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Applying Behavioral Economics to Improve Microsavings Outcomes

Many of the world's toughest problems, including persistent poverty, are rooted in individual behavior. Behavioral economics and more specifically the emerging practice of behavioral design offer powerful tools to solve these social problems at large scale.

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Connecting the World's Poor to Their Potential

ideas42

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We work in a number of areas: consumer finance, economic mobility and opportunity, health, education, energy efficiency, and international development. Our work involves a lot of observation, plenty of patience, and a willingness to be surprised. Most of all, however, it involves asking the right questions—that others may not ask. Learn more at ideas42.org.

Grameen Foundation

Grameen Foundation helps the world's poorest people reach their full potential, connecting their determination and skills with the resources they need. We provide access to essential financial services and information on agriculture and health, assistance that can have wide-scale impact by addressing the specific needs of poor households and communities. We also develop tools to improve the effectiveness of poverty-focused organizations. Learn more at grameenfoundation.org.

CARD Bank

CARD Bank, Inc. is the first rural bank in the Philippines to have evolved from a microfinance NGO, with the mission of helping uplift the lives of economically challenged women through financial services that are tailor fit to the needs of microfinance clients. CARD Bank, Inc. continuously promotes a culture of learning from the clients through regular dialogue, field monitoring and doing market research. CARD Bank Inc. is now one of twelve CARD MRI institutions, and since inception has grown to more than 1,000,000 clients, most of who also have voluntary savings with the bank.

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Executive Summary

Many of the world's toughest problems, including persistent poverty, are rooted in individual behavior. Behavioral economics and more specifically the emerging practice of behavioral design offer powerful tools to solve these social problems at large scale. Behavioral design applies insights from decades of academic research in behavioral economics and behavioral psychology to develop low-cost interventions with large effects. This paper delivers key lessons from a behavioral design project undertaken by ideas42 and Grameen Foundation to improve savings outcomes for clients of CARD Bank. We demonstrate the power of applying behavioral design and offer specific implications for practitioners working in financial inclusion and economic development.

Poor individuals in developing countries have historically used a variety of informal savings mechanisms to help smooth consumption and cope with income shocks. Formal financial institutions across the globe, however, have struggled to mobilize the savings of poor individuals even though they may be able to offer more security and flexibility than some of these informal tools. Furthermore, when individuals do not save enough or withdraw their savings too often or early from formal institutions, they may reduce their access to the "usefully large"[1] lump sums, which are often necessary to make long-term investments or manage emergencies (Rutherford, 2000).

Many programs, policies, and products designed to increase formal savings among poor households have had only limited large-scale impact. In the Philippines, only 26 percent of adults use formal financial services and almost 80 percent do not have a deposit savings account, despite an established banking system with robust consumer protection regulation (Honohan, 2008; Philippines, 2009). The consequences can be significant. Almost 40 percent of households report not having any cash on hand for emergencies and unexpected expenses (Philippines, 2009).

ideas42 and Grameen Foundation partnered to conduct an in-depth investigation of savings behavior among clients at CARD Bank. We used a combination of qualitative and quantitative research methods to uncover the causes of low savings balances and infrequent transactions. We sought to understand the psychological tendencies influencing low savings behavior as well as specific contextual details that trigger or exacerbate the psychologies.

Our behavioral diagnosis highlighted four primary barriers to improving savings outcomes:

1. **The required weekly deposit into the Pledge[2] account, and the minimum opening deposit for new accounts, anchors clients to lower deposit amounts.**
2. **Clients open new accounts without an intention or plan about how to use them**
3. **Clients do not enroll in regular savings collection because the decision is not made salient at the moment of choice.**
4. **Saving goals are distant and abstract, while today's financial temptations feel pressing.**

To resolve these issues, we used four behavioral levers to re-design CARD Bank's account-opening process and develop simple interventions to be delivered at existing weekly meetings to address the specific contextual issues we uncovered. These behavioral levers included:

1. **Goal-setting**
2. **The feeling of having made a commitment**
3. **Implementation intention**
4. **Personalization of the experience**

We implemented these levers in a relatively inexpensive intervention that altered the account opening process.

[1] Expenses for the poor tend to be large compared to their income. While income may arrive on an irregular basis or in small amounts, expenses such as school fees, medical emergencies, and business investments are often large, one-time costs.

[2] The Pledge account is the primary savings account offered to CARD Bank clients. All members who take loans must have a Pledge account and are required to make minimum weekly deposits.

We used a randomized controlled trial methodology to gain a complete understanding of its effects and found large statistically significant effects on savings behavior. **Clients who received our treatment when opening a savings account made initial deposits 15% higher than the control group and were 73% more likely to initiate a transaction in the new account. They also made smaller and more frequent ongoing deposits as well as smaller withdrawals. Our treatment appears to have had the effect of increasing balances 37% compared to the control group over the course of the eight-week pilot.**

The pilot project with CARD Bank not only produced successful results with regards to savings behaviors but also generated several useful lessons about microsavings and behavioral design. These lessons can be used in future product and program innovation:

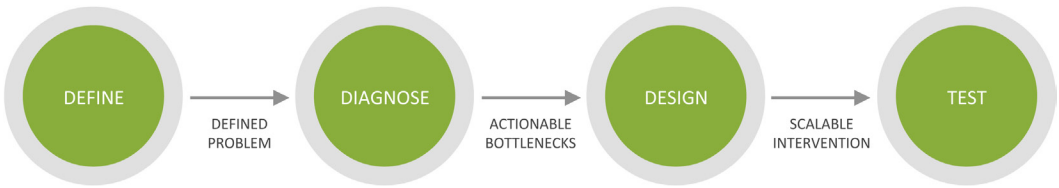
1. Behavioral principles embedded into product design can trigger desired behaviors
2. An attempt to close the intention-action gap by helping clients take specific actions towards savings goals can influence behaviors among clients who already understand the importance of saving
3. Rigorous data analysis is an important component of developing deep behavioral insights—and institutions need to support this capability
4. Randomized controlled trials provide rigorous evidence that can be used to substantiate impact and support business decisions

Overview

Poor people around the world have always used informal channels to save money—sometimes even saving in the form of illiquid assets such as poultry or livestock. As financial institutions try to expand and formalize financial inclusion, they sometimes struggle to design products that meet the needs and preferences of their target customers. Successful savings products for the poor are often those that align with their pre-existing savings habits, which tend toward small frequent deposits that are either very liquid or set aside for specific long-term goals. Improving financial inclusion outcomes requires a deeper understanding of client financial behaviors, preferences and desires in order to improve the design, development and implementation of financial products.

This paper summarizes the key learnings from a microsavings pilot project conducted by ideas42 and Grameen Foundation in partnership with CARD Bank in the Philippines from November 2012 to October 2013. The work was completed as part of Grameen Foundation's Microsavings Initiative (GMFI)—a multi-year project funded by the Bill & Melinda Gates Foundation to enhance access to safe, flexible, and convenient deposit accounts for the poor. The lessons from this pilot project are broadly applicable within the financial inclusion sector. The successful outcomes demonstrate the power of behavioral economics and behavioral product design.

To understand and design solutions for CARD Bank clients' savings behavior challenges, we used ideas42's four-stage behavioral diagnosis and design methodology.



Our work began by carefully ***defining the problem***. A behavioral approach to problem-solving begins by defining the problem in terms of specific human behaviors. Looking at the problem at the level of individual decisions and actions (for example, clients are doing X but want to do Y or clients aren't doing X but want to do X) is often a good starting point for defining the problem.

We then proceeded to ***diagnose*** the behavioral barriers preventing clients from achieving the desired savings behavior. In the diagnosis, we identified some of the key psychological or situational factors that prevented CARD Bank clients from reaching desired savings balances or using savings accounts in the way that would lead them to reach their stated goals. The behavioral bottlenecks that we identified and tested through qualitative and quantitative analysis led us to develop multiple ***designs*** to promote and achieve the desired behaviors. We began with preliminary design ideas, and through a rapid iteration process with CARD Bank staff and clients, we were able to assess the feasibility and efficacy of a variety of possible interventions. Finally, we implemented a pilot of the new design ideas to ***test*** the impact of behavioral interventions on CARD Bank client savings behavior. Our behavioral interventions were delivered to CARD Bank clients over an eight-week period and we were able to track savings and financial behavior for a total of 20 weeks in the CARD Bank data system.

What is a behavioral bottleneck?
Behavioral bottlenecks (sometimes called behavioral barriers) are key psychological and/or situational factors that prevent individuals from achieving a desired behavior.

Defining The Problem

Improving the savings outcomes of the very poor is a broad problem and there are many ways to approach it. Thus, it is critical to carefully define the problem before looking for solutions. Problem definition is both art and science: choosing the right problem depends on the information and data that are available to solve the problem. Problem definition also requires careful understanding of local context. Often, it is best to look for problems with the following characteristics: they are defined in terms of specific end-user behavior; they don't assume particular solutions; and their resolution has the potential to produce significant change.

How might we help members and non-members build savings balances in CARD Bank savings accounts?

We began by looking in detail at CARD Bank's savings products. Prior to GFMI, the bank offered one primary savings account called the Pledge account, which requires members to deposit a small amount at weekly meetings, and a few other basic savings accounts. More recently, under the GFMI, CARD Bank has expanded its savings efforts, and now offers several other savings products for a variety of client needs. A new and central product Grameen Foundation helped to design, "Matapat" is a savings account with ATM access that is being linked to microloan disbursement. Other products include a time-deposit account and an account marketed for education-related savings for children of CARD Bank clients. During CARD Bank's push to expand its savings portfolio, its attention was on the adoption of these new savings accounts, and so we began our engagement focused on the problem of increasing uptake of savings accounts.

We began diagnosis of the uptake problem through conversations and quantitative data analysis. However, we soon realized that uptake was not the main problem for CARD Bank's accounts. Instead, account usage was the problem: *dormancy and balance-building* were areas where large improvements might be possible. We learned that substantial marketing efforts had already been devoted to encouraging uptake of new accounts, and these efforts had been quite successful: Between November 2, 2011 and January 29, 2013, 34,175 Matapat accounts were opened, but fully 58% of these accounts saw no activity at all—not one transaction—after they were opened. With this insight, we changed the problem to focus on *usage* of savings accounts rather than *uptake*.

Diagnosis

To improve savings behavior among CARD Bank clients, we needed to understand the underlying psychological factors contributing to dormancy and low savings balances, as well as the situational and contextual features that triggered or exacerbated these phenomena. We used both qualitative and quantitative information to carry out a process called behavioral mapping, which allowed us to generate hypotheses about CARD Bank clients and their savings behaviors.

On the quantitative side, we used transaction-level data to better understand past savings behavior among CARD Bank clients. On the qualitative side, we conducted in-depth interviews with CARD Bank clients and staff, carried out observation of clients' interactions with savings accounts, mapped out detailed customer experiences, and facilitated small-group discussions about financial needs and behaviors. Our process is highly iterative. After searching for evidence for and against a hypothesis we may refine it before searching again, or we may realize that none of our hypotheses captured a deep behavioral insight. We iterate again and again between generating and searching for evidence about these insights.

Behavioral Insights

At the end of this process, we had generated four behavioral insights about CARD Bank client savings behavior. Overall, we found that many clients do have a desire and broad intention to save in their CARD Bank accounts. The problem of savings account usage is not changing people's minds or creating new intentions, but rather getting people to take action to meet their goals as they themselves describe them.

Four Behavioral Insights

1: **Both the required weekly deposit into the Pledge account and the minimum opening deposit for new accounts anchor clients to lower deposit amounts.**

2: **Clients open new accounts without an intention or plan about how to use them.**

3: **Clients do not enroll in regular savings collection because their attention is elsewhere when they open an account.**

4: **Savings goals are distant and abstract; today's financial temptations feel pressing.**

1 Both the required weekly deposit into the Pledge account and the minimum opening deposit for new accounts anchor clients to lower deposit amounts.

When clients open new savings accounts at CARD Bank there is a mandatory initial deposit —for the accounts we considered in this pilot, the minimum amount is 100 Philippine pesos (PHP). The existence of a minimum amount likely serves as an *anchor* pulling down deposit amounts for many clients. When clients ask themselves "how much should I deposit into this account?" they start at the anchor *value* (the minimum required amount) and then *adjust* upwards. This leads the deposit amounts to be close to the minimum. Clients likely use the minimum deposit as a subconscious comparison for their deposit size. And indeed, the vast majority of clients make the minimum deposit when opening a new account.

A caveat about behavioral diagnosis

The behavioral diagnosis process is not meant to generate the only set of answers to a specific problem. The drivers of behavior are complex and multifaceted, so we do not expect to fully capture all aspects of the decision-making process. Psychological processes are often private and unobservable, so we can never be sure at this stage that our hypotheses are correct. Because our goal is social impact and not scientific discovery, the ultimate test of the usefulness of a hypothesis is whether it leads to a successful design.

Similarly, CARD Bank members must make a deposit of at least 50 PHP into their mandatory savings account each week. We found that this minimum deposit also serves as an anchor that lowers average deposit amounts. A deposit of 80 PHP (about the average size of a deposit into a Pledge account) seems large relative to the 50 peso minimum deposit, even though it may not be large relative to what a client *could* be depositing.

Anchoring describes the way that elements of situational context can suggest reference points that guide our behavior—especially when it comes to numbers (Tversky & Kahneman, 1974; Furnha & Boo, 2011).

Similarly, the process of making weekly deposits in a public group setting likely creates strong *social norms* to deposit only into Pledge, even if clients want to save in one of their other savings accounts designated for specific savings purposes (such as their children's education). While some center members may be using other accounts, those deposits are not visible to everyone else and thus the majority of clients "see" Pledge as the most used savings account.

Social norms reinforce current behaviors and the current behavior at center meetings is to save small amounts into the Pledge account. When clients decide to make deposits they are likely influenced by this minimum deposit amount rather than by the amount they can or want to save. In effect, social norms reinforced the low anchors. This suggests that removing or changing the anchor might have a powerful effect.

The very existence of a mandatory savings product for members (Pledge), we found, may make it less likely that clients will use other savings products designed for specific savings purposes (such as their children's education). Since members deposit into the Pledge account in front of each other, the Pledge account comes to be seen as the most-used, and therefore—subconsciously—the most desirable account to use. Many clients may therefore deposit only into Pledge, instead of into the account that best suits their specific needs.

2 Clients open new accounts without an intention or plan about how to use them.

As mentioned above, many new CARD Bank clients open savings accounts and then do not use them for long periods or forever. However, once clients start making deposits they are likely to continue. This implies that the time of opening the account is a critical decision and action step. We often heard from clients that they opened a new savings account because "savings is important" or "more savings accounts is better".

The world is complex, and the human mind does not always represent the world in all of its complexity or perform calculations every time we act. Mental models—intuitive understandings of how the world works—are often helpful approximations.

We therefore hypothesized that clients use a *mental model* that focuses on intermediate goals —opening a savings account—rather than constantly thinking about their final savings goals. Clients understand that savings accounts are associated with saving money so they focus on opening a new savings account, which is a sensible way to economize on the planning and calculation that would otherwise go into savings decisions. Clients are therefore fairly likely to open new accounts. However, after they open accounts they no longer feel a strong motivation to build balances, because they were so concerned on opening a new account. Therefore many clients open accounts and never use them. Clients often emphasize neither the link between opening the account today and using it at a later date, nor the necessity of building the kind of savings habits that lead to high balances.

3 **Clients do not enroll in regular savings collection because their attention is elsewhere when they open an account.**

At the time that clients sign up for accounts they can also sign up for a savings collector to come to their home or business at a regular interval for savings. This is a free service and CARD Bank clients who use the service report that it helps them save more. Further, regular collections would help clients overcome common behavioral issues by providing an easy channel to help clients save and removing the temptation to spend money in between bank visits to make savings deposits. We would therefore expect high take-up of this service, but few clients have signed up. This is especially puzzling since many clients expressed concern about their own self-control in the context of ATM usage. We hypothesized that clients do not sign up for this service because it is not prioritized or made salient at the time of account opening, which is the only time they are presented with this choice. The option is in muted colors in the bottom corner of a form, and it is easy to skip. It may not catch a client's eye, or it may not prompt careful thought. At the time of account sign-up, clients may feel particularly motivated to save, so it is important to leverage this key touch point to encourage take-up of regular collections.

4 **Savings goals are distant and abstract, while today's financial temptations feel pressing.**

CARD Bank clients save money for emergencies or predictable, irregular expenses such as school fees. However, these expenses are far off in time and harder to imagine, and may not seem important now. People often have trouble acting on abstract goals, though it is easier to act on concrete one. As a result, the need to deposit is not strongly felt on a day-to-day basis and the goal is very abstract. The temptation to withdraw money and spend is always salient, since potential expenses surround clients. Contextually, CARD Bank weekly center meetings are likely the primary place where clients make decisions about their financial lives because they are repaying loans and making savings deposits. However, at these meetings, clients don't talk about savings goals or emergencies but rather about everyday incomes and expenditures. This is both a cause and a symptom of the underlying problem—since no one talks about goals or emergencies, they are not salient; since they are not salient, no one talks about them. Ultimately, this means people do not focus on saving for them at the meeting when they can actually take the savings step.

Design and Implementation

Our behavioral diagnosis gives us a perspective on where behavioral bottlenecks appear to be getting in the way of savings behavior, but it does not tell us what we should do to overcome these bottlenecks. This is the purpose of behavioral design. And while the diagnosis drives design, there is not a one-to-one relationship between a particular psychology and a given design element. Often a behavioral design element will address more than one of the behavioral bottlenecks that have been identified, and we often have multiple design elements that are intended to overcome a given bottleneck.

The table on the following page explains the major behavioral levers that were incorporated into the designs and specific design elements we used on this project. It is important to note that the behavioral levers and design elements used in this pilot were context-specific to CARD Bank and to the particular products and clients we were working with in the Philippines. It is possible that these levers and design features might be useful in other contexts as well, but it is critical to conduct a thorough behavioral diagnosis of the particular problem in order to determine how best to design relevant and impactful solutions.

Connecting Behavioral Insights to Design Elements

Behavioral Insights

1: The required weekly deposit into the Pledge account, and the minimum opening deposit for new accounts, anchors clients.	**2:** Clients open new accounts without an intention or plan about how to use them.	**3:** Clients do not enroll in regular savings collection because the decision is not made salient at the moment of choice.	**4:** Saving goals are distant and abstract, while today's financial temptations feel pressing.

Behavioral Levers	Design Element for CARD Bank
1. Set a Goal: Our research indicated that clients generally feel they "should" save. But when the time comes to take action, other priorities are more salient. Setting goals helps clients achieve their outcomes by directing attention, effort and action toward goal-relevant actions (Locke & Latham, 2006; Rogers & Bazerman, 2008). Visual and vivid goals or "causes" can make the positive outcomes from saving feel stronger. (Masuda, Kane, Shoptaugh, & Minor, 2010) Furthermore dealing with a large institution can often feel impersonal and business-oriented, while attempts to nudge behavior can miss the mark when one standard is applied to a heterogeneous population. Allowing for active choice in goal-setting may be best, especially in contexts such as savings "where people prefer to choose, and where learning [by feedback] is both feasible and important" (Sunstein, 2013).	1. State a savings purpose and amount 2. Use visual representation to make goal concrete 3. Allow the client to decide some components but also give guidance & architect some decisions
2. Make a Specific Plan: But goal setting alone is not always enough, to help clients meet those goals, we developed several design elements, which introduce the feeling of having made a commitment—without actually making any commitment at all. This is a "soft" commitment device that can help drive the desired behavior without actually constraining action should clients need that money for emergencies (Bryan, Karlan, & Nelson, 2010). We hoped that clients would feel some psychological cost at failing to save. Because this cost is incurred in the short term we expected it to help counteract the short term benefits of spending money, and help tip the scales towards the long term benefits of saving.	1. Be concrete with the savings plan: a. When & how frequently will you save? b. Where and how will you make deposits? c. How much do you want to save? 2. Make savings decisions & actions more salient by highlighting them on forms 3. Provide option for voluntary SMS reminders to save
3. Create the Feeling of Commitment: To augment goal setting and help clients achieve the goals they set for themselves we highlight the implementation intention (Milkman et al., 2011). We had them make a specific yet simple plan for the behaviors that will lead them to achieve that goal. We asked clients to be very specific in listing how, when and where they would make their savings deposits for new accounts and also for existing accounts.	1. Have both client & institution sign the plan 2. Give carbon copy to client & institution 3. Complete savings plan in front of peers 4. Ask the client about the plan regularly & send reminders 5. Leverage personal relationship between institution and client by giving small gift
4. Personalize the Experience: Lastly, personalizing the experience into otherwise standardized communications can have huge effects in encouraging the desired behavior (Garner, 2005; Haynes, Service, Goldacre, & Torgerson, 2012). This creates greater feelings of trust, loyalty, and reciprocity for the client, which makes them more likely to follow through on their actions to achieve their goal.	1. Ensure the plan addresses clients' needs & abilities 2. Use personal statements ("I am going to…") 3. Encourage clients to share and discuss their savings plans with peers

Behavioral Levers Incorporated into Designs

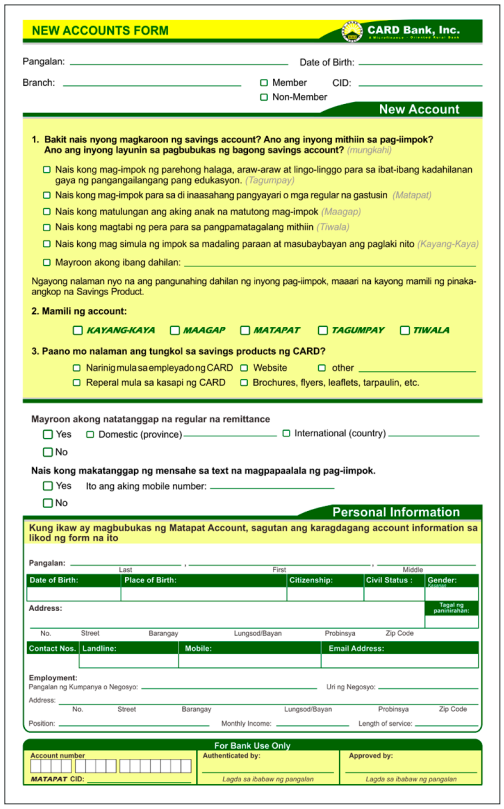
Our designs for CARD Bank incorporated four main behavioral levers: goal-setting, the feeling of having made a commitment, implementation intention, and personalization of the experience. Their effectiveness is backed by research and their use in this project resulted directly from our diagnosis. Each of the four behavioral levers plays a role in addressing one or several of the behavioral bottlenecks related to savings at CARD Bank. Together, they provide general insights for improving savings behavior even though the design elements we used on this project were context-specific. By incorporating these four levers into our designs, we hoped to maximize the impact of the interventions and address the four behavioral insights we generated during our field research.

Detailed Explanations of the Pilot Interventions

To incorporate the specific behavioral levers we wanted to target, we designed an intervention package for CARD Bank consisting of four components. The intervention package was easy to implement and could be delivered to new clients or to clients with an existing CARD Bank account. For clients who were opening a new account, we redesigned a **new, simpler account opening form,** which helped them choose the correct savings account, plan to make the first deposit into their new account, and sign up for regular savings collection. For both new clients and existing clients with savings accounts, we developed a **printed savings plan**, which prompted them to think about their specific savings goals as well as the actions that would help them achieve those goals. This savings plan also allowed clients to opt-in to regular savings collection and **text message reminders** to save. Finally, we designed a **savings calendar,** which allowed clients to see the aggregation of their savings over time and prompted regular, habitual savings deposit.

New Account Opening Form

To improve the existing "New Account Opening" form, we started by making it shorter, simpler, and more straightforward. This helped ensure clients could focus on some key elements that would trigger action, such as prompting clients to think more deeply about which type of account would be right for them. Our diagnosis had revealed that clients were opening savings accounts without thinking through a plan to use them. We therefore wanted to first help clients think about why they were sav-ing and then choose an appropriate account for that purpose instead of prioritizing a particular account that did not correspond to their savings goals and intentions.



NEW ACCOUNTS FORM — CARD Bank, Inc.

Pangalan: _____ Date of Birth: _____

Branch: _____ ☐ Member CID: _____

☐ Non-Member

New Account

1. **Bakit nais nyong magkaroon ng savings account? Ano ang inyong mithiin sa pag-iimpok? Ano ang inyong layunin sa pagbubukas ng bagong savings account?** *(mungkahi)*
   - ☐ Nais kong mag-impok ng parehong halaga, araw-araw at lingo-linggo para sa ibat-ibang kadahilanan gaya ng pangangailangang pang edukasyon. *(Tagumpay)*
   - ☐ Nais kong mag-impok para sa di inaasahang pangyayari o mga regular na gastusin *(Matapat)*
   - ☐ Nais kong matulungan ang aking anak na matutong mag-impok *(Maagap)*
   - ☐ Nais kong magtabi ng pera para sa pangpamatagalang mithiin *(Tiwala)*
   - ☐ Nais kong mag simula ng impok sa madaling paraan at masubaybayan ang paglaki nito *(Kayang-Kaya)*
   - ☐ Mayroon akong ibang dahilan: _____

Ngayong nalaman nyo na ang pangunahing dahilan ng inyong pag-iimpok, maaari na kayong mamili ng pinaka-angkop na Savings Product.

2. **Mamili ng account:**
   ☐ *KAYANG-KAYA* ☐ *MAAGAP* ☐ *MATAPAT* ☐ *TAGUMPAY* ☐ *TIWALA*
3. **Paano mo nalaman ang tungkol sa savings products ng CARD?**
   ☐ Nariniq mula sa empleyado ng CARD ☐ Website ☐ other _____
   ☐ Reperal mula sa kasapi ng CARD ☐ Brochures, flyers, leaflets, tarpaulin, etc.

Mayroon akong natatanggap na regular na remittance

☐ Yes ☐ Domestic (province) _____ ☐ International (country) _____

☐ No

Nais kong makatanggap ng mensahe sa text na magpapaalala ng pag-iimpok.

☐ Yes Ito ang aking mobile number: _____

☐ No

Personal Information

Kung ikaw ay magbubukas ng Matapat Account, sagutan ang karagdagang account information sa likod ng form na ito

Pangalan: _____ (Last) , _____ (First) , _____ (Middle)

Date of Birth:	Place of Birth:	Citizenship:	Civil Status :	Gender: (Optional)

Address: _____ Tagal ng pamamahay

(No. Street Barangay Lungsod/Bayan Probinsya Zip Code)

Contact Nos.	Landline:	Mobile:	Email Address:

Employment:

Pangalan ng Kumpanya o Negosyo: _____ Uri ng Negosyo: _____

Address: _____ (No. Street Barangay Lungsod/Bayan Probinsya Zip Code)

Position: _____ Monthly Income: _____ Length of service: _____

For Bank Use Only

Account number	Authenticated by:	Approved by:
MATAPAT CID: _____	*Lagda sa ibabaw ng pangalan*	*Lagda sa ibabaw ng pangalan*

Behaviorally designed new accounts form triggers specific savings intentions

NEW ACCOUNTS FORM — **CARD Bank, Inc.** A Microfinance - Oriented Rural Bank

Pangalan: _____ Date of Birth: _____

Branch: _____ ☐ Member CID: _____

☐ Non-Member

New Account

1. Bakit nais nyong magkaroon ng savings account? Ano ang inyong mithiin sa pag-iimpok? Ano ang inyong layunin sa pagbubukas ng bagong savings account? *(mungkahi)*

- ☐ Nais kong mag-impok ng parehong halaga, araw-araw at lingo-linggo para sa ibat-ibang kadahilanan gaya ng pangangailangang pang edukasyon. *(Tagumpay)*
- ☐ Nais kong mag-impok para sa di inaasahang pangyayari o mga regular na gastusin *(Matapat)*
- ☐ Nais kong matulungan ang aking anak na matutong mag-impok *(Maagap)*
- ☐ Nais kong magtabi ng pera para sa pangpamatagalang mithiin *(Tiwala)*
- ☐ Nais kong mag simula ng impok sa madaling paraan at masubaybayan ang paglaki nito *(Kayang-Kaya)*
- ☐ Mayroon akong ibang dahilan: _____

Ngayong nalaman nyo na ang pangunahing dahilan ng inyong pag-iimpok, maaari na kayong mamili ng pinaka-angkop na Savings Product.

2. Mamili ng account:

☐ ***KAYANG-KAYA*** ☐ ***MAAGAP*** ☐ ***MATAPAT*** ☐ ***TAGUMPAY*** ☐ ***TIWALA***

3. Paano mo nalaman ang tungkol sa savings products ng CARD?

☐ Narinig mula sa empleyado ng CARD ☐ Website ☐ other _____

☐ Reperal mula sa kasapi ng CARD ☐ Brochures, flyers, leaflets, tarpaulin, etc.

New section that links the savings purpose to the type of savings account. Prompt clients to think more deeply about which type of account would be right for them

Prompt clients to think more deeply about which type of account would be right for them

We designed a savings plan for clients to fill out either at the time of account opening or, for clients with existing accounts, to fill out during their regular center meeting.

Savings Plan

To aid clients in setting specific goals and creating concrete plans to save, we designed a savings plan for clients to fill out either at the time of account opening or, for clients with existing accounts, to fill out during their regular center meeting. The individual savings plan was useful for two reasons:

1. Many of our diagnoses pointed to the existence of powerful anchors, such as minimum deposit amounts, and also defaults, such as opting clients our of using savings collection, so we wanted to counteract these on an individual basis.

2. The savings plans incorporated very specific design elements to target more detailed facets of our diagnosis, such as the need for plan making, goal setting and personal savings visualization.

To offset the anchors influencing savings amounts, the savings plan helped clients take a different approach to determining how much to save. We asked them to indicate the purposes for which they were saving, and then how much money in total they wanted to save towards this goal. By anchoring clients towards the full amount of savings, we hoped to push up the amount they thought they could deposit each week, including the initial deposit for new account users.

Research has shown that intentions are more likely to turn into actions when they are accompanied by simple specific planning (Milkman et al., 2011). After soliciting desired savings amounts, we asked clients a series of questions about *when, where* and *how* they would make deposits as a way to overcome the lack of specific planning that we noticed in our diagnosis.

On the new form, we asked clients to choose a specific day and time for making the first deposit into their new account, and the channel (i.e. at the branch or center meeting or regular savings collection at their home or business) by which they would do so. We had diagnosed that clients were not linking the opening of the account to the usage of the account, so we wanted to strongly tie the two actions together. This implementation intention prompt encouraged clients to think in detail about how savings activity fit into their daily schedule and helped them create a specific and simple plan so they would be more likely to return to make follow-up deposits.

We had also discovered through our diagnosis that the lack of planning partly arises from the format of center meetings. At these meetings, clients handle and discuss *daily* financial matters with their peers, but not savings towards goals or potential emergencies. This creates a powerful perception about what is "typical" behavior. We therefore used social *influence* to create new expectations about behavioral norms among peer groups.

Finally, as we asked clients to choose how they would make their first deposit, we provided a visually salient question asking clients if they wanted to sign up for free savings collection. While CARD Bank has previously offered this service, our diagnosis found that take-up was low because the option was not prominent in the field of choice at the time of account opening.

Upon completion, the client and his/her personal account or savings officer signed the savings plan form. The dual signatures helped to create the feeling of a commitment to CARD Bank. Clients filled out the form in carbon copy: one copy was given to the client for her records and the other kept by the bank to accentuate the feeling of a commitment.[3]

[3] The language on the form made it clear that clients were not actually committing to any course of action.

SAVINGS PLAN

CARD Bank, Inc.
A Microfinance - Oriented Rural Bank

Pagbati mula sa CARD Bank!

Nais naming ibahagi sa inyo at sa iba pa'ng nais mag-impok sa inyong lugar ang isang Savings Plan na makakatulong na mas mapalaki ang inyong ipon sa mga susunod na buwan. Ang plano na ito ay naaayon upang agad na mapag-ipunan ang inyong mga mithiin sa buhay! Atin ng simulan!

SAVINGS PLAN PARA KAY: _____

Pangalan (Lagda sa ibabaw ng pangalan)

SAVINGS PLAN PARA SA:

☐ *KAYANG-KAYA* ☐ *MAAGAP* ☐ *MATAPAT* ☐ *PLEDGE* ☐ *TAGUMPAY* ☐ *TIWALA*

Maraming mga kadahilanan kung bakit nag-iimpok ang tao ng pera. Lagyan ng marka ang lahat ng dahilan kung bakit ka nag-iimpok. Maaari mo ring isulat kung mayroon ka pang ibang dahilan.

☐	☐	☐	☐	☐	☐	☐
Edukasyon	*Pagmamay-ari ng CARD Bank*	*Magkaroon ng sariling bahay*	*Makapagtayo ng Neyosyo*	*Mga di inaasahang pangyayari*	*Mahahalagang Okasyon*	*At iba pang dahilan para mag-impok*

1. Magkano ang nais mong ipunin para sa mithiing ito? ₱ _____
2. Magkano ang karaniwang naiipon mo sa isang araw? ₱ _____ /day
3. Kung inyong nanaisin, kaya nyo ba'ng mag impok nang higit pa dito sa susunod na lingo? ☐ Yes ☐ No

Ngayon ay handa mo ng simulan ang iyong Savings Plan!

Gagamitin ko ang Savings Calendar na ibinigay ng CARD Bank. Isusulat ang halaga na aking iipunin sa bawat araw sa aking savings account.

Upang matulungan kayo at ang inyong pamilya na magkaroon ng mas matatag na bukas, ang CARD Bank ay nagmumungkahi na regular kang magdeposito sa iyong savings account. Mayroon kayong iba't ibang pagpipilian kung paano kayo magdedeposito. Pumili sa mga sumusunod kung alin ang pinaka-angkop na pamamaraan para sa inyo.

☐ 1. Upang mas maging madali, nais kong pumunta ang Savings Officer (SO) o Account Officer (AO)

a. Sa aking : ☐ Bahay ☐ Negosyo Address: _____

b. Gaano kadalas? ☐ Daily ☐ Weekly ☐ Other _____

c. Anong araw o mga araw? *(Tandaan na ang pangongolekta sa iyong tahanan o lugar ng iyong negosyo ay sa araw na hindi kayo magdedeposito sa center meeting ng CARD.)*

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday

d. Anong oras? ☐ Morning (8am - 12nn) ☐ Afternoon (1pm - 4pm)

Tandaan na pwede mong i-text ang CARD Bank SO o AO upang ipaalam ang araw ng pagkuha ng iyong impok. Kung kayo ay interasadong gawin ito, siguraduhing mayroon kang cellphone number ng tauhan ng CARD Bank.

Cellphone # ng SO o AO: _____

☐ 2. Magdedeposito ako sa center meeting ng **CARD Bank**.

Anong araw o mga araw ng center meeting na nais mong magdeposito?

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday

☐ 3. Magdedeposito ako sa **CARD Bank** o MBO sa araw na maluwag para sa akin.

Nais kong makatanggap ng mensahe sa text na magpapaalala ng pag-iimpok.

☐ Yes Ito ang aking mobile number: _____

☐ No

" Gagamitin ko ang aking Savings Plan para makapag-impok ng malaki at maisakatuparan ang mga mithiin sa lalong madaling panahon"

_____	_____	_____
Pangalan (Lagda sa ibabaw ng pangalan)	Date of Birth:	CID:

Witness

_____	_____	_____
CARD Bank Financial Adviser *(Lagda sa ibabaw ng pangalan)*	Branch:	Date:

Savings Plan focuses on the client's savings goals

Savings Plan asks the client to write her name

New section that links savings purpose to the type of savings account

Client chooses her reason for saving

Amount client wants to save is made salient

Client makes a specific plan for when they can save

Clients choose a specific day and time for making thea first deposit into their new account

Opt-in SMS message reminder feature

Client signs creating the feeling of commitment

SMS reminders

On clients' savings plans, we also provided an opportunity for clients to sign up for SMS reminders to save. Sending simple text messages that refocus client attention on savings is a powerful way to overcome the problem of inattention. We designed the text messages to appear to come from a specific CARD Bank staff person, rather than a computer system, to build upon personalization and the strong relationship clients feel with CARD Bank.

Savings Calendar

Our last design element was a calendar for the client's home or business with spaces to indicate whether she was able to set aside savings each day, and how much she saved. This calendar served two purposes:

1. By focusing on daily behavior rather than weekly behavior we hoped to circumvent the anchor of the weekly minimum. If clients were indeed anchored to the weekly minimum, their daily savings amount could be influenced by that same anchor;

2. By providing space to record weekly and monthly totals, we helped clients see the aggregate effects of their behavior, counteracting the tendency in our diagnosis to see savings goals as distant and not amounting to much.

The savings calendar also leveraged personalization and the strong relationship between CARD Bank and client: each savings calendar had a message from the Bank's CEO, a revered and respected woman from the community whom many of CARD Bank's clients look up to. While clients could use the calendar as a savings tracking tool, our primary goal with this intervention was to offer a gift from CARD Bank to clients relating to their savings goals. The calendar helped reinforce reciprocity, or the idea that people will respond to a favorable action with another favorable action. In this case, we hoped to provide a gift (the savings calendar) as a way to encourage positive behavior (increasing savings) and induce reciprocity. Because we cared more about the effect of the calendar as a gift (not a tool in tracking savings growth), we did not precisely measure or monitor if clients used the calendar regularly.

Client uses the calendar daily to help build the habit of saving and tracking balance

Daily recording makes savings more salient

Grand Total space is salient but also aids the client in seeing the buildup of savings

Implementation and Pilot Rollout

The three forms used in the pilot were implemented smoothly by CARD Bank's staff, the treatments were delivered to those clients who were supposed to receive them, and data capture for the new accounts process worked well. This was one of the first times CARD Bank's staff were participating in a randomized controlled trial so we had initial concerns about their capacity to implement the randomization within branches and maintain robust data collection processes throughout. Our concerns were unfounded as CARD Bank's team performed well and successfully carried out the pilot. Implementing a pilot in three branches and assigning staff to treatment and control groups would be difficult for any organization to manage but CARD Bank was thorough in their record keeping, organized in preparing and disbursing new forms, and vigilant in monitoring the pilot.

We had three areas of the implementation that did not operate exactly as we had designed: training CARD Bank staff to participate in the pilot, SMS reminders sent to clients, and the continuous randomization of clients into treatment and control. While they did not jeopardize the overall success of the project, they are learnings for future efforts by all three partners involved.

1. We delivered trainings to the CARD Bank staff in order to introduce the new processes and RCT randomization. While this went well, we faced some delays in beginning the intervention rollout. Consequently, there was a moderate lag between the training and the intervention rollout, which was not ideal. This meant that staff might have forgotten some of the nuances of the designs by the time implementation began and it also might have been part of the reason for the compromised randomization.

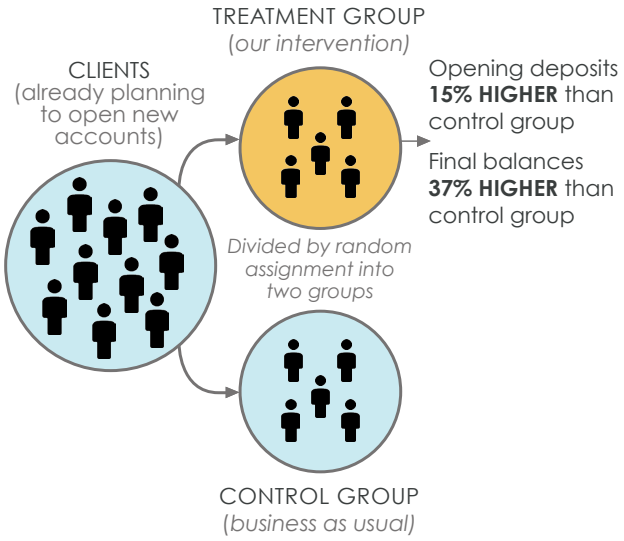
2. We faced some challenges with the automatic system purchased to send SMS messages to clients. These messages were not sent as often or to as many clients as we planned. We also did not send messages to clients who received the intervention at their regular center meetings (i.e., existing clients) due to delays in the data capture process, which prevented us from having their personal mobile phone numbers. We were overconfident about the speed at which we could retrieve and encode data from the Savings Plan carbon copies, so we were not able to effectively monitor this treatment delivery during the pilot or send messages to these clients. Despite some of these implementation challenges, the pilot was still effective in positively influencing savings behavior as confirmed by rigorous evaluation.

3. Our randomization was compromised due to another product launch at CARD Bank during the time of our pilot. However, we were able to conduct analysis on a subset of the pilot sample that allowed us to detect effect. The results we detected in the subset were similar to those we observed in the full sample. We discuss both the randomization challenge and the pilot test results in the subsequent section as well as a detailed Technical Appendix.

Results & Interpretation

To rigorously measure the impact of the designed interventions we conducted a randomized controlled trial (RCT). Randomized controlled trials, long the gold standard in medicine, have also become the preferred method for impact evaluation among social scientists and international development professionals. The core idea of an RCT is that potential recipients of the intervention are randomly assigned to receive the intervention or not. Then, we compare outcomes for these two groups. Because the group assignment is random, in theory any difference in outcomes is directly attributable to the intervention itself.[4] However, it is important to ensure exact fidelity to the randomization design during implementation.

To evaluate the effects of our intervention, we conducted a randomized controlled pilot study in three CARD Bank branches. We randomized loan officers at these branches into treatment and control groups. Treatment loan officers used the redesigned new accounts process and delivered the intervention to a randomly assigned subset of their regular center meetings. The control group continued with business as usual. The pilot began on June 11, 2013 and ended July 31 of the same year, and we evaluated outcomes through October 31, 2013. We present a highlight of the results in this section, as well as more detailed analysis in a Technical Appendix.



First, we conducted statistical tests to check that our randomization was successful—that our treatment and control group were statistically similar in the demographic characteristics collected by CARD Bank. Overall, we found that our randomization in the full group was compromised: CARD Bank rolled out a new initiative during our pilot, which interfered with our randomization protocol. However, once we identified the source of the problem, we were able to select a subgroup for which randomization *was* successful. This subgroup opened accounts before the CARD Bank's other initiative began. While the results are similar for the full sample, here we present only the results from the well-randomized sub-sample, which had about 260 clients in each of the treatment and control group.

Opening deposits 15% higher than control group

Opening Deposits. We had observed that clients opening new accounts were anchored (see Behavioral Insight #1) to the minimum required deposit—100 PHP, or about $2.25 USD. Our designs therefore aimed to de-bias clients from the anchor of minimum deposit amounts, which succeeded. Twenty-six percent of the treatment group and just 7% of the control group made an opening deposit larger than the minimum amount. We estimate that the treatment effect was to increase the average opening deposit by about 15%.

Transaction Behavior. To analyze transaction behavior, we tagged certain transactions as "user-initiated" to ignore automated fees and interest postings. Only 22% of the control group had made a user-initiated transaction through October 31, 2013, but 43% of the treatment group had done so. On average, the treatment group made more deposits and more withdrawals than the control group. However, among those who made a user-initiated transaction, we see no difference in the number of transactions between treatment and control.

Our treatment also led clients to transact in smaller amounts—both deposits (other than the opening deposit) and withdrawals were smaller in the treatment group. This is consistent with the treatment group transacting more often.

[4] For much more on the rationale for RCTs and a guide to conducting them, see "Running Randomized Evaluations: A Practical Guide" by Glennerster and Takavarasha. Princeton University Press, 2013.

Balance Building. At the end of the pilot period the treatment group had higher balances on average than the control group, but the difference is not statistically significant. However, a number of clients had extremely high balances, which could make the average values misleading. We therefore took a number of steps to reduce the influence of outliers. Overall, we conclude that the effect of the treatment was to raise average balances by 37%. Since we estimated initial balance—the opening deposit—to be about 15% higher in the treatment group, but final balance to be 37% higher in the control group, we wanted to investigate whether the treatment group was able to *grow* their balances more than the control group.

Final balances 37% higher than control group

We looked at how much the balance in each account changed between the account opening and the end of the study period. Just 24% of the control group had a change in balance after opening a new account, but 50% of the treatment group had a change in balance. Most of these were growing balances—only about 5% of clients overall had a drop in balance over the period, and there was no difference between treatment and control groups in likelihood of a shrinking balance. On average, we did not see a statistically significant difference in the change of balance between treatment and control; however, there were large outliers. For example, the control group had a few accounts with high opening deposits and low final balances. We attempted to reduce the influence of these outliers in a few different ways. While there is no one best way to do so, each of our efforts pointed towards a large effect of the treatment. In all, we estimate that the typical control client grew their balance by between 75 and 150 PHP over the pilot period, but the typical treatment client grew their balance by about 250 PHP.

It is relevant to note that we can't be sure these results reflect increased *overall* savings per individual. It is possible that our interventions might have encouraged clients to move money from informal savings mechanisms (such as from under their mattresses) or from other accounts at other financial service providers to specific accounts at CARD Bank. Without further investigation, we cannot be sure.

In sum, we see that the treatment led clients to make larger opening deposits, transact more frequently (but in smaller amounts), and build higher savings balances.

Lessons Learned

Our successful pilot demonstrates four key lessons that may benefit financial inclusion industry practitioners. While these lessons emerged from a savings project, they offer wider applications to financial services for the poor and can be integrated into product and program design more broadly.

Lessons Learned

1: **Embedding behavioral principles into product design can trigger desired behaviors**

2: **Focus on helping people take action rather than providing them with more information**

3: **Rigorous data analysis is an important component of developing deep behavioral insights—and institutions need to support this capability**

4: **Using a randomized controlled trial methodology to test impact and outcomes provides rigorous evidence to support business decisions**

1 Embedding behavioral principles into product design can trigger desired behaviors

There are many different components that combine to make a financial product successful. In the context of savings, three critical aspects of product design are take-up, usage and experience of use, and financial outcomes. Keeping the client experience in mind from the beginning of the product design process, as well as making careful use of appropriate behavioral levers, makes products more likely to succeed at all three.[5]

Integrating behavioral thinking into product design can require changes of process as well as new ways of thinking. Behavioral product design could draw new product ideas from behavioral insights, or it may mean relying on direct user testing and prototyping throughout the design process. Something as simple as mapping out a product experience from the consumer perspective (instead of the institution's perspective), often leads to a product that works better for clients. However, a full integration of behavioral design into an institution's processes will require that each decision made during the design process be made keeping end users in mind.

Careful behavioral diagnosis suggests which bottlenecks are preventing clients from attaining the desired behavior. In turn, each bottleneck comes with a set of levers that can inform the design of products and services. However, each specific context requires using different design elements to ensure the lever is successful in changing behavior.

The four main behavioral levers we used in the CARD Bank pilot (goal-setting, the feeling of having made a commitment, implementation intention, and personalization of the experience) are general tools used in behavioral economics but in this case, we used them in such a way as to relate directly to the specific context of CARD Bank and its clients. While they might work elsewhere they cannot simply be exported into other contexts and expected to succeed. It is important to see that similar behavioral problems exist before using these four interventions.

2 Focus on helping people take action rather than providing them with more information

It was clear from our qualitative research that CARD Bank clients are aware of how important and useful savings can be. Clients repeatedly explained why they wanted to save, why having savings—both informal and formal—is important, and what they would use savings for in the future. We would classify the behavioral challenge in this particular case as an "action problem", not a "decision problem": people were not following through with an intention, rather than failing to make a decision in the first place. Consequently, instead of designing our interventions with the goal to convince clients of the importance of savings, we focused our efforts on helping clients follow-through with intentions and desires to save.

Several initiatives in the global microfinance industry have targeted increasing knowledge of and improving attitudes towards savings. These efforts may be important among some communities. However, when working with populations that already have a general understanding and acceptance of the importance of savings, it is important to emphasize closing the intention-action gap by helping clients take specific actions towards savings goals. This project focused on savings, but this concept is more widely applicable in financial services for the poor and microfinance. The intention-action gap is present in areas such as low-repayment, selection of credit products, keeping cash flows separate, and collection of receivables. We should look closely for situations where the intention-action gap is at play, it is much more prevalent than we are aware, and we must realize that more information about what to do is not going to close the gap. Instead, we must focus on helping people to take the actions they want to take and that they themselves have identified as beneficial.

[5] Operational criteria such as regulatory requirements and avoidance of loss are important as well.

3 Rigorous data analysis is an important component of developing deep behavioral insights—and institutions need to support this capability

Qualitative research methods such as interviews and focus groups are good at generating *potential* client insights. However, these methods face two limitations. First, people's actions are not always representations of their intentions or desires. Second, people often do not notice the small situational factors that are driving their behavior. Quantitative analysis also can lead to the generation of insights about client behavior. It is also uniquely well suited to *testing* potential insights because it allows the aggregation of behavior into patterns that would be invisible at the level of the single user. However, it is important to recall that data analysis has limitations as a diagnostic tool. A focus only on currently-available data or data that we could gather will miss insights about private and unobservable mental processes. A combination of quantitative and qualitative methods provides to most comprehensive look at a given problem.

Institutions that focus on developing an internal capacity for data analysis will therefore be more successful at generating behavioral insights. A "client-centered" data infrastructure would attempt to gather as much data as possible on individual users and their behavior, and the architecture would allow easier integration of user data across different products or touchpoints. For example, many institutions' current data architecture allows the generation of reports on the level of individual branches, units, and products. It does not, however, allow institutions to analyze behavior on the level of an individual client. If institutions moved to a single relational database structure, it would allow them to "see" how an individual client uses and interacts with multiple accounts in their financial lives. This would also help ensure that identifiers are kept unique across all branches so that analysis can be conducted for several branches at once.

4 Using a randomized controlled trial methodology to test impact and outcomes provides rigorous evidence to support business decisions

Business decisions rely on strong evidence about the potential impact of different options. Will a new product or process be successful? Pilot periods are often used to investigate success from the perspective of implementation or process—can the new product be delivered at feasible cost? But end-user outcomes are also often important. Will a new product lead to higher balances? Will it compromise loan repayment rates? If we are interested in understanding how a new product affects the financial lives of clients, the most rigorous method to use is a randomized controlled trial (RCT).

In an RCT, we designate one group to receive the new product or service (the treatment), and compare them to another group which does not receive it. As long as the two groups were similar before the pilot began, we can attribute any difference in outcomes to the treatment itself rather than to chance. This rigorous approach to impact evaluation generates evidence that can support informed business decisions such as product rollout and market segmentation.

A common criticism of RCTs has been that they are costly and time consuming. We propose, based on our experience in the Philippines with CARD Bank, that "light touch" RCTs can be extremely helpful for institutions. Depending on the problem and available data, these RCTs can be executed in shorter time periods and often come with a more reasonable price tag. They can produce the rigorous data necessary to draw evidence-based conclusions about new products and services while not breaking the bank or taking too much staff time. We were not able to isolate each intervention to determine if the savings plan was more effective than the improved

new account opening form or the savings calendar or the SMS reminders. However, we were able to say, with a high level of certainty, that the intervention package (all four interventions together) were successful in improving savings behaviors. Moreover, because the four interventions we designed and implemented were not expensive or time consuming to create and implement, CARD Bank is able to make informed business decisions about future rollout and use.

Conclusion

Our pilot provides a strong case for applying behavioral economics in the financial inclusion space. A combination of rigorous data analysis and qualitative research methods led us to develop deep behavioral insights about client savings behaviors. The use of a randomized controlled trial allows us to test the impact and outcomes of the behavioral intervention package we designed to improve savings behaviors.

The large effects indicate that successful product design pays close attention to client psychology and that relatively small changes to existing products and process can have big impact. More specifically, our pilot suggests that the time of opening an account is a key moment to influence behavior, and that savings interventions can be personalized successfully at scale. Our intervention was a simple process and set of forms that could easily have been rolled out to all CARD Bank branches by training the account officers that would implement the process.

Our problem definition and diagnosis process led us to understand that the problem we faced was not a problem of intention. CARD Bank clients had *intentions* to save money for a variety of reasons and knew that saving is important, but CARD Bank savings initiatives and communications primarily highlighted opening an account as the important action to take. Persuading clients that saving is important would likely have had little effect.

We realized, instead, that a successful intervention had to find ways to close the gap between intention and action. Specifically, we linked the act of saving to the time of account opening. By using several behavioral levers in the design of specific interventions (such as goal setting and plan-making), we were able to close the intention-action gap for many CARD Bank savers. As a result, clients made better use of their financial products and began to build balances to meet their savings goals. In the end, clients began to realize their desired savings behaviors, which benefits CARD Bank by providing more financial resources to extend financial services to more clients.

Our intervention was successful because we were careful to distinguish between problems of decision and problems of action. Based on our diagnosis findings, we focused only on helping clients *take action*—rather than providing them with more information about beneficial behaviors—to close the intention-action gap. In this particular case we isolated a problem of taking action, but decision problems are prevalent in other contexts. While our specific findings can be useful for microsavings providers, our diagnosis process is broadly applicable to other ideas within financial services for the poor and can benefit both clients and financial service providers. Perhaps even more important is that this shows that behaviorally-informed design has the power to generate social impact at large scale.

We focused only on helping clients take action—rather than providing them with more information about beneficial behaviors—to close the intention-action gap.

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Technical Appendix

This technical appendix provides additional detail on the analysis reported in this white paper. The aim is to allow interested readers to fully understand the results of our pilot study while leaving the body of the paper comprehensible to a lay audience.

1. Data Sources. Our data for the analysis come from three sources. First, we use administrative data from CARD Bank on all transactions from June 1, 2013 through October 31, 2013, for every account opened in our three pilot branches. We also had reports listing account balances for our pilot branches from the same time period, generated weekly and on the last day of the month. Our third data source, collected by CARD Bank staff, lists new savings accounts opened during the pilot which received our treatment, allowing us to create a treatment indicator in our other datasets.

2. Descriptive Statistics of the Full Sample. We are able to compare our two groups on four characteristics: gender, marital status, CARD Bank membership status (i.e. whether they have taken a loan from CARD Bank), and date within the pilot on which the account was opened. We anticipated being able to infer age from the birthday variable in CARD Bank's transaction dataset, but this variable was unusable for most clients and we do not include it in our analysis.

2.1. Sample Characteristics. Table 1 reports the means of these variables by treatment status, as well as the p-values for a t-test. While the two groups were indistinguishable with respect to gender and marital status, we observed three problems. First, controls are more likely to be members of CARD Bank, meaning that they hold loans with the bank. Second, controls opened accounts later in the pilot. Third, the control group was more than twice as large as the treatment group, whereas our randomization should have produced a roughly equal number of subjects in each group.

Table 1: Randomization Check on the Full Sample[6]

	Control Group	Treatment Group	p-value for equality
% Male	0.08 (0.27)	0.09 (0.28)	0.47
% Married	0.83 (0.38)	0.82 (0.39)	0.46
% Single	0.13 (0.33)	0.15 (0.36)	0.13
% Widowed	0.05 (0.21)	0.04 (0.19)	0.25
% CARD Member	0.97 (0.18)	0.89 (0.31)	0.00
Day Opened	32.6 (12.1)	26.1 (21.4)	0.00
N	1856	858	

[6] Day Opened" variable reports days after pilot start that the account was opened. All tables reporting sample means (1, 2, 3, 5, 6, 7, 11, 13, 14 and 16) report standard deviations in parentheses.

2.2. Randomization. These three issues led us to conclude that we had seen a corruption of our randomization protocol. We learned that CARD Bank rolled out a new initiative in two of our pilot branches during the pilot period. CARD Bank loan-holders (members) were required to open new ATM accounts and their loan payments were disbursed directly into those accounts. We concluded that the members who were opening accounts due to the new initiative were being pushed towards the control group. As a result, causal inference of treatment effects in this full sample is compromised.

In two pilot branches, we isolated the exact date that the new initiative began. We separated a sub-sample consisting only of new accounts opened in those branches before the rollout date of the new initiative, so that the randomization would not plausibly be affected by the new initiative. Table 2 presents the background characteristics of the treatment and control groups in the sub-sample.

Table 2: Randomization Check for the Sub-Sample

	Control Group	Treatment Group	p-value for equality
% Male	0.12 (0.32)	0.10 (0.30)	0.52
% Married	0.84 (0.37)	0.77 (0.42)	0.03
% Single	0.10 (0.31)	0.17 (0.38)	0.02
% Widowed	0.05 (0.23)	0.06 (0.24)	0.75
% CARD Member	0.94 (0.24)	0.91 (0.28)	0.27
Day Opened	18.34 (6.7)	17.66 (7.5)	0.28
N	260	265	

The subsample does not face the same three issues observed with the full sample. While the control group has more married clients compared to a higher proportion of single clients in the treatment group, we have no reason to infer that this is due to anything other than sampling variation, and marital status was not correlated with any of our outcome variables. We therefore proceeded to perform analysis on this sub-sample.

3. Results. In the sections that follow, we show analysis for both the sub-sample and the full sample. We find qualitatively similar effects for both groups, but in the body of the paper we only present the results from the sub-sample. We focus on a few key outcomes: size of opening deposit, size and frequency of subsequent transactions, and final balance in the account.

3.1 Opening Deposit Size. Our treatment led significantly fewer clients to deposit the minimum amount when opening new accounts across both samples. However, we do not observe a difference in average opening deposit size between the treatment and control groups in either sample.

Table 3: Opening Deposit Size

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Made min. deposit	0.93 (0.25)	0.74 (0.44)	<0.01	0.93 (0.26)	0.80 (0.40)	<0.01
Deposit Size	648.08 (6302)	282.08 (1120)	.35	220.4 (2402)	324.9 (2030)	.27

We found a significant effect of the treatment on the logarithm of the opening deposit amount in both samples. We conclude that the effect of the treatment was to raise the average opening deposit by about 15% (= exp(.136)).

Table 4: Treatment Effect on Opening Deposit Amounts[7]

	Sub-Sample		Full Sample	
	Amount	Log Amount	Amount	Log Amount
Treatment	-464.3 (387.8)	.136** (0.0619)	-99.07 (107.2)	0.0777*** (0.0250)
Observations	525	525	2545	2545
Adjusted R^2	0.042	0.162	0.031	0.171

3.2 Transaction Activity. We aimed to help clients build savings habits so we analyzed the frequency and size of their transactions. We targeted increased frequency of deposit and therefore expected smaller deposits. We were agnostic about a desired direction in frequency and size of withdrawals.

We began by re-categorizing CARD Bank's 28 transaction types into 4 types for our analysis: account openings, user-initiated deposits (henceforth "deposits"), user-initiated withdrawals (henceforth "withdrawals"), and other transactions. This should allow us a more precise estimate of the effect of the treatment on user behavior, stripping away the noise due to interest postings, tax withholdings, etc.

3.2.1. Transaction Frequency. We found that treatment clients were more likely to ever initiate a transaction in their new account.

Table 5: Percent of Clients Who Initiated a Transaction in their Account after Opening it.

Sub-Sample			Full Sample		
Control	Treatment	p-value	Control	Treatment	p-value
0.22 (0.42)	0.43 (0.50)	0.00	0.26 (0.44)	0.45 (0.50)	0.00

[7] For all regression results reported in this Appendix (Tables 4, 8, 9, 10, 12 and 15), standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 10 has no additional controls. Tables 4 and 15 control for gender, marital status, membership status, and account opening date. Table 12 uses the same controls as Table 4 as well as account opening balance (raw or log-transformed, as appropriate). Tables 8 and 9 use the same controls as Table 12 as well as "days elapsed between account opening and transaction". Full results available on request.

We also found that treatment has the effect of prompting more frequent deposits and more frequent withdrawals. This is true in both samples.

Table 6: Average Number of Transactions per Client, by Type of Transaction and Treatment Status

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Deposits	0.40 (1.64)	1.11 (2.68)	0.00	0.22 (1.05)	1.00 (3.23)	0.00
Withdrawals	0.43 (1.28)	0.75 (1.56)	0.01	0.45 (1.33)	0.79 (1.61)	0.00
Other	1.63 (1.94)	2.04 (1.60)	0.01	1.64 (1.69)	2.45 (3.41)	0.00

We also calculated average deposit and withdrawal frequency for only those clients who had made at least one user-initiated transaction after opening to explore whether the treatment simply turned dormant clients into active clients or whether it also changed how active the active clients would be. The evidence is consistent that the treatment does not make active clients withdraw at a different frequency. However, the evidence is mixed about the effect on deposits.

Table 7: Transaction Frequency Among Clients with a Transaction after Account Opening

	Sub-sample			Full sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Deposits	1.83 (3.09)	2.57 (3.58)	0.18	0.86 (1.92)	2.25 (4.52)	0.00
Withdrawals	1.95 (2.11)	1.72 (1.99)	0.49	1.75 (2.14)	1.77 (2.03)	0.78
Others	3.77 (3.31)	3.02 (1.80)	0.052	3.17 (2.56)	3.83 (4.61)	0.01
N	58	115		484	383	

3.2.2. Transaction Size. We find that the treatment group transacts more frequently, so we might expect their transactions to be smaller on average—here we explore transaction size.

Deposits. Clients who received the treatment made smaller subsequent deposits than the control group in both samples no matter whether we measure deposit size in raw amount or logarithm.

Table 8: Treatment Effect on Deposit Size

	Sub-Sample		Full Sample	
	Amount	Log Amount	Amount	Log Amount
Treatment	-1373.0*** (306.3)	-0.824*** (0.131)	-620.6*** (158.3)	-0.307*** (0.0770)
Observations	401	401	1039	1039
Adjusted R^2	0.081	0.266	0.062	0.172

Withdrawals. Our treatment leads to smaller average withdrawals in both samples.

Table 9: Treatment Effect on Withdrawal Size

	Sub-Sample		Full Sample	
	Transaction Amount	Log of Transaction	Transaction Amount	Log of Transaction
Treatment	-857.9* (449.9)	-0.474*** (0.150)	-943.5*** (226.4)	-0.335*** (0.0721)
Observations	311	311	1382	1381
Adjusted R^2	0.342	0.157	0.124	0.104

3.2.3. Relationship between transaction frequency and transaction size. In Sections 3.3.1 and 3.3.2, we saw that the treatment led to more frequent transactions and smaller transactions. In this section we directly explore the relationship between transaction frequency, transaction size, and treatment status. More frequent deposits are associated with smaller deposits only weakly, at best. Frequent withdrawals are associated with smaller withdrawals with more confidence.

Table 10: Effects of Treatment and Transaction Frequency on Transaction Size; Only those Clients with a User-Initiated Transaction after Opening

	Sub-Sample		Full Sample	
	Deposit Size	Withdrawal Size	Deposit Size	Withdrawal Size
Number of deposits/ withdrawals Treatment	-117.4 (81.89)	-217.8 (148.2)	-44.63* (23.05)	-293.9*** (71.91)
Observations Adjusted R^2	-1672.7** (660.2) 99 0.067	-1589.2** (624.7) 127 0.047	-437.9* (243.8) 431 0.018	-1185.5*** (308.4) 658 0.045

3.3. Account Balances. Ultimately the purpose of our intervention was to increase client balances. We investigate client balances at the end of the analysis period (roughly four months after the account was opened). We proceed to explore the likelihood that clients grew their balances at all and if so, by how much.

3.3.1. Final Balance At the end of the pilot the treatment group had higher balances on average than the control group in both samples. The difference was only statistically significant in the full sample.

Table 11: Final Balances

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Final Balance	342 (1411)	491 (1181)	.19	298 (1365)	536 (1779)	0.000

In both samples, the treatment effect on final balance is not statistically significant, however we found that the treatment led to higher log-transformed balances in both samples with high statistical significance. We estimate that the effect of the treatment is to raise final balances by between 21% (full sample) and 37% (sub-sample).

Table 12: Treatment Effect on Final Balance

	Sub-Sample		Full Sample	
	Final Balance	Log of Final Balance	Final Balance	Log of Final Balance
Treatment	117.7 (111.9)	0.313*** (0.0683)	103.6 (64.45)	0.189*** (0.0310)
Observations Adjusted R^2	525 0.046	525 0.335	2679 0.044	2677 0.311

3.3.2. Likelihood of Balance Change. We investigated the likelihood that a client in either group would have a higher or lower balance at the end of the pilot, compared to their opening balance. Our treatment led clients to be more likely to grow their balances.

Table 13: Likelihood of Balance Change

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Shrank	0.03 (0.18)	0.05 (0.22)	0.31	0.02 (0.15)	0.05 (0.21)	0.001
No change	0.76 (0.43)	0.50 (0.50)	0.00 0.70	0.70 (0.46)	0.48 (0.50)	0.00
Grew	0.21 (0.41)	0.45 (0.50)	0.00	0.28 (0.45)	0.48 (0.50)	0.00

3.3.3. Size of Balance Change. Above, we show that the treatment caused higher opening balances (Section 3.1) and also higher final balances (Section 3.3.1.). In this section we explore whether the treatment caused clients to grow their balance by more, over the course of the pilot, compared to the control. In both samples the treatment group has a higher average balance change, but the difference was not statistically significant. Winsorizing the change in balance at the 99% level—controlling for outliers by bringing values above the 99th percentile down to the 99th percentile, and likewise for the 1st percentile—showed a statistically significant effect of the treatment in both samples.

Table 14: Size of Balance Change

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Balance Change	-307 (6378)	209 (1488)	.20	78 (2696)	212 (2596)	.23
Winsorized at 99%	10 (1015)	247 (1014)	.007	82 (344)	252 (946)	0.000
Winsorized at 95%	42 (112)	219 (532)	0.000	41 (99)	198 (479)	0.00

We winsorized separately for each combination of treatment status and sample.

Regressing Balance Change. Our regression analysis found that, controlling for baseline characteristics, the treatment had an effect on the average of the winsorized balance changes.

Table 15: Treatment Effect on Change in Balance

	Sub-Sample		Full Sample	
	Balance Change	Winsorized at 99%	Balance Change	Winsorized at 99%
Treatment Effect	578.2 (400.5)	228.5** (88.67)	190.2 (115.8)	117.2*** (26.01)
Observations	525	525	2679	2679
Adjusted R^2	0.026	0.023	0.005	0.042

We investigated the effect of the treatment on only those who grew their balance at all. Winsorizing at 95% shows a significant treatment effect in both samples, but winsorizing at 99% shows a significant effect only in the full sample. These results suggest that the treatment led to higher balance growth.

Table16: Balance Change among Those with Any Growth in Balance

	Sub-Sample			Full Sample		
	Control	Treatment	p-value	Control	Treatment	p-value
Balance Change	867 (2553)	697 (1460)	.58	596 (2302)	749 (2373)	.32
Winsorized at 99%	554 (1103)	662 (1271)	.59	305 (600)	599 (1242)	0.00
Winsorized at 95%	201 (168)	489 (707)	.004	150 (138)	417 (625)	0.00
N	54	119		503	407	