminished as the deadline approached.
- In the end, there was no statistically significant difference in response rates between the phone and in-person research groups.

These behavioral experiments reinforce previous findings about the power of behavioral techniques, such as implementation prompts, multiple reminders, and highly publicized deadlines, in helping people to follow through on an action. At the same time, they demonstrate the challenge of engaging a low-income, urban population in supplemental informational meetings, even when offered by phone.

THE POWER OF PROMPTS

Using Behavioral Insights to Encourage People to Participate

The Behavioral Interventions to Advance Self-Sufficiency (BIAS) project, sponsored by the Office of Planning, Research and Evaluation of the Administration for Children and Families in the U.S. Department of Health and Human Services, is the first major opportunity to use a behavioral economics lens to look at programs that serve poor and vulnerable people in the United States. Led by MDRC, the project applies behavioral insights to issues related to the operations, implementation, structure, and efficacy of selected social service programs and policies, with the goal of learning how tools from behavioral science can be used to deliver programs more effectively and, ultimately, to improve the well-being of low-income children, adults, and families.

This report presents findings from behavioral interventions designed to increase the number of participants who attended an informational meeting about a program they had enrolled in called the Paycheck Plus Demonstration. The Paycheck Plus Demonstration is evaluating a new earned income tax credit (EITC)-like earnings supplement for low-income single adults without dependent children. By increasing the financial returns from work, Paycheck Plus aims to increase employment and reduce poverty. However, like all financial incentive programs, Paycheck Plus relies on participants having a clear understanding of the actions they must take to qualify for the incentive, and the mechanism for claiming it. The informational meeting was designed to ensure that they had this information.

The BIAS team created multiple sets of marketing materials that encouraged participants to attend the meeting, and tested their effectiveness using an experimental design. The central question of this study is whether behavioral techniques can be used to measurably increase engagement with a supplemental component of the Paycheck Plus intervention. To answer this question, the BIAS team launched two successive rounds of tests in a short period. As a result, this study also illustrates some operational lessons from rapid-cycle evaluation. The findings from this study are applicable to programs that anticipate or experience challenges getting participants to attend events, especially when the tangible benefits of participation are in the future or abstract.

The report begins with a brief overview of the Paycheck Plus Demonstration. It then describes how the research team used a method called "behavioral diagnosis and design" to anticipate reasons people might not attend the informational meeting, and used this information to design low-cost behaviorally informed marketing materials. The remainder of the report presents results from two rounds of experimentation.

The Paycheck Plus Demonstration

The federal EITC is one of the largest antipoverty programs in the United States.[1] The credit supplements the earnings of low-income families with children by as much as $6,200 a year and has been suc-

1 The federal EITC is a tax credit for low-income working people that rewards and encourages work. The amount of EITC depends on a recipient's income, marital status, and number of qualifying children. Workers receive the credit beginning with their first dollar of earned income; the amount of the credit rises with earned income until it reaches a maximum level and then begins to phase out at higher income levels. The EITC is "refundable," which means that if it exceeds a low-wage worker's income tax liability, the Internal Revenue Service will refund the balance (Tax Policy Center, 2014).

cessful at increasing employment among single mothers.[2] However, in comparison with large benefits for families with children, the federal EITC for single tax filers without dependent children was capped at a maximum annual payment of just $503 in 2015. This smaller credit for single tax filers is less effective at increasing employment and reducing poverty within this population.[3]

To assess whether a larger EITC benefit for singles can increase employment and reduce poverty, MDRC is evaluating an EITC-like earnings supplement for low-income workers in New York City who do not have dependent children with funding from the Center for Economic Opportunity and the Robin Hood Foundation.[4] From September 2013 through February 2014, 6,000 low-income individuals were enrolled in the Paycheck Plus Demonstration. Half of the individuals were assigned at random to the program group, which was eligible to receive the supplement; the other half were randomly assigned to the control group. Those eligible for the supplement may qualify to receive up to $2,000 a year in 2015, 2016, and 2017 if they work, earn wages within an income cap, and file taxes.

The Food Bank for New York City (Food Bank), which runs a network of Volunteer Income Tax Assistance (VITA) sites and is the lead implementing agency for the Paycheck Plus Demonstration, recruited the study sample. The goal was to recruit a diverse sample of low-wage workers, targeting groups that typically face the most labor market challenges, including the formerly incarcerated, noncustodial parents with arrears, and individuals with little or no earnings. At the time of enrollment, about 12 percent of the sample reported being noncustodial parents and 18 percent reported having ever been incarcerated. About 71 percent were employed in the year before they enrolled in the study, and nearly half of those who did work earned less than $7,000 during the year. Only 24 percent were working full time at the time of enrollment, and the average weekly earnings among those currently working were only $292.

The Paycheck Plus program operators foresaw several potential challenges related to the participants' understanding and ongoing awareness of the program. Many participants recruited into the sample had been disconnected from the labor market and did not know about the EITC.[5] The study recruiters had limited time to explain the program at the point of enrollment, so program group members may not have fully understood how to qualify for or claim the supplement in 2015. Even if they entered the program with a good understanding, they might forget about Paycheck Plus in the ensuing year. Since participants had to work in 2014 to claim the supplement in 2015, it was imperative that the supplement was on their minds to potentially influence employment-related decisions.

To address these issues, the program operators created an informational meeting for individuals eligible to receive the supplement — in effect, a one-on-one orientation to the program. Starting in March 2014, program group members were invited to attend the meeting at one of Food Bank's VITA sites. As an incentive to attend, program operators offered participants a $50 American Express gift card. The goal of the short meeting was to ensure participants understood the requirements for earning the supplement in subsequent years, and to introduce them to one of the VITA locations where they could claim it in 2015.[6]

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2 Berlin (2007); Edelman, Holzer, and Offner (2006); Scholz (2007); Eissa and Hoynes (2006); Holt (2006); Dahl and Lochner (2012); Greenstein and Shapiro (1998).

3 Eissa and Hoynes (2006).

4 Pardoe and Bloom (2014).

5 Food Bank directed its outreach effort at several channels, including former VITA clients, food pantries and soup kitchens, programs that serve formerly incarcerated people, workforce and job-training organizations, one-stop career centers, community colleges, fatherhood programs, and social service agencies, all places that serve low-income, single adults. Within the Paycheck Plus sample, 46 percent were aware of the EITC at baseline.

6 Program operators also implemented another study embedded in the Paycheck Plus Demonstration during the informational meeting, which focused on providing an employment referral to a portion of the program group once they showed up at the VITA site. The goal of providing a subset of Paycheck Plus program group members with an employment referral is to determine whether additional assistance in finding employment, in addition to the offer of a bonus, would increase the number of program group members who earn the bonus and the size of those bonuses in 2015. The details of this embedded study will be covered in future MDRC reports.

BOX 1
BEHAVIORAL ECONOMICS

Behavioral economics, part of the broader field of behavioral science, is the application of psychological insights to economic models of decision making.[*] Innovative research in this area has shown that human decision making is often imperfect and imprecise. People — clients and program administrators alike — procrastinate, get overwhelmed by choices, and miss important details. As a result, they may not always achieve the goals they set for themselves. Principles from behavioral economics can both shed light on decision making and offer new tools to improve outcomes for program participants.

Research has shown that small changes in the environment can facilitate desired behaviors, that planning and commitment devices can be used to improve self-control, and that default rules can produce positive outcomes even for people who fail to act. Over the past decade, behavioral economics has gained popularity in the private and public sectors. For example, credit card machine vendors for New York City taxi cabs leverage the use of defaults to influence customer choice. Passengers paying for their ride with a credit card are prompted by a screen to enter a tip amount, and have the option to either choose one of three default amounts or to enter an amount of their own. When the default amounts were increased — for example, changing the options from 15, 20, and 25 percent to 20, 25, and 30 percent — the average tip amount increased.[†] In the public sector, California introduced a Fast Track system to streamline the Medicaid enrollment process. Using common behavioral economics strategies, Fast Track has successfully connected eligible families to vital services by making the process easier and reducing the hassle associated with enrollment.[‡] The BIAS team previously partnered with the Franklin County Ohio Child Support Enforcement Agency to use reminders to increase the collection of child support payments. The BIAS team designed and evaluated a behaviorally informed, low-cost outreach effort and found that it increased the percentage of parents making a child support payment by nearly 3 percentage points, compared with the control group's rate of 48.5 percent.[§]

These examples are some of the recent applications of behavioral economics to human behavior. Behavioral tweaks — or "nudges," as they are frequently called — are often meant to be limited in scope. As the prominent psychologist Daniel Kahneman states, behavioral economics is "characterized by achieving medium-sized gains by nano-sized investments."[‖] These types of interventions are not always expected, or intended, to achieve enormous impacts or attain a system overhaul. Instead, they are meant to be responsive to behavioral tendencies and to foster change at relatively low cost and effort. For a more detailed overview of behavioral economics, see *Behavioral Economics and Social Policy: Designing Innovative Solutions for Programs Supported by the Administration for Children and Families*.[#]

[*] For an overview of behavioral science, see Kahneman (2011).
[†] Haggag and Paci (2014).
[‡] Lord (2014).
[§] Baird et al. (2015).
[‖] Singal (2013).
[#] Richburg-Hayes et al. (2014).

This report focuses on behavioral interventions designed to encourage participants to attend this informational meeting. Behavioral research has shown that even providing monetary incentives and explaining the benefit of completing a task may not be enough to induce action, and people may still miss out on opportunities that are in their economic self-interest. (See Box 1 for an introduction to behavioral economics.) Thus, the BIAS tests focused on preemptive strategies to increase responses to the offer. These tests, which were embedded into the larger Paycheck Plus Demonstration, focused on the immediate outcome of increasing the number of participants who attended the informational meeting to learn more about the program. Results from the larger Paycheck Plus Demonstration, including participants' take-up of the EITC wage-like supplement, will be covered in future MDRC reports.

The Behavioral Diagnosis and Design Process

The BIAS project uses a process called behavioral diagnosis and design to try to improve program outcomes through the application of behavioral principles.[7] Adopting the perspective of the program's end user (in this case, Paycheck Plus program group members), the team searched for barriers related to each step of the process, and designed behavioral interventions to address many of them.

In the first phase of the process, the problem is *defined* in a neutral, measurable way. In the *diagnosis* phase, the BIAS team collects both qualitative and quantitative data to identify what may be causing the problem. The team uses the data to guide hypotheses about the behavioral reasons for participant outcomes.

During the third, *design* phase, the BIAS team uses theories about why bottlenecks are occurring to generate proposals for interventions based on behavioral research. It is important to have a clear theory of change to avoid creating behavioral interventions arbitrarily based on what has worked in other contexts. Interventions are designed to address issues without adding significantly to the cost of a program, which means relatively simple, inexpensive changes. This design phase is followed by the *test* phase, during which behavioral interventions are evaluated using rigorous scientific methods — ideally, randomized controlled trials.

As Figure 1 shows, the process is often iterative, with insights from one test informing the next. In this case, the first four-week implementation period started in March 2014. The team quickly analyzed data in April, and the second round of experimentation was launched in May 2014. The entire research period lasted four months. The following sections describe this process.

Round 1: Testing Two Different Messages, Delivered by Mail and Text

Define

The first phase in the process is to *define* the problem in terms of the desired outcome, without making presumptions about the cause. The team did not define the problem as "participants will not attend an informational meeting because they do not think attending is important." That problem statement makes an explicit assumption about the reasons for low attendance. Rather, the problem the team pursued was "participants may not attend the informational meeting, even when program operators offer a $50 incentive and explain the purpose." This statement was precise enough to be testable without making presumptions about the cause.

Diagnose

To better understand the factors that might influence participants' decisions and actions, the BIAS team reviewed literature and collected qualitative and quantitative data about the EITC and Paycheck Plus programs.[8] During study recruitment, the team spoke to a small number of Paycheck Plus participants and Food Bank staff. Though these conversations were informal and limited in number, they helped the team understand how the program was explained to program group members during enrollment, as well as the questions that they asked about the program. The team also spoke to experts familiar with the EITC, including researchers involved in other studies to increase EITC take-up rates and senior administrators who had worked directly with low-income populations served at VITA sites.

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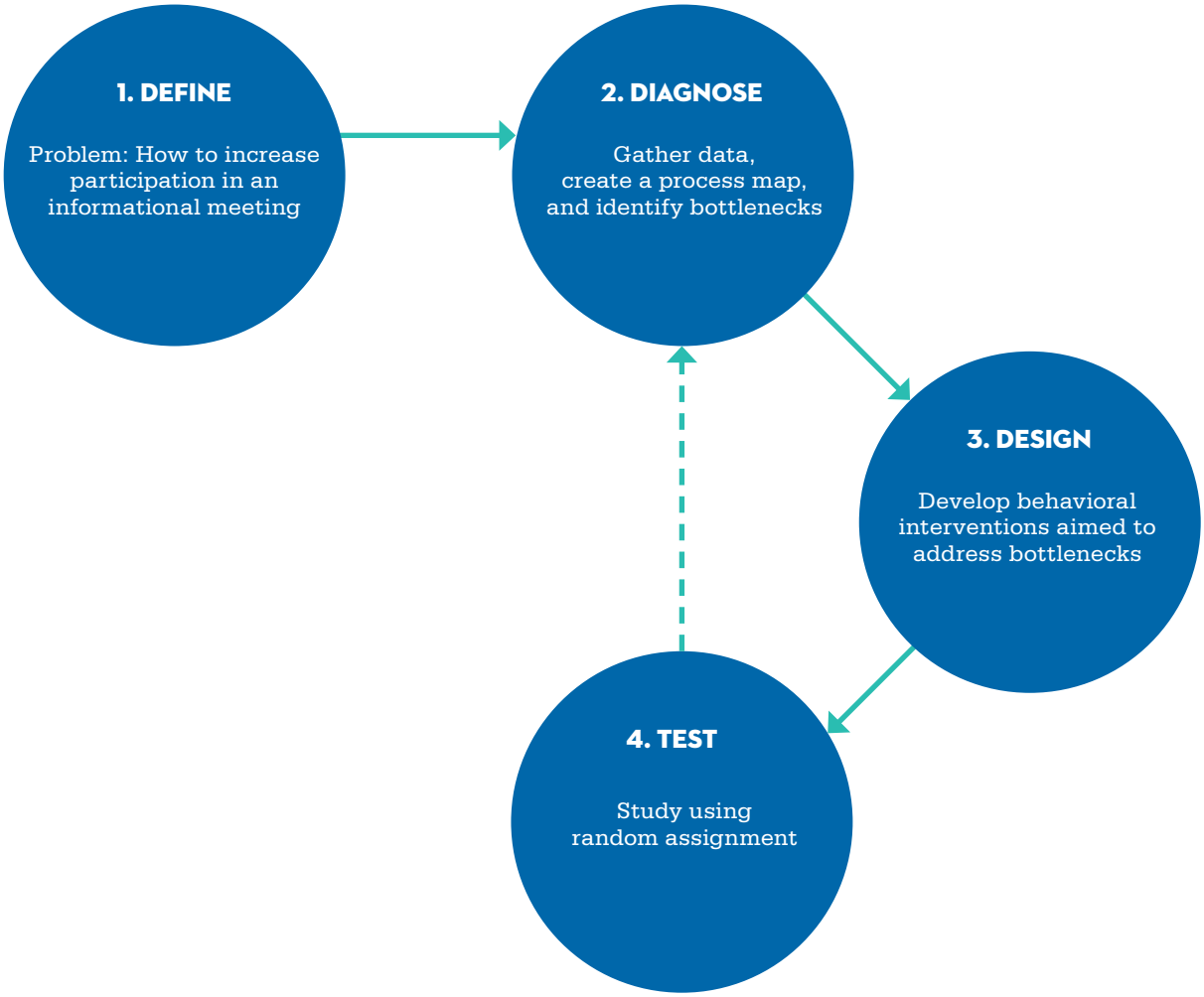
7 ideas42, an early partner in the BIAS project, developed a methodology called "behavioral diagnosis and design" for applying insights from behavioral economics to improve program outcomes. The process presented in this document, also called behavioral diagnosis and design, is a version that has been refined for the BIAS project.

8 Reviewed research includes Bhargava and Manoli (2011); Nichols, Sorensen, and Lippold (2012); Eissa and Hoynes (2006); Eissa and Liebman (1996); Saez (2010); Chetty, Friedman, and Saez (2012); and Chetty and Saez (2013).

FIGURE 1
THE BEHAVIORAL DIAGNOSIS AND DESIGN PROCESS USED IN THIS STUDY

PAYCHECK PLUS



SOURCE: This figure was adapted from a figure created by ideas42.

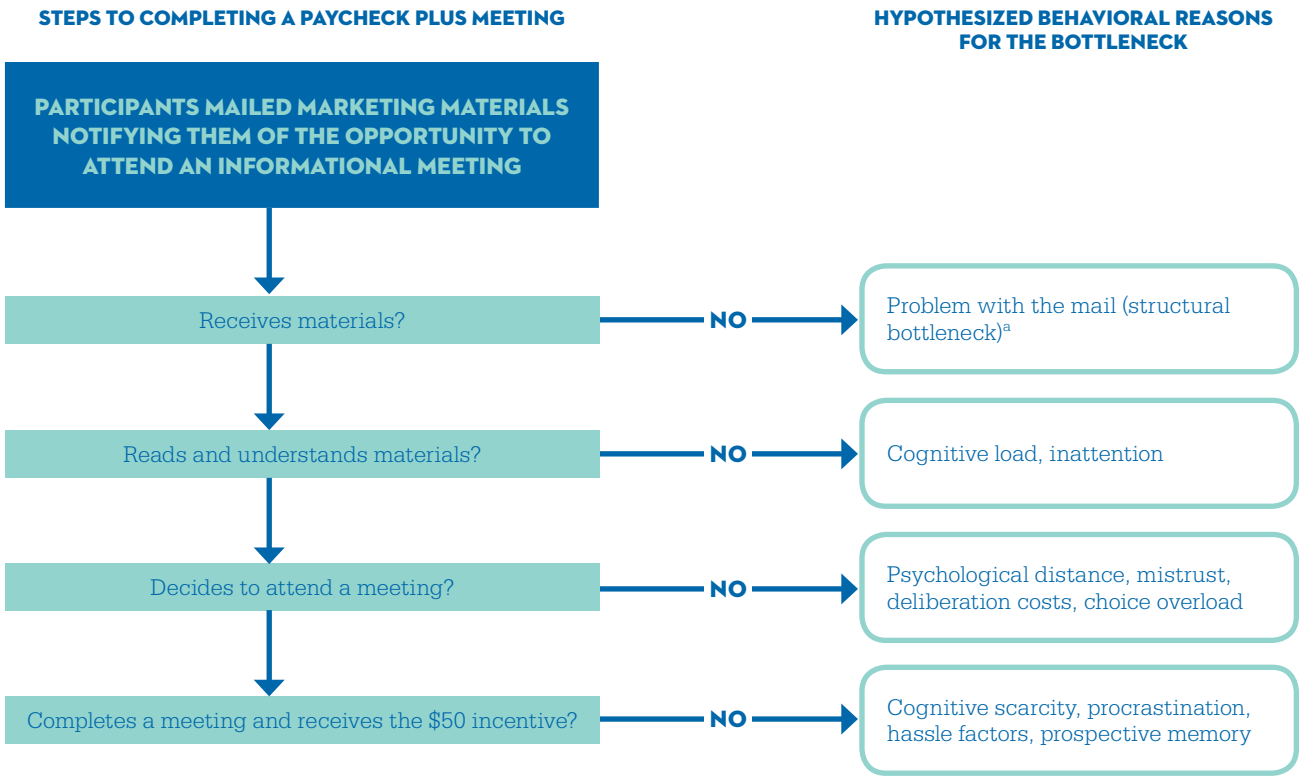
NOTE: For a more detailed description of behavioral diagnosis and design, see Richburg-Hayes et al. (2014).

In order to identify areas where bottlenecks may occur, the BIAS team mapped the steps participants needed to take to successfully complete a meeting. Figure 2 includes the behavioral concepts that the BIAS team hypothesized to be most significant in completing a meeting. The concepts are also boldfaced and described below. Full definitions can be found in Appendix A.

- Participants signed up for the Paycheck Plus Demonstration in late 2013 and early 2014, more than a year before they were eligible to receive their first supplement payment (in the spring of 2015). Thus, the benefits of the future supplement may be abstract, or **psychologically distant**, to participants and therefore attending an information session about the supplement

FIGURE 2
BEHAVIORAL MAP FOR COMPLETING AN INFORMATIONAL MEETING

PAYCHECK PLUS



SOURCE: Figure based on MDRC initial fact-finding work with Food Bank and Paycheck Plus staff.

NOTE: [a]Structural bottlenecks are not associated with any behavioral concept but are included here for illustrative purposes.

may not be at the front of their minds.[9] Additionally, those who are unemployed (55 percent at baseline) may disregard the notice about the meeting because they doubt that they will qualify for the Paycheck Plus supplement.

- **Cognitive scarcity** encompasses the idea that poverty, and the ever-present concerns that come with it, places a heavy burden on people's limited mental resources, and it is likely a factor in the lives of many Paycheck Plus Demonstration participants. For low-income participants who are often juggling personal, financial, health, and other life challenges, they simply may not be able to expend the mental resources needed to plan for and attend the meeting.
- Some participants may be **mistrustful** or skeptical of offers that seem "too good to be true." Receiving a postcard offering a $50 gift card for a short meeting may raise participants' suspicions, especially if they do not recognize the Food Bank logo or Paycheck Plus name.
- Participants may plan to attend the meeting, but **procrastinate** or become distracted by other matters, placing other preferences in front of their plan to attend the meeting.

9 Pronin, Olivola, and Kennedy (2008).

TABLE 1
RESEARCH GROUPS, ROUND 1

PAYCHECK PLUS

RESEARCH GROUP	MESSAGE TYPE	DELIVERY FORMAT	SAMPLE SIZE
1	Behavioral	Two postcards only	740
2	Behavioral	Two postcards ***and*** weekly text messages	737
3	Standard	Two postcards only	756
4	Standard	Two postcards ***and*** weekly text messages	745

- Having to show up for a short meeting may not seem like a big hurdle when the reward is valuable information and a generous monetary incentive. But, seemingly insignificant contextual factors can have outsized effects on follow-through, and therefore become **hassle factors.** The travel time or challenges of figuring out how to get to the office may reduce participation.
- Participants may forget their plan or intention to visit a VITA site when the scheduled time comes. This concept is known as **prospective memory** failure.[10]

Design

Rather than completely revise the marketing approach that Food Bank used in past outreach campaigns, the intervention used marketing tools — postcards and text messages — already employed by the organization. The BIAS team designed two types of postcards: one meant to reflect a typical message that Food Bank would have produced based on postcards they had distributed in the past (a "standard" version), and one that incorporated concepts from behavioral economics (a "behavioral" version).[11] Both the behavioral and standard postcards contained the critical information that participants needed to successfully attend a meeting, including:

- Summary of the meeting's purpose
- Locations and times of the offered meetings
- Time period to complete the meeting
- Offer of a $50 gift card upon completing the meeting

Paycheck Plus participants who were eligible to receive the supplement in 2015 were randomly assigned into four research groups (as shown in Table 1). All participants were sent postcards, which incorporated either behavioral or standard messaging. In addition, some participants were sent text messages. The language of the text messages was either behavioral (informed by behavioral economics concepts) or standard (similar to the text messages that Food Bank used in prior years).

The following list explains the key behavioral concepts incorporated into the behavioral conditions (Groups 1 and 2) in Round 1. Table 2 demonstrates how these intervention components connect to the hypothesized bottlenecks described earlier, with each intervention component corresponding to a

10 Dismukes (2006); Brandimonte, Einstein, and McDaniel (1996).

11 This BIAS study is unique in that the team created the standard materials in addition to the behavioral materials. In the absence of the behavioral tests, Food Bank and Paycheck Plus program operators would have still developed a marketing campaign to notify participants of the meeting opportunity. As such, the BIAS team worked with Food Bank to develop the standard version so that it would mimic Food Bank's typical strategy, and then worked independently to create the behavioral version. The team reviewed postcards that Food Bank sent to clients during the 2014 tax season to encourage them to complete their taxes at a VITA site. While the postcards developed for this project had a different purpose (to encourage people to come in for an informational meeting, instead of to complete taxes), the standard postcard for this project followed a similar layout and format to the tax postcards. For example, Food Bank's tax postcards list locations by borough, so the standard postcard developed for the informational meeting did the same.

TABLE 2
HYPOTHESIZED RELATIONSHIPS OF BOTTLENECKS, BEHAVIORAL CONCEPTS, AND COMPONENTS OF THE INTERVENTION

PAYCHECK PLUS

	INTERVENTION COMPONENT							
HYPOTHESIZED BOTTLENECK AND POSSIBLE BEHAVIORAL CONCEPTS	Implementation prompt	Set deadlines	Simplification	Harness loss aversion	Counteract present bias	Leverage endowed progress effect	Remove hassle factors	Reminders
PARTICIPANT READS AND UNDERSTANDS MARKETING MATERIALS								
Cognitive load	✔		✔	✔	✔	✔		
Inattention								✔
PARTICIPANT DECIDES TO ATTEND A MEETING								
Psychological distance		✔	✔	✔	✔			
Mistrust of the offer	✔	✔						
Deliberation costs	✔		✔	✔	✔	✔		
Choice overload			✔		✔			
PARTICIPANT ATTENDS A MEETING AND RECEIVES THE $50 INCENTIVE								
Cognitive scarcity	✔	✔	✔			✔	✔	
Procrastination	✔	✔						
Hassle factors						✔	✔	
Prospective memory failure								✔

NOTES: Behavioral concepts cannot be definitively identified, but rather are hypotheses derived from the behavioral diagnosis and design process that may explain behavioral bottlenecks.

The following are examples of proposed intervention components in the Paycheck Plus study:

Implementation prompt: Encourage participants to make a plan for when they are going to come in for a meeting to close the gap between intention and action.

Set deadlines: Help participants stay on track to meet their goal by eliciting a sense of urgency.

Simplification: Simplify the list of locations where participants may attend the meeting by showing only the two closest to their home address (reduce choice overload, whereby presenting people with a large number of choices hinders decision making).

Harness loss aversion: Use phrases like, "With this postcard, $50 is yours" and "Don't miss out" to make participants feel that the $50 was theirs to lose.

Counteract present bias: Use phrases like, "Only a few days left to claim your $50!" to combat participants weighing that day's concerns more heavily than the goal of making it to an appointment.

Leverage endowed progress effect: Provide participants with a list of "easy steps" that they need to complete, in which the first step is checked off to indicate that they have already started the process toward their goal and completed one of the steps.

Remove hassle factors: Remove steps that hinder participants' ability to complete the action; eliminate the need to physically travel to a location by offering the meeting by phone.

Reminders: Send additional communications as the due date approaches to ensure participants remember to attend.

column in the table. Some of the relationships are described below. Figure 3 provides highlights of key behavioral components in the intervention materials.

- An **implementation prompt** encouraged participants to make a **plan** for when they were going to come in for a meeting.[12] ("Check off one location you'll go to; write down when you will go.") The hours of operation were displayed in a graphic to help the reader visualize the week. The standard postcard did not include an implementation prompt and displayed locations and times in a list. As shown in Table 2, implementation prompts aim to address, for example, **cognitive load** and **deliberation costs.**
- **Deadlines** were prominently displayed. Research has shown that people are more likely to stay on track when deadlines are included.[13] The first behavioral postcard imposed an artificially early deadline of March 29 to prompt immediate action. The second behavioral postcard arrived around March 29, and described the remaining two weeks leading up to the real deadline (April 9) as an extension. The standard postcards did not advertise an early deadline and listed the period that offices were open to participants in neutral language: "Come into a VITA site between March 11 and April 9 to receive a $50 gift card." The deadlines were geared to address the psychology of distance (by providing a concrete period to make the action less abstract), cognitive load, and procrastination.
- The postcard **simplified** the list of office locations where participants could attend the meeting by showing only the two closest to their home address. This modification aimed to reduce **choice overload**, whereby presenting people with a large number of choices hinders decision making, and make it easier to formulate a travel plan.[14]
- **Loss aversion** was activated and **present bias** leveraged with phrases, such as "With this postcard, $50 is yours," "Don't miss out!" and "Only a few days left to claim your $50!" Present bias is the tendency to weigh current concerns more heavily than future ones, while loss aversion refers to the stronger emotional response that people may have to a loss compared with a gain.[15] More general language was used on the standard postcard, for example, "Receive a $50 gift card." These concepts were employed to make benefits seem more concrete in the current period (limiting psychological distance) and lowering the burden on mental resources by reducing cognitive load.
- The **endowed progress effect,** whereby people are more likely to achieve a goal when they feel they have made progress toward attaining it, was utilized by providing participants with a list of "easy steps" that they needed to take to receive valuable information about Paycheck Plus and the $50 gift card.[16] The first step, "enrolling in Paycheck Plus," was checked off to indicate to participants that they had already started the process and completed one of the steps. Creating a sense of accomplishment was designed to increase their motivation to complete the remaining steps. The standard postcard did not use this technique.

The BIAS team worked with Food Bank to implement the marketing strategy. All groups were mailed the first postcards on March 13 and the second postcards on March 26. Those in the texting conditions were sent one text message per week for four weeks. While the official deadline for attending a meeting was April 9, participants who came in after that date were permitted to attend a meeting through May 6 at the discretion of Food Bank staff.[17]

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12 Milkman et al. (2011, 2012); Nickerson and Rogers (2010); Masicampo and Baumeister (2011); and Gollwitzer (1999).

13 Brunnermeier, Papakonstantinou, and Parker (2013).

14 Iyengar and Lepper (2000); Kahneman (2011).

15 Kahneman, Knetsch, and Thaler (1990); Hochman and Yechiam (2011); Janowski and Rangel (2011); Laibson (1997).

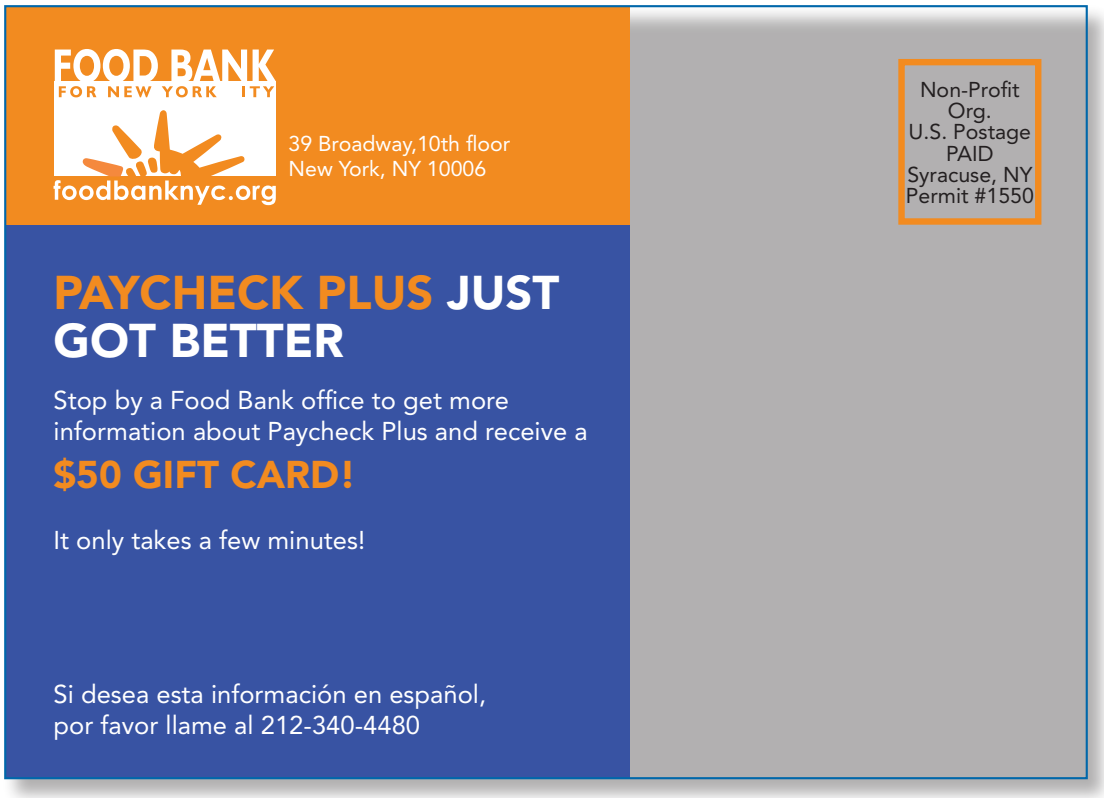
16 Nunes and Dreze (2006).

17 This decision was not made *a priori*, but was determined based on the Paycheck Plus team's desire to have as many participants as possible attend a meeting and learn about how to earn the bonus in 2015.

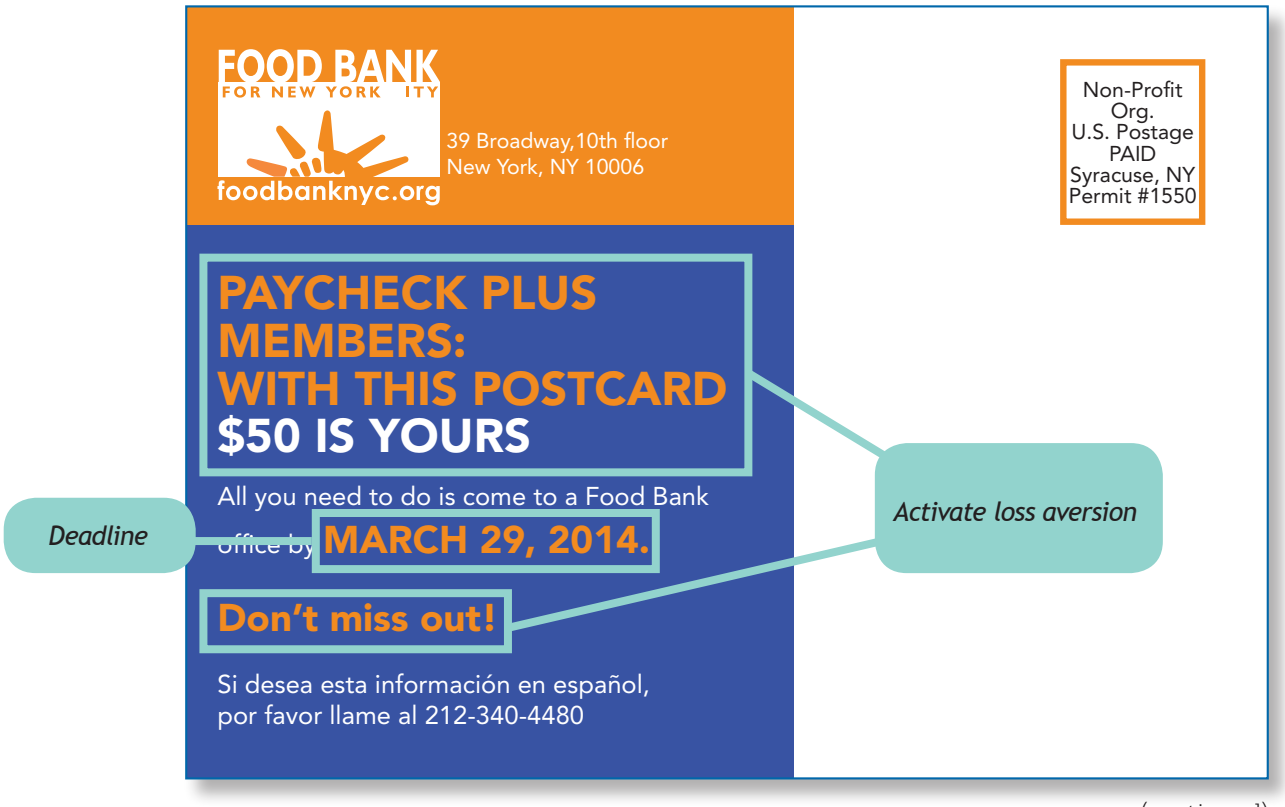
FIGURE 3
EXAMPLES OF KEY BEHAVIORAL COMPONENTS, ROUND 1

PAYCHECK PLUS

Standard Postcard (Front)



BIAS Postcard (Front)



(continued)

FIGURE 3 (CONTINUED)

Standard Postcard (Back)

FOOD BANK FOR NEW YORK CITY LOCATIONS NEAR YOU

COME TO FOOD BANK OFFICES listed here between March 11 and April 9 to recieve

- More information about the Paycheck Plus bonus
- And a $50 gift card

COME IN TODAY TO LEARN MORE!

For other locations or questions call 646-981-6111

Capital One Bank
356 Fulton St., 2nd Fl., Brooklyn, NY 11201
Tue-Wed, 10am-7pm | Thu, 10am-8pm | Sat, 9am-5pm

Bed-Stuy Restoration Plaza
1392 Fulton St., Brooklyn, NY 11216
Tue-Wed, 10am-5pm | Thu, 10am-6pm | Sat, 9am-2pm

St. George Santander Bank
15 Hyatt St., 3rd Fl., Staten Island, NY 10301
Tue-Thu, 12pm-7pm | Sat, 9am-5pm

Northern Manhattan Improvement Corp.
76 Wadsworth Ave., New York, NY 10033
Tue-Thu, 12pm-7pm | Sat, 9am-5pm

Community Kitchen and Pantry of West Harlem
252 W. 116th St., New York, NY 10026
Tue-Thu, 9am-3pm | Sat, 9am-3pm

BIAS Postcard (Back)

Endowed progress effect

☑ SIGN UP FOR PAYCHECK PLUS – DONE!

Follow these 3 easy steps to get your $50 gift card and much more...

Limited location options

Implementation prompt

1 ☐ **Choose a location and time to visit by March 29**

Check off one location:

☐ **Community Kitchen & Pantry of West Harlem**
252 W. 116th St., New York, 10026

MON	TUES	WED	THU	FRI	SAT
closed	9-3	9-3	9-3	closed	9-3

☐ **Northern Manhattan Improvement Corp.**
76 Wadsworth Ave., New York, 10033

MON	TUES	WED	THU	FRI	SAT
closed	12-7	12-7	12-7	closed	9-5

Write down when you will go: Date _____ **Time** _____ **AM/PM**

2 ☐ **Stop by and have a short conversation with Food Bank staff to learn how you can earn a $2000 bonus next year**

3 ☐ **Get your $50 gift card!**

For other locations or questions call 646-981-6111

Test

This study used a factorial design to examine whether behavioral messaging was more effective than standard messaging at getting people to attend the meeting, as well as the marginal impacts of adding text messaging to the marketing campaign.[18] As shown in Table 1, each of the four study groups was assigned to a "message type" — behavioral or standard — and a "delivery format" — postcards only or postcards and text messages. Because the text messages were sent *in addition to* the postcards, Groups 2 and 4 also measured the effect of increasing the number of reminders.[19]

Round 1 Findings

- **The intervention was largely implemented as designed, with two challenges.**

Figure 4 presents a timeline of when marketing materials were sent to participants. For the first text message, the vendor sent a behavioral and standard text message to both texting groups, rather than sending the appropriate version to each group. This glitch was immediately caught and corrected for all future text messages. In addition, the first set of postcards was mailed on March 13 but did not arrive to the majority of participants until around March 20 to 24. The delay was due to using a nonprofit postage stamp, which was sorted through a different channel from standard mail. As a result, participants had less time to meet the deadline than intended. The second set of postcards was mailed using standard postage and arrived in a more timely manner.

- **The behavioral groups appeared to attend meetings more quickly and in higher numbers than the standard groups. The groups that received text messages seemed to respond to the official deadline. This finding can be inferred from the incline of the lines on the survival plot for these groups (Figure 4), which slant more sharply upward around April 8.**

Figure 4 displays the attendance rates by research group over time. The figure suggests that all groups increased participation after receiving the second postcard, and that people in the behavioral conditions participated at higher rates compared with those who were sent standard messaging. Those who were sent the behavioral messaging in postcards and texts appeared to respond most quickly to the marketing materials and demonstrated the highest level of participation over time. It also appears that the groups that were sent text messages responded in greater numbers around April 8, when the final text message reminding them of the impending deadline was sent. Although meetings continued to take place up to May 6, participation largely remained flat after the April 9 deadline.

- **Behavioral messaging increased meeting participation by 7.1 percentage points, compared with standard messaging. The strongest outcomes were found for the group that was sent both behavioral postcards and texts.**

Table 3 shows that 25.6 percent of participants who were sent any behavioral messaging (Groups 1 and 2) attended an informational meeting, compared with 18.5 percent of those who were sent the standard messaging (Groups 3 and 4). Therefore, behavioral messaging increased meeting attendance by 7.1 percentage points (an increase of about 38 percent).

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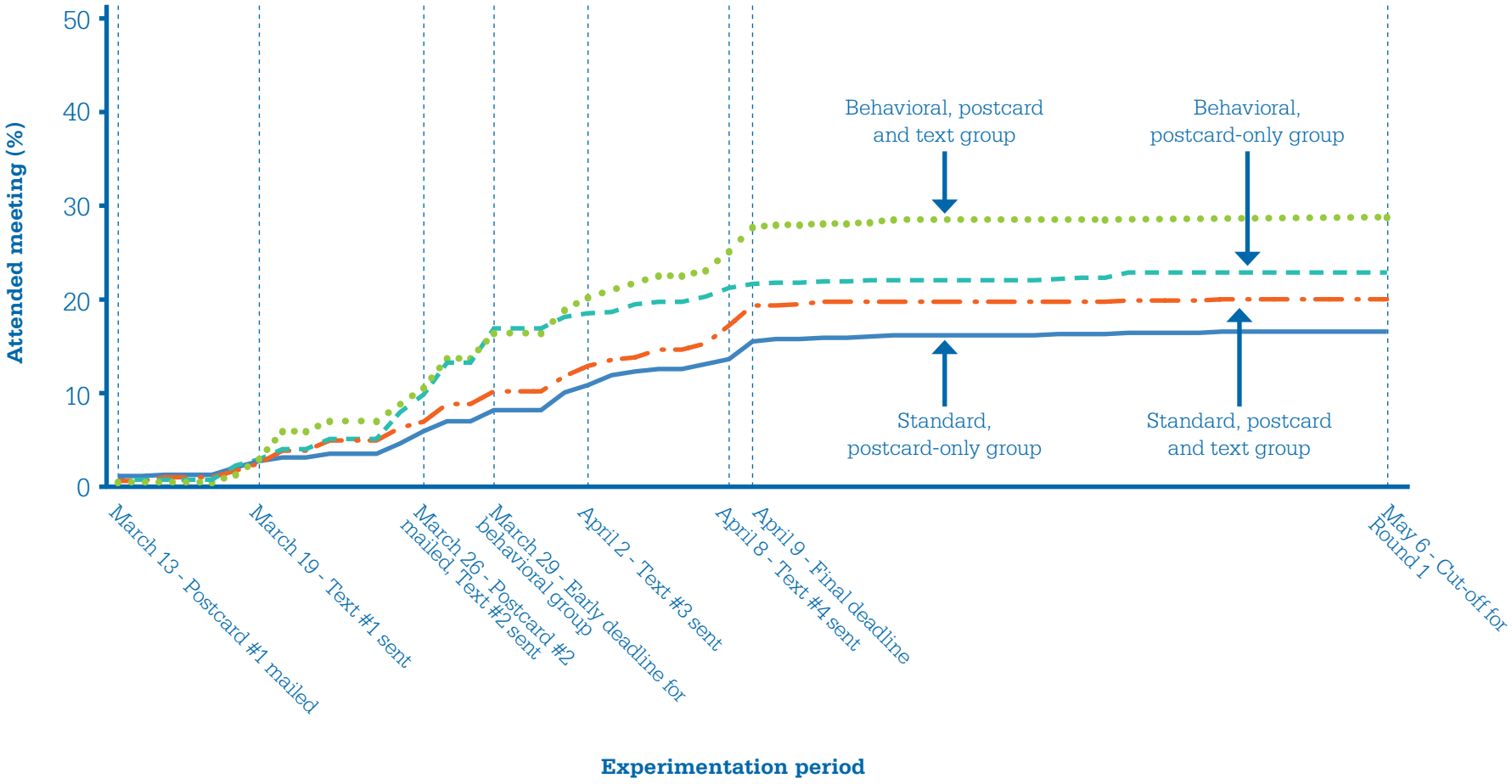
18 The factorial design enabled the BIAS team to test the effects of two manipulations at the same time (messaging type and delivery mode) on the dependent variable (meeting attendance). Using this design, the BIAS team explored the impact on meeting attendance for messaging type, for delivery mode, and for the two in combination. Thus, the study assessed the main effects of the two independent variables, as well as the interactions among them. In this case, a factorial design was more efficient than several simple randomized designs that tested one component against a control condition. However, when using the full sample in the factorial design to estimate the impact of the message type, the researcher is no longer estimating the average effect of only behavioral messaging compared with the standard messaging because half of the program group that received the behavioral message type also received the new delivery mode (postcards and texts). For a more detailed description of the tradeoffs, see Howard, Somers, and Taylor (2014).

19 Appendix Figure A.1 shows how randomization was conducted.

FIGURE 4
PERCENTAGE OF SAMPLE MEMBERS WHO ATTENDED A MEETING IN ROUND 1, OVER TIME, BY RESEARCH GROUP

PAYCHECK PLUS



SOURCE: MDRC calculations using data from MDRC's Paycheck Plus tracker and look-up modules, and Food Bank's gift card tracker.

NOTE: Includes sample members randomly assigned between September 27, 2013, and February 27, 2014.

TABLE 3
IMPACTS ON ATTENDING A PAYCHECK PLUS MEETING, BY RESEARCH GROUP, ROUND 1

PAYCHECK PLUS

OUTCOME	SAMPLE SIZE	HAD MEETING BEFORE ROUND 2 BEGAN	
		ADJUSTED MEANS	ESTIMATED DIFFERENCE
Main effect of messaging type (%)			
Behavioral messaging	1,477	25.6	7.1***
Standard messaging	1,501	18.5	
Effect of messaging type by delivery mode (%)			
Behavioral postcards only	740	22.6	6.1***
Standard postcards only	756	16.5	
Behavioral postcards and texts	737	28.5	8.0***
Standard postcards and texts	745	20.5	
Main effect of delivery mode (%)			
Postcards and texts	1,482	24.5	5.0***
Postcards only	1,496	19.5	
Effect of delivery mode by messaging type (%)			
Behavioral postcards and texts	737	28.5	5.9***
Behavioral postcards only	740	22.6	
Standard postcards and texts	745	20.5	4.0**
Standard postcards only	756	16.5	

SOURCE: Calculations using MDRC's Paycheck Plus tracker and look-up module, and Food Bank's gift card tracker.

NOTES: There were no statistically significant interaction effects of behavioral messaging and text messages (analysis not shown). That is, the effect of behavioral messaging among individuals who received text messages (effect = 8 percentage points) is not statistically significantly larger than the effect of behavioral messaging among individuals who did not receive text messages (effect = 6.1 percentage points). Similarly, the effect of text messages among individuals who received behavioral messaging (effect = 5.9 percentage points) is not statistically significantly greater than the effect of text messages among individuals who received standard messaging (effect = 4 percentage points). Percentages may not add up due to rounding or missing values.

Among the full sample, 279 individuals (9.4 percent) are missing address information.

Among the sample of groups that received text messages, 336 individuals (22.6 percent) did not provide a cell phone number or agree to be sent a text message.

Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

A two-tailed t-test was applied to differences between outcomes for the research groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.

The term "messaging" is used to define whether a person received behaviorally informed content, or standard content. The term "delivery mode" is used to define whether a person received only postcards, or postcards and text messages.

April 9 was the deadline communicated to Paycheck Plus participants in postcards and text messages. However, participants who called after April 9, but before May 7 when Round 2 of outreach began, were still able to attend a meeting.

The effect of behavioral messaging was evident regardless of delivery mode. Sample members who were sent only behavioral postcards increased participation by 6.1 percentage points, compared with sample members who were sent only the standard postcards. Behavioral text messages combined with postcards increased participation by 8 percentage points more than those who were sent standard text messages and postcards.

- **Sending text messages and postcards increased the response rate by 5 percentage points, compared with sending only postcards.**

The bottom section of Table 3 presents the main effect of delivery mode. As the table shows, 24.5 percent of participants (Groups 2 and 4) attended an informational meeting when they were sent both postcards and texts. In contrast, 19.5 percent of participants (Groups 1 and 3) attended when they were sent only postcards. Therefore, sending marketing materials through multiple modes of delivery increased participation by 5 percentage points, or about 26 percent.

The effect of text messages was evident regardless of messaging type. Sending behavioral texts and postcards increased participation by 5.9 percentage points, compared with people who were only sent behavioral postcards (who participated at a rate of 22.6 percent). Sending standard texts and postcards increased participation by 4 percentage points, compared with those who were only sent standard postcards.

- **The largest effects were found for people who were sent both behavioral postcards and behavioral texts.**

Employing the highest-intensity outreach — sending both behavioral postcards and behavioral texts — resulted in 28.5 percent of people participating, compared with 16.5 percent who participated in the standard postcards-only group. As a result, the highest-intensity outreach improved the response by 12 percentage points (or 73 percent), when compared with the lightest touch, sending only standard postcards.

- **Behavioral messaging was more successful with older participants and people who were employed part time or unemployed at baseline. People who were working at baseline were more likely to attend a meeting if they were sent postcards and texts, rather than only postcards. Delivery mode did not make a difference for people who were unemployed at baseline.**

Table 4 shows the impact on attending a meeting by subgroup. The BIAS team examined findings for several subgroups based on age, employment status, awareness of the EITC, distance to VITA site, earnings in the past year, and borough of primary residence at the time of study enrollment. Table 4 provides findings for the first two subgroups.[20]

The first set of columns in Table 4 shows that participation rates vary by age and employment status. Older adults were much more likely to respond to the behavioral messaging than the standard messaging, relative to younger sample members. Part-time workers and the unemployed were also more responsive to the behavioral messaging (10.3 and 8.2 percentage points, respectively), relative to those sample members who were employed full time at baseline. No surveys were conducted, so the team can only speculate about why these results were found. Older adults may have been more responsive to the behavioral messaging than younger adults because they were more likely to use the implementation prompts or the messages highlighted in the behavioral messaging about the deadline and be influenced by the financial incentive. People who did not work full time at baseline may have been more responsive to the implementation prompt than those employed full time because it helped them organize their

20 The subgroups' awareness of the EITC, earnings in the past year, and borough of primary residence are not presented because meaningful conclusions could not be drawn from the data. Distance to VITA sites is not presented because, upon further review, the BIAS team concluded that the way the variable was calculated — the distance between a participant's home address and the VITA site that was closest in mileage to that address — provided a measure that likely had little do to with whether a site was actually accessible to a participant. Within New York City's urban context, measuring distance "as the bird flies" often has little bearing on whether a location is accessible via public transportation, which is used universally. It is very possible that a VITA location farther away in mileage was easier to visit than one closer, if it was in close proximity to a convenient subway stop. Because no data were collected on which VITA site hosted the meeting that each participant attended, there is no way to know whether participants visited the location closest to their home address.

TABLE 4
IMPACTS ON ATTENDING A PAYCHECK PLUS MEETING, BY SUBGROUP, ROUND 1

PAYCHECK PLUS

	MESSAGING					DELIVERY MODE				
CHARACTERISTIC	BEHAVIORAL GROUP	STANDARD GROUP	IMPACTS (DIFFERENCE)	P VALUE	DIFFERENCE BETWEEN SUBGROUP IMPACTS[a]	POSTCARDS AND TEXTS	POSTCARDS ONLY	IMPACT (DIFFERENCE)	P VALUE	DIFFERENCE BETWEEN SUBGROUP IMPACTS[a]
Age (%)					†††					
19-34	20.1	16.9	3.2*	0.098		21.9	14.8	7.1***	0.000	
35-64	31.5	20.1	11.4***	0.000		27.3	24.4	2.9	0.192	
Employment status (%)					†					†††
Full time	28.5	28.1	0.4	0.895		33.8	22.5	11.3***	0.001	
Part time	38.3	28.1	10.3***	0.008		37.6	28.6	8.9**	0.019	
Unemployed	19.5	11.3	8.2***	0.000		15.6	15.1	0.5	0.787	

SOURCE: Calculations using MDRC's Paycheck Plus tracker and look-up modules, and Food Bank's gift card tracker.

NOTES: Percentages may not add up due to rounding or missing values.
Round 1 meetings are defined for this table as those occurring on or before May 6.
Among the full sample, 279 individuals (9.4 percent) are missing address information.
Among the sample of groups that received text messages, 268 (23.6 percent) did not provide a cell phone number or agree to be sent a text message.
Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.
A two-tailed t-test was applied to differences between outcomes for the research groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.
The p-value indicates the likelihood that the difference between the research groups arose by chance.
[a]The H-statistic is used to assess whether the difference in impacts between subgroups is statistically significant. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

unstructured time and make a plan to attend the meeting. This reasoning assumes that work imposes routines on people's time. Future research should continue to investigate whether people with variable schedules benefit more from implementation prompts and devices for making action plans than people with routines created by their work schedule or other regular commitments.

The second set of columns in the table shows a different pattern of effects for people who were sent texts. Younger participants and those who were working at baseline were more likely to respond to the combination of postcards and text messages. The difference in response rate is 7.1 percentage points for younger adults. This difference, however, cannot be distinguished from the increase in participation of 2.9 percentage points by older adults, which suggests that the delivery mode does not work better for young adults relative to older adults. Full-time and part-time workers were more responsive than those who were unemployed. The texts, which also served as added reminders, seemed to have prompted people who balance work with other responsibilities to remember to go to the meeting.

Round 2: Testing a Change to the Meeting Format

The behavioral messaging conditions clearly increased participants' response to the outreach, but the overall turnout was still lower than the program operators desired. Only 655 out of 2,978 participants, or 22 percent, attended the meeting. Given the relatively simple task and large financial incentive, there seemed to be room to improve this participation rate. Food Bank agreed to hold additional meetings at two of their VITA offices until July.[21] The BIAS team reviewed the findings from Round 1 and rapidly designed another intervention.

Diagnose

During Round 1, the BIAS team visited Food Bank locations and interviewed a small number of Paycheck Plus members who attended their meeting. These conversations, though informal and limited in number, were an opportunity to learn about obstacles that some participants faced.

- The team heard from some participants that they had busy or erratic schedules, and found it challenging to find time to visit the VITA sites during open hours. From these conversations and a review of descriptive statistics of people who showed up for the meeting during Round 1, the team concluded that there were likely **hassle factors** associated with traveling to the Food Bank locations.
- Some participants mentioned receiving a text message but not a postcard. Since postcards are not tracked as undeliverable or returned to the sender if the address is incorrect, there was no way to confirm whether postcards were delivered. Therefore, the BIAS team hypothesized that some participants had **limited information** as a result of not receiving (or reading) the postcard that was mailed.[22]
- **Inattention** may also have led some participants to disregard the communications, perhaps thinking that since they were already part of the Paycheck Plus Demonstration, the meeting might not be relevant to them.

Design

In response to these issues, the team proposed an intervention for participants who did not attend a meeting during Round 1 that aimed to go beyond behavioral changes to the marketing materials and introduce a behavioral change to the *process*. Rather than asking participants to attend the meeting in

21 Food Bank was only able to keep two of the original seven VITA sites open during Round 2 because the tax season was over by that time.

22 The BIAS team also had concerns that in Round 1 multiple tenants could live in one household, and thus the materials might have been received by someone other than the intended recipient. In addition, the postcards could have been disregarded as part of the general marketing material that households receive.

person, the BIAS team designed a version of the informational meeting that could be delivered over the phone. Participants would receive their gift cards by mail. This approach sought to remove hassle factors associated with traveling to the VITA offices without sacrificing the substance of the meeting.

The Round 1 marketing effort took place between March 13 and May 6. On May 7, the Round 2 BIAS pilot began, targeting participants who did not respond to the first round of postcards, text messages, or both.[23] Participants who did not respond during Round 1 were randomly assigned to one of two conditions:

1. Meeting by phone
2. Meeting in person

To address the concern that participants may not have received the postcards mailed out in Round 1, the team included in this round multiple forms of outreach using all communication channels for which the participant had provided contact information and consent — mail, e-mail, text, and robocalls.[24] In light of the effectiveness of the behavioral principles used in Round 1, all participants in Round 2 received communications that were designed using behavioral concepts. That is, there was no "standard" condition in this round of experimentation. The marketing strategy incorporated implementation prompting, loss aversion, deadlines, and reducing choice overload (for the reasons stated in the Round 1 "Design" section). Round 2 also incorporated the additional concepts of **personalization** and **social influence** for the following reasons:

- Personalization may help capture participants' attention. Since Round 2 participants may have disregarded or not paid attention to the Round 1 marketing efforts, it was important to try a different strategy to spark their interest.[25] In Round 2, all letters and e-mails began with the person's first name. One e-mail also included the day that the person initially enrolled in the Paycheck Plus Demonstration and an electronic signature of a Paycheck Plus team member.
- Interviews during Round 1 indicated that participants' decisions were strongly influenced by family and friends, which is in line with literature about the role of social influence.[26] Many participants who had filed taxes in the past had chosen the vendor that their family used, or had heard about the Paycheck Plus program through social networks. Social influence was leveraged through phrases such as, "Hundreds of Paycheck Plus members just like you had a short conversation with our staff about how to earn an extra $2,000 next year and got their $50 gift card. Now it's YOUR turn."

Figure 5 provides highlights of key behavioral components in Round 2. The fact that communications to both groups incorporated all these principles reduced the contrast between the in-person and by-phone interventions, and was consistent with the program's operational goal of getting the maximum number of people to attend the informational meeting during the program's short window of opportunity to do outreach. The wording of all communications was identical except for the reference to whether the participant needed to visit an office in person or call the Food Bank hotline. The cost of sending out the communications used in both Round 1 and Round 2 is discussed in Box 2.

Test

The test was designed to determine whether offering the informational meeting by phone increased the percentage of participants who attended a meeting, compared with those who had to attend the meeting in person.

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23 See Appendix Figure A.1 for how the sample was determined.

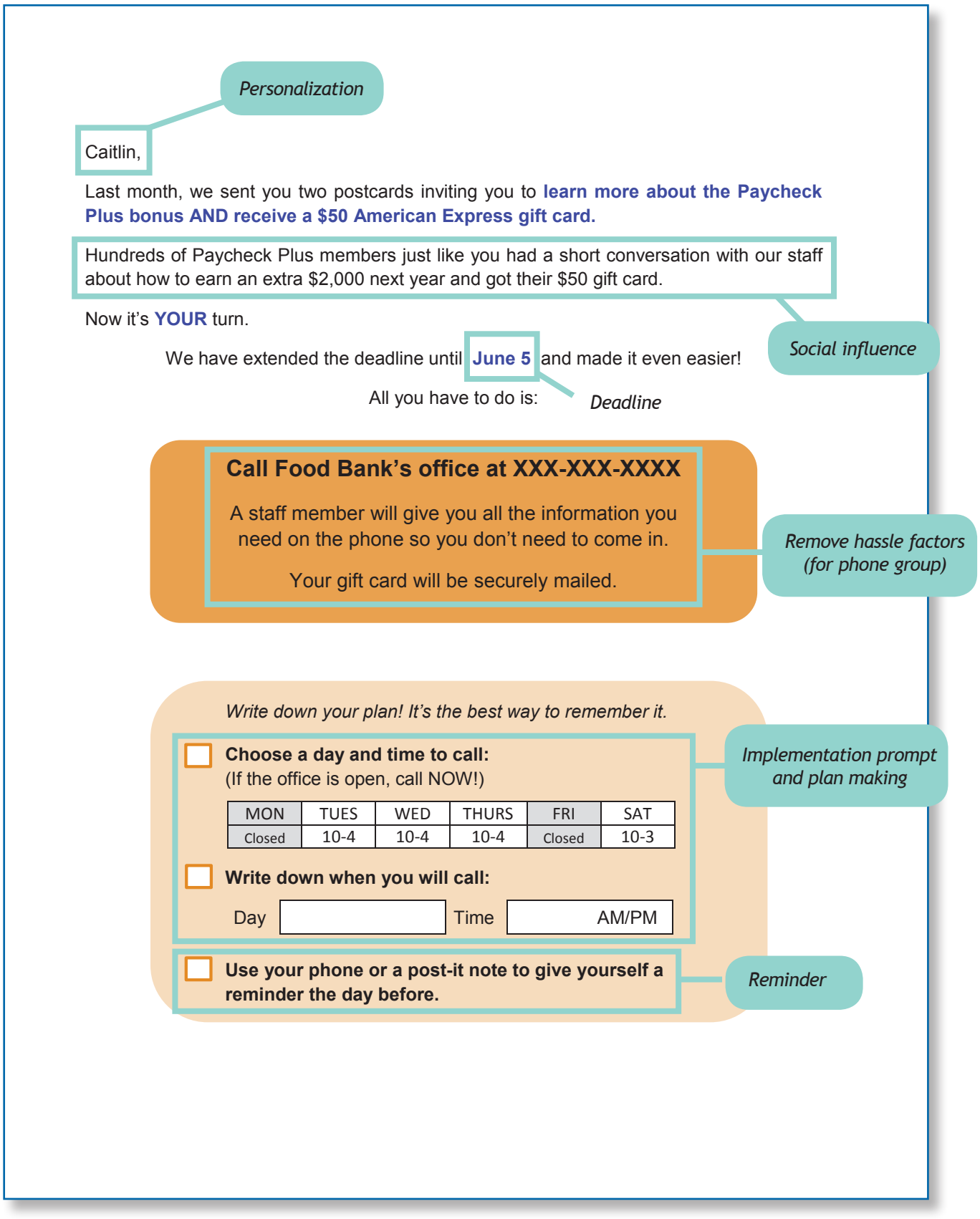
24 The BIAS team assisted with preparing and sending certain forms of communication that were outside of Food Bank's capabilities (namely, personalized letters and personalized e-mails).

25 Garner (2005).

26 Sunstein (2003); Ross and Nisbett (1991); Service et al. (2014).

FIGURE 5
EXAMPLES OF KEY BEHAVIORAL COMPONENTS, ROUND 2

PAYCHECK PLUS



BOX 2
COST CONSIDERATIONS

In an effort to inform practice, the costs of this study were calculated for varying levels of effort. The total marketing budget for Round 1 was approximately $5,000. This amount covered the cost of sending two postcards to approximately 2,830 people, and up to four text messages to about 1,100 people, for a total cost of roughly $1.75 per person. A small number of people received only one postcard and fewer text messages because they came in for the meeting before the end of Round 1. The total marketing budget for Round 2 was approximately $3,000, or approximately $1.30 per person, which covered the cost of sending up to two letters, two robocalls, three e-mails, and four text messages to about 2,300 people. As in the earlier round, names were removed from the distribution list weekly as people called or came in for meetings. These base marketing costs would have been lower if letters and postcards had been mailed at the nonprofit postage rate, and if the program operators had the internal capacity to send text messages, rather than needing to use a third-party vendor.

Based on the findings from Round 1, if cost is not a concern, program operators should strongly consider creating behaviorally informed content and sending text messages, given that the combination of those two factors led to the greatest take-up of the informational meeting. However, if resource constraints exist, program operators can still increase response rates over the status quo by sending text messages, which tend to be very inexpensive.

The base marketing costs would increase if programs added some of the following elements that were included in this pilot. However, each of these components is optional.

- *Geocoding*: In this study, participants' home addresses were plotted on a map of New York City and matched to the two closest VITA site locations. This component requires time and access to specialized software to execute it efficiently.
- *Graphic design*: Postcards in Round 1 were designed by a professional graphic designer. In Round 2, the team designed them internally.
- *Personalization*: Letters and e-mails in Round 2 included the participant's first name. This feature was implemented automatically by merging the names with a template, but it required staff time.

Round 2 Findings

- **Two implementation challenges occurred. It is not clear how much influence these issues had on the response rate.**

First, Food Bank did not have the capacity to answer live calls from participants in the phone group, which was the original intention of the BIAS Round 2 design. Instead, participants in the phone group called Food Bank's hotline, where staff took down their contact information. This list was then regularly forwarded to trained Food Bank staff, who called participants back, usually within three days of the participant's initial call. It was assumed that the hotline could handle all incoming calls; however, interviews with a small sample of participants who did not respond to Round 2 marketing indicate that some members of the phone group called the line and got a busy signal. It is possible that some people who had this experience became discouraged and did not call back. There was no systematic survey of the sample, so the magnitude of this problem cannot be estimated. In addition, some people who called the hotline did not receive a callback from Food Bank staff until after the deadline. To address this issue, the Round 2 test measured both "responded to marketing materials" and "attended a meeting." A small number of participants who called in by the deadline never connected with Food Bank staff to attend a meeting.

Second, the design called for all participants to receive all forms of communication for which they had provided contact information and informed consent. However, due to an internal error, only those assigned to the texting condition in Round 1 were sent text messages in Round 2. As a result of random assignment, there were no differences between groups, meaning that the same proportion of the phone and in-person groups received texts. Despite this error, most participants were sent multiple forms of

marketing materials, and almost half were sent seven pieces of marketing materials or more.[27] It is not possible to know what percentage actually read or understood these communications.

- **Participants in the phone group responded to the marketing materials more quickly than those in the in-person group, but this effect diminished as the deadline approached.**

Figure 6 shows the pattern of meeting participation over time, by research group. It is clear that members of the phone group responded to marketing materials earlier than those in the in-person group and participated at higher levels *until just before the deadline*. Similar to the pattern in Round 1, the impending deadline seemed to trigger a surge in participation for the in-person group. A log-rank test confirms that the difference in participation between the phone and in-person groups was statistically significant from May 7 (the date of the first reminder) to June 2 (the date that the second-to-last e-mail was sent). On June 2, all participants received an e-mail reminder about the impending deadline, as well as text messages over the next two days with a similar message. After June 4, the difference in participation between the two groups was no longer statistically significant.

- **In the end, there was no statistically significant difference in response rates between the phone group and the in-person group.**

Table 5 shows average response and participation rates for both groups. The first row of the table shows that 37.1 percent of those eligible for phone meetings responded to marketing materials, compared with 34.3 percent of those invited to in-person meetings. This 2.9 percentage point difference is not statistically significant at conventional levels. About the same number of people *completed a meeting in both study groups* because Food Bank staff could not reach 27 people in the phone group who had called the hotline. Almost 10 percent of those in the phone group also opted to go to an office for an in-person meeting (data not presented in the table). These individuals called the hotline as instructed by their outreach materials, but opted to travel to one of the two open VITA locations for the meeting, possibly in order to claim their gift cards immediately.[28]

- **Those employed full time at baseline were more responsive to the phone condition than the in-person condition.**

Table 6 shows effects by subgroup. Almost half of participants who were employed full time at baseline attended a meeting when given the option to call, compared with 37.3 percent of this group who attended a meeting when asked to come in person. This 10.6 percentage point difference is statistically significant, but because full-time workers cannot be distinguished from part-time workers and unemployed persons in relation to this outcome, this finding cannot be interpreted to mean that the intervention works better for any employment group. Participating in a phone meeting rather than attending one in person may be attractive to people who work full time, but more research should be done to confirm this finding.

Discussion

These behavioral experiments reinforce previous findings about the power of implementation prompts, multiple reminders, and highly publicized deadlines in helping people follow through on a task they choose to complete.[29] In total, the marketing experiments in both rounds led 1,465 people (or 49 percent of the total sample) to attend an optional, informational meeting for the Paycheck Plus program. In Round 1, 655 people attended a meeting. The combined behavioral messaging and text messages in this round

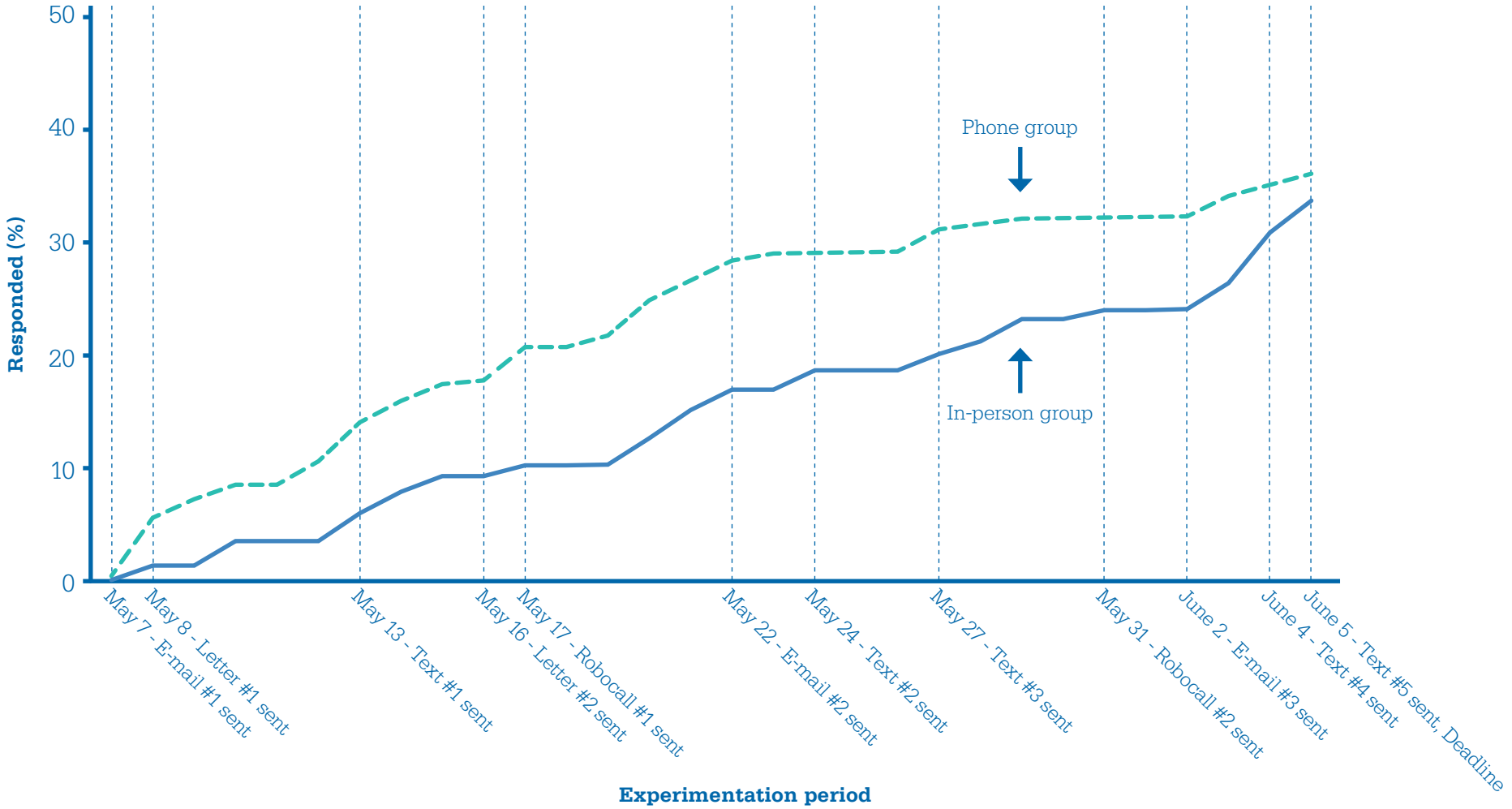
27 Distribution lists were regularly updated to remove participants who attended a meeting.

28 Participants who called the Food Bank hotline were usually told that they could also come in person and receive their gift card on the spot.

29 There is evidence that these three elements of the Round 1 study improved the response rate. Implementation prompts were the central component of behavioral messaging, which was found to be more effective than standard messaging (Table 3); the conditions that included text messages in Round 1 generated a higher rate of response than those that included postcards alone (Table 3); and the incline of the survival plot lines suggests that as the deadlines approached, more people attended the meeting (Figure 4). This effect is more apparent in Figure 6, where it is verified with a log-rank test.

FIGURE 6
PERCENTAGE OF SAMPLE MEMBERS WHO RESPONDED IN ROUND 2, OVER TIME, BY RESEARCH GROUP

PAYCHECK PLUS



SOURCE: MDRC calculations using data from MDRC's Paycheck Plus tracker and look-up modules, and Food Bank's gift card tracker.

NOTE: Includes sample members randomly assigned between September 27, 2013, and February 27, 2014.

TABLE 5
IMPACTS ON RESPONSE RATES, BY RESEARCH GROUP, ROUND 2

PAYCHECK PLUS

OUTCOME	PHONE GROUP	IN PERSON GROUP	IMPACT (DIFFERENCE)	P VALUE
Responded to marketing material (%)	37.1	34.3	2.9	0.126
Attended Paycheck Plus meeting[a] (%)	34.8	34.3	0.5	0.807
Sample size	1,162	1,169		

SOURCE: Calculations using data from MDRC's Paycheck Plus tracker and look-up modules, and Food Bank's gift card tracker and call log.

NOTES: Percentages may not add up due to rounding or missing values.

Among the Round 2 sample, 271 individuals (11.5 percent) are missing address information and 488 individuals (20.7 percent) are missing a phone number.

Among the sample of groups that received text messages, 268 individuals (23.6 percent) did not provide a cell phone number or agree to be sent a text message.

Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

A two-tailed t-test was applied to differences between outcomes for the research groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.

The p-value indicates the likelihood that the difference between the research groups arose by chance.

[a]Round 2 meetings for this table include those that occured between May 7 and June 5 and an additional 103 participants who attended a Paycheck Plus meeting after the June 5 deadline.

led to a 12 percentage point increase in attendance at the informational meeting, compared with the standard postcard alone. In Round 2, 832 participants responded to the marketing, 177 more people than in Round 1. The participants contacted in Round 2 were by definition more difficult to engage than those in Round 1 since they had not responded to earlier outreach. All of them were encouraged to either visit a designated office or call in for the meeting using implementation prompts, reminders, and prominent deadlines. In addition, communications in the second round were personalized, and took advantage of social influence by stating that hundreds of Paycheck Plus members had already responded to this appeal.

One of the central mantras in the application of behavioral science to social programs is that if program operators want people to do something, they should make it easy.[30] The behavioral messaging used in these experiments made the task easier and more salient by helping people develop a plan of action and providing multiple reminders in different formats to help them stick to it. Other research in this field has shown that increasing the number of reminders can improve follow-through, though presumably there is a point at which the return on each additional reminder plateaus.[31]

While the results generally support the notion that making tasks easier increases follow-through, the failure to achieve impacts in Round 2, in which some participants had the option to call in for the meeting, demonstrates the complexity of following this simple rule and the inherent challenges of conducting outreach with a low-income urban population. In the end, approximately the same number of people responded to a significant simplification of the process (converting an in-person meeting to a phone call)

30 Service et al. (2014).

31 Touchette and Shapiro (2008); Lantz et al. (1995).

TABLE 6
IMPACTS ON RESPONSE RATES, BY SUBGROUP, ROUND 2

PAYCHECK PLUS

CHARACTERISTIC	PHONE GROUP	IN PERSON GROUP	IMPACT (DIFFERENCE)	P VALUE	DIFFERENCE BETWEEN SUBGROUP IMPACTS[a]
Age (%)					
19-34	34.3	32.4	1.9	0.446	
35-64	38.8	34.6	4.2	0.135	
Employment status (%)					
Full time	47.9	37.3	10.6**	0.016	
Part time	49.4	49.2	0.2	0.972	
Unemployed	28.5	28.0	0.5	0.847	

SOURCE: Calculations using MDRC's data from Paycheck Plus tracker and look-up module, and Food Bank's gift card tracker and call log.

NOTES: Percentages may not add up due to rounding or missing values.

Among the Round 2 sample, 271 individuals (11.5 percent) are missing address information and 488 individuals (20.7 percent) are missing a phone number.

Among the sample of groups that received text messages, 268 individuals (23.6 percent) did not provide a cell phone number or agree to be sent a text message.

Estimates were regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

A two-tailed t-test was applied to differences between outcomes for the research groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent.

The p-value indicates the likelihood that the difference between the research groups arose by chance.

[a]The H-statistic is used to assess whether the difference in impacts between subgroups is statistically significant. Statistical significance levels are indicated as follows: † = 10 percent; †† = 5 percent; ††† = 1 percent.

as did to changes in the messaging (sending reminders and emphasizing the deadline).[32] There are several possible reasons for this result that may benefit from additional research.

First, participants in the phone group may have overestimated the likelihood that they would make the call, since it seemed like such a simple task. As a result, they may not have used the implementation supports in the outreach materials because they did not think they needed them, but then ran out of time to respond. Second, the $50 incentive to attend the meeting may have activated a sense of mistrust for this group in particular. By removing the hassles associated with attending the meeting in person but keeping the same incentive amount, the "ask" (the action required to qualify for the incentive) may have seemed too good to be true. Based on the concept of contextual inference, participants may have assumed that the meeting would be unpleasant and decided that the incentive was not worth the potential discomfort.[33] Future research should test the effect of various incentive amounts on response rates in experiments in which hassle factors have been removed from a task. In addition, it may be useful to test a version of this design that includes some reminders focused entirely on intrinsic reasons to attend

32 In Round 2, only two offices were open for the informational meetings. They were located in Harlem and downtown Brooklyn, which are likely fairly accessible locations for most members of this sample. Because participants could only choose between two offices, they were not faced with the possible choice overload that members of the standard messaging groups may have confronted in Round 1.

33 Kamenica (2012).

the meeting (for instance, to get more information about how to improve one's economic situation).[34] This approach may appeal to some people who are suspicious of or not strongly motivated by a financial incentive.

These experiments demonstrate the challenge of engaging people who live in economically distressed circumstances in supplemental activities. The invitation to participate in these activities runs the risk of being overlooked, misunderstood, or not received at all. When some participants who did not respond to any of the marketing efforts were asked why they had not come in, most said they had not seen or paid enough attention to the materials to understand their purpose. Figures 4 and 6 show that the percentage of participants who responded to the marketing increased as the number of reminders increased, indicating that getting people's attention can be very difficult. The main lesson for program operators is that, rather than trying to reengage participants, they should consider whether or not they can deliver all essential information at a time when participants must be present without overloading them or compromising program efficiency. If not, program operators should consider using behavioral insights to design and develop the content of their outreach materials as much a priority as raising money for financial incentives.

Looking Forward

In addition to the work in the Paycheck Plus Demonstration, the BIAS project has conducted pilots with other partners, including the Oklahoma Department of Human Services, the Indiana Office of Early Childhood and Out of School Learning, the Cuyahoga (Ohio) Department of Jobs and Family Services, and the Los Angeles County (California) Department of Public Social Services. Results from these pilots will be published as they become available to further inform this burgeoning field.

34 See Ryan and Deci (2000) for a review of research on intrinsic motivation.

APPENDIX

APPENDIX TABLE A.1
BEHAVIORAL TERM DEFINITIONS

PAYCHECK PLUS

CONCEPT	DEFINITION
Choice overload	The inability to compare choices across meaningful metrics because too many choices have been provided. An excess of choices for people can increase the burden on mental resources and the time and mental energy required to make a choice, reducing the net satisfaction that can be derived from making a decision or even paralyzing some individuals and preventing them from being able to make a decision at all.
Cognitive load	Overburdened mental resources that impair individual decision making. People typically think that they will be able to pay attention to information and then understand and remember it as long as it is important. However, an individual's mental resources, which are often taken for granted, are not unlimited and are more fallible than people often recognize. Challenges and emotional stress can drain these mental resources and actually make it difficult to make good decisions.
Cognitive scarcity	The pressure of negotiating life under conditions of poverty, which exacts a particularly high toll on cognitive resources.
Deadlines	The latest time or date by which something should be completed.
Deliberation costs	The costs — in time or in mental effort — of making a decision.
Endowed progress effect	The phenomenon whereby people provided with artificial advancement toward a goal exhibit greater persistence toward reaching the goal.
Hassle factors	A feature or situational detail that makes a behavior harder to accomplish. This could be, for example, a small barrier to completing a task, such as filling out a form or waiting in line. While these factors may seem trivial and are often neglected in program design, reducing or eliminating them can have an outsized impact on outcomes.
Implementation prompt	Ways to assist people in plan making, or forming implementation intentions, which can facilitate the fulfillment of goals.
Inattention	Lack of attention.
Limited information	Lack of information about an event or process.
Loss aversion	The tendency for decisions and behavior to be influenced by the wish to avoid a loss. When a decision is framed in terms of a loss or a gain, it affects the decision maker's response. When loss aversion is operating, people experience a loss as more painful than when they experience an equivalent gain as pleasurable. For example, when loss aversion is at work, the pain of losing $20 is greater than the pleasure of finding $20. Thus, people's preferences are skewed toward avoiding the loss. When program designers rely on loss aversion to increase the number of drivers who observe the speed limit, for example, they believe that fining noncompliant drivers is more effective than rewarding compliant drivers.
Mistrust	The lack of willingness to place one's resources at the disposal of another party outside of a formal legal framework.
Plan making	Committing to a specific plan for a goal that not only potentially facilitates accomplishing tasks, but also reduces the burden on an individual's mental resources.
Personalization	Techniques designed to make communication less generic.
Present bias	Giving more weight to present concerns than future ones. People tend to make plans to do unpleasant tasks "tomorrow," and make the same choice when "tomorrow" becomes "today."

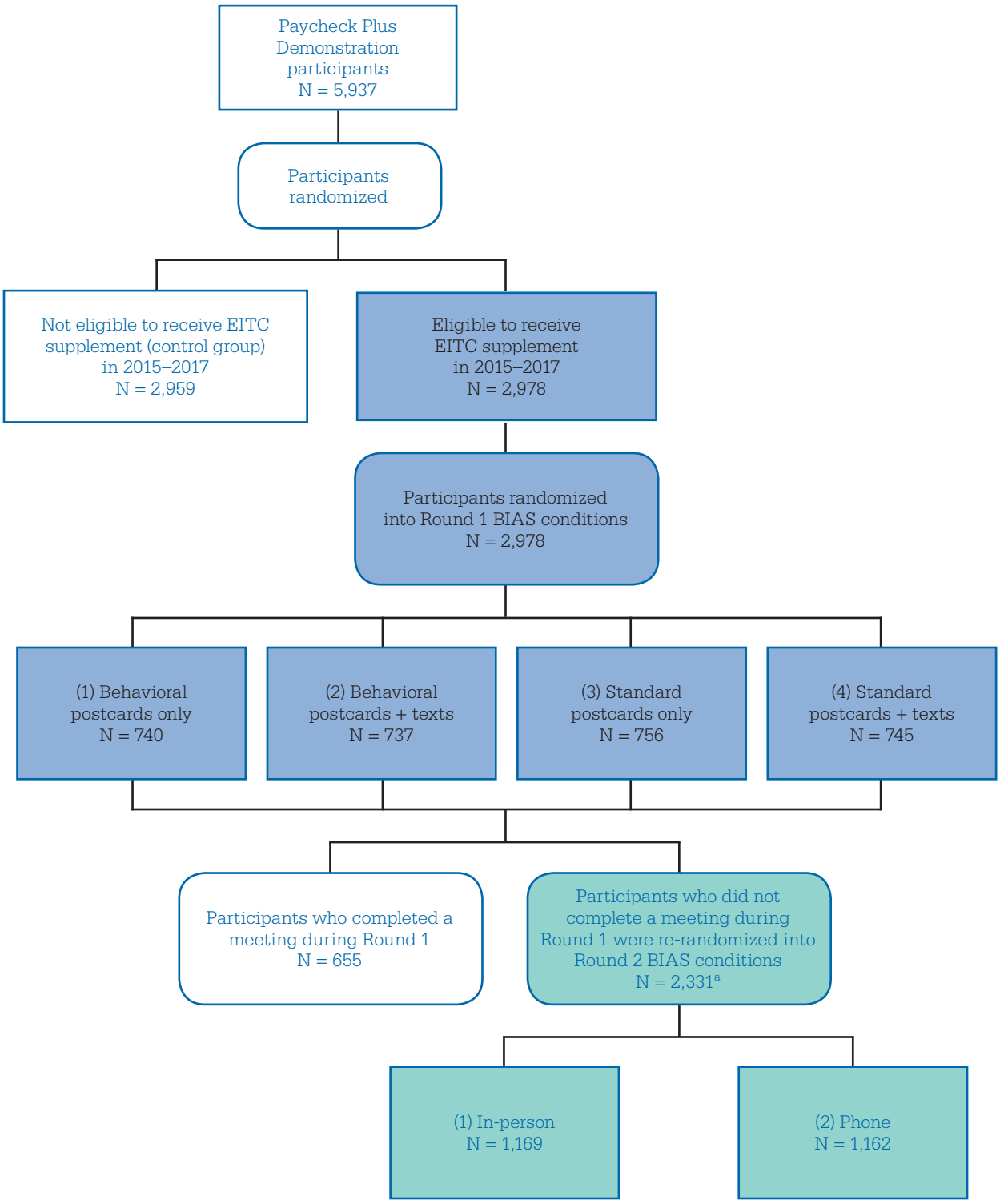
(continued)

APPENDIX TABLE A.1 (CONTINUED)

CONCEPT	DEFINITION
Procrastination	The practice of carrying out less urgent tasks in preference to more urgent ones, or doing more pleasurable things in place of less pleasurable ones, and thus putting off impending tasks to a later time, sometimes to the "last minute" before the deadline.
Prospective memory	Remembering to perform a planned action or intention at the appropriate time.
Psychological distance	The "distance" (spatial, temporal, or probable) between an individual and some outcome or decision. When an event is psychologically distant, it is perceived in an abstract manner, and potentially important details are disregarded.
Simplification	To reduce in complexity or make easier to understand.
Social influence	Directly or indirectly fostering a behavior through direct or indirect persuasion. For example, an influential peer or authority figure can often establish the guidelines for socially appropriate and inappropriate behavior.
Trust	The willingness to place one's resources at the disposal of another party outside of a formal legal framework.

APPENDIX FIGURE A.1
EMBEDDED BIAS RESEARCH DESIGN, ROUNDS 1 AND 2

PAYCHECK PLUS



NOTE: [a]Eight participants were included in the analysis sample in Round 2 who were not included in the Round 1 sample because their consent forms were obtained later.

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