

SMS MESSAGES FOR FINANCIAL INCLUSION IN THE DOMINICAN REPUBLIC



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ABOUT THE MULTILATERAL INVESTMENT FUND

The Multilateral Investment Fund (MIF) is the innovation lab for the Inter-American Development Bank Group. It conducts high-risk experiments to test new models for engaging and inspiring the private sector to solve economic development problems in Latin America and the Caribbean. The MIF addresses poverty and vulnerability by focusing on emerging businesses and smallholder farmers with the capacity to grow and create economic opportunities.

ABOUT THE REMITTANCES AND SAVINGS PROGRAM

This report was commissioned by the MIF's Remittances and Savings Program. The objective of this regional initiative is to contribute to the reduction of household vulnerability in Latin America and the Caribbean through the design and distribution of financial products and services adapted to the needs and preferences of remittance clients. To this end, the program provides technical support to a variety of financial institutions and commissions studies to generate and disseminate information on best practices and successful models for the financial inclusion of remittance clients. The program is supported by the MIF and the Government of Australia.

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INTRODUCTION

Using SMS Messages to Promote Savings among Remittance Clients in the Dominican Republic

Bank accounts can provide a secure way for low-income households to build their assets to make large investments or protect themselves against unforeseen expenses. Yet many poor households don't use formal financial services. In the Dominican Republic, Banco Unión delivers remittances to approximately 400,000 clients who do not have a formal bank account. The bank also created two savings products tailored to the needs of these clients. In partnership with the Inter-American Development Bank (IDB) and Innovations for Poverty Action (IPA), Banco Unión developed SMS message campaigns to try to boost account uptake and usage among its remittance-receiving clientele. Two randomized evaluations found that the messaging campaigns did not increase clients' use of formal bank accounts, and may have in fact discouraged account holders' engagement with Banco Unión, as observed through decreased deposit and withdrawal activity and slightly lower balances by the end of the campaigns. There are several possible explanations for this behavior, including a desire for privacy, savings goals that were overly ambitious, or the use of other, unmonitored deposit products.

REMITTANCES AND SAVINGS IN THE DOMINICAN REPUBLIC

International remittances have long been a staple of national income for the Dominican Republic. In 2015, over US\$4.9 billion was sent from abroad, an 8.5 percent increase from the prior year and the highest growth rate for remittances in the region. At over 7 percent of GDP, these transfers are an important

¹ Por ejemplo ver: CPMI-BIS, World Bank, "Payment Aspects of Financial Inclusion", April, 2016; También ver WB, BTCA, AFI, "Innovative Digital Payment Mechanisms: Supporting Financial Inclusion Stocktaking Report", for GPFI, 2015.

² World Bank, "Digital Payments Crucial To Economic Growth", 2014. Traducción libre.

source of foreign exchange. They are also important for a recipient household: incoming remittances constitute 14 percent of a recipient's monthly income on average.

Despite the prominent place of remittances for Dominicans, just half of recipient households have a bank account they can use to store the inflows and build reserves.¹ To increase remittance recipients' engagement with formal financial institutions and encourage them to save, IPA partnered with Banco Unión to launch two evaluations of programs utilizing SMS messages to encourage uptake and usage of remittance-linked accounts.

BANCO UNIÓN

Banco de Ahorro y Crédito Unión (Banco Unión) is a for-profit savings and credit institution formed in 2008; its owners and shareholders include the founders of the international remittance company Quisqueyana Remittances. Its stated mission is to provide financial products that help improve quality of life for the Dominican emigrant and his or her family.

Today, Banco Unión delivers over 200,000 remittances per month. About 80 percent of these remittances are delivered to recipients directly at their households; most of the remaining 20 percent are picked up at one of Banco Unión's six bank branches (three in Santo Domingo, and one each in Santiago, San Pedro de Macorís and Moca). Notably, one does not need an account with the bank to be able to receive remittances at home. This provides a clear onramp to financial inclusion for people who previously have had no contact with formal financial institutions.

SAVINGS ACCOUNTS

In 2013, Banco Unión partnered with the Inter-American Development Bank's (IDB) Multilateral Investment Fund (MIF) to develop products tailored to the needs of its remittance recipients. They include, among others:

1. **Cuenta Con Ella**, a transactional account which can serve as a location for direct deposits for incoming remittances. It features low monthly interest and no monthly fees or minimum balance.
2. **Cuenta Clavo**, an account designed for low-balance saving in the short, medium, or long term, with a moderate interest rate, no monthly fees or minimum balance, and the ability to schedule regular transfers from a linked Cuenta Con Ella account.
3. **Financial education videos**: Banco Unión created a YouTube channel with five videos covering basic concepts in budgeting, saving, debt, and insurance.

Early usage of the accounts was relatively robust, with about 75% of balances showing at least US\$1 in 2014. Even so, there was concern that the accounts would not be regarded as a valid savings mechanism, so Banco Unión was interested in nudging clients to increase their savings balances.

¹ <http://www.cemla.org/PDF/remesaseinclusion/2015-09-migracion-remesas-inclusion-RD.pdf>

SMS AS A TOOL FOR FINANCIAL BEHAVIOR CHANGE

The central mechanism behind an SMS is its ability to draw attention. Making a deposit or a loan payment may not be top-of-mind for low-income clients who find it challenging to cover multiple demands on their money. Clients may wish to save more than they do if they forget to deposit, remember at inopportune moments, or forget the importance they place on saving. By making the act of saving more salient, SMS can help clients prioritize both short- and long-term financial needs.

There is evidence from several countries that SMS messages can be effective in this regard. In a pilot study, savings clients in the Philippines, Peru, and Bolivia increased their savings by 6 percent when they received messages reminding them to save. In Peru, savings increased by 16 percent when the texts reminded savers of a specific goal.² A study with a bank in Uganda found that a monthly SMS sent to micro borrowers before the repayment date resulted in a 7-9 percent increase in the probability of paying off the loan on time.³ Two banks in the Philippines sent SMS payment reminders to its loan clients. The SMS were only effective when they included the loan officer's name. Those messages reduced unpaid loans by 5.5 percentage points—a 41 percent reduction from baseline levels.⁴

These early studies provided a compelling proof-of-concept; however, there existed deeper questions about how SMS could best be used to encourage savings by varying the content, timing, and frequency of the SMS. To answer these questions, since 2014 IPA has deployed studies in multiple contexts to further explore how SMS can be used to that end. This site comprises one of five; the others are Peru, the Philippines, Ghana, and Colombia. A publication summarizing findings from all sites is forthcoming at the time of writing.

RESEARCH DESIGN

To discover how a campaign of regular SMS messages could best encourage adoption and usage of Cuenta Con Ella and Cuenta Clavo accounts, we collaboratively designed two randomized controlled trials, utilizing SMS campaigns sent to clients as the main intervention.

In a randomized controlled trial, a sample of clients is *randomly* assigned to two groups: a treatment group who receives an intervention (in this case, the SMS campaign), and a comparison group who does not. Because the two groups are statistically equivalent, researchers can compare outcomes such as deposit amounts and be confident that any difference between these groups is due to the intervention itself. In other words, researchers can identify the *causal impact* of the intervention.

In each trial, clients received one SMS message per month for the duration of the campaign. Each client received the same message every month.

² Karlan, D., McConnell, M., Mullainathan, S. and Zinman, J., 2016. Getting to the top of mind: How reminders increase saving. *Management Science*. Available at <http://pubsonline.informs.org/doi/abs/10.1287/mnsc.2015.2296>.

³ Cadena, X. and A. Schoar., 2011. "Remembering to Pay? Reminders vs. Financial Incentives for Loan Payments." NBER Working Paper no. 17020. Available at <http://www.nber.org/papers/w17020>.

⁴ Karlan, D., Morten, M., & Zinman, J., 2016. A personal touch in text messaging can improve microloan repayment. *Behavioral Science & Policy*, 1(2), pp. 25–31. Available at https://behavioralpolicy.org/wp-content/uploads/2016/1-2/BSP_vol1no2_Karlan_final.pdf

STUDY 1

MESSAGES INTENDED TO ENCOURAGE ACCOUNT ADOPTION

This campaign focused on the 80 percent of clients who currently receive their remittances through home delivery without a corresponding bank account. The campaigns provided information about the accounts and similar services through a monthly SMS message.

SAMPLE SELECTION

The sample was selected from clients who met the following criteria:

- Have received at least one remittance in the two months prior to the campaign start date
- Did not have a deposit account with Banco Unión
- Did not have an active loan with Banco Unión, although they may have had a prior loan that had been fully repaid
- Had a verified mobile phone number on a compatible network
- Received their remittances via one of the six branches of Banco Unión, as opposed to the smaller offices meant for remittance disbursement only

Using these criteria, we selected 73,209 clients to participate in this campaign. We reserved one group of 6,062 clients for the comparison group, who did not receive any SMS messages over the period. We randomly assigned the other 66,747 clients to receive one SMS message monthly out of the messages described below.

VARIATIONS IN SMS MESSAGE CONTENT

We randomly varied the content of the SMS messages to uncover the most effective motivators for encouraging clients to open an account. We deconstructed the messages into 3 core components:

Introduction + Core Content + Ending.

Introduction: Personalized or Generic

Studies in similar contexts have found that personalized messages capture the attention of the client.⁵ To test the concept in this setting, we varied the introduction between a generic ending—“Dear client”—and a personalized one—“Hi [first name]”.

Core Content: Thematic Content Variations

We assessed 11 different messages in three thematic areas: generic “financial education” messages based on Banco Unión’s series of online videos; information about various features of Banco Unión’s products, and savings “rules of thumb” (easy-to-remember heuristics meant to encourage savings). The specific messages are in the table below.

Framing: For each message, we created two different frames: an *inquisitive* frame to encourage reflection and interactivity, and a *declarative* frame, which presented the same content in a straightforward manner.

	Description	“Inquisitive” Framing	“Declarative” Framing
Theme A: Financial Education			
1	Focus on Saving (1)	<i>What’s a Clavo? It’s a portion of your funds that are set aside “just in case.”</i>	<i>A Clavo is a portion of your funds that are set aside “just in case.”</i>
2	Focus on Saving (2)	<i>Did you know: to help save, you should set aside funds to save before making expenses?</i>	<i>To help save, you should set aside funds to save before making expenses.</i>
3	Focus on Saving (3)	<i>Did you know: to help save, you should avoid tempting but unnecessary purchases?</i>	<i>To help save, you should avoid tempting but unnecessary purchases.</i>
Theme B: Banco Unión Product Information			
4	Focus on Cuenta Con Ella – Benefits (1)	<i>What is Cuenta Con Ella? It’s a simple account that provides a secure place to store your remittances.</i>	<i>Cuenta Con Ella is a simple account that provides a secure place to store your remittances.</i>
5	Focus on Cuenta Con Ella – Benefits (2)	<i>What is Cuenta Con Ella? It’s a convenient account that lets you directly deposit your remittance.</i>	<i>Cuenta Con Ella is a convenient account that lets you directly deposit your remittance.</i>

(continues on next page)

⁵ Karlan, Morten, and Zinman, op. cit.; also see Service, Owain et al., 2014. “EAST: Four Simple Ways to Apply Behavioural Insights.” Available at: <http://www.behaviouralinsights.co.uk/publications/east-four-simple-ways-to-apply-behavioural-insights/>

(continued from previous page)

Theme B: Banco Unión Product Information (continued)			
6	Focus on Cuenta Con Ella – Benefits (3)	<i>Did you know that after 3 months with your Cuenta con Ella you can request a loan?</i>	<i>With Cuenta con Ella, after 3 months you can request a loan.</i>
7	Focus on Cuenta Con Ella – Procedures (1)	<i>What do you need to open a Cuenta con Ella? Only your ID number!</i>	<i>To open a Cuenta con Ella, you only need your ID number!</i>
8	Focus on Cuenta Con Ella – Procedures (2)	<i>How secure is the Cuenta con Ella? Only you can withdraw funds.</i>	<i>Cuenta con Ella is very secure. Only you can withdraw funds.</i>
9	Focus on tPago	<i>What is tPago? It's a digital banking tool that links your bills, loans and cards to your phone, so you can transact quickly and safely.</i>	<i>tPago is a digital banking tool that links your bills, loans and cards to your phone, so you can transact quickly and safely.</i>
Theme C: Savings Rules of Thumb			
10	Spend Only What You Need	When you get a remittance, do you spend it all at once or save what you don't need?	When you get a remittance, try to save what you don't need instead of spending all at once.
11	Plan for the Future	Do you dream of a better future for you and yours? Prepare yourself by building up your savings to secure your dreams.	Dream of a better future for you and yours. Prepare yourself by building up your savings to secure your dreams.

Message Ending: Action Orientation

We also varied the way the message ended. Half of clients received a simple slogan: "Banco Union, the bank at your home." The other half received a more action-oriented sentence: "Visit a Banco Union branch to find out more!"⁶

OTHER VARIATIONS IN MESSAGE DELIVERY

Duration. We varied whether the client would receive monthly SMS messages for 4, 5, or 6 months to determine whether more reminders were more effective at encouraging account adoption. Due to technical limitations, we were not able to test timing features such as day-of-week or time-of-day. The bank's SMS service provider, BeMobile, did not have advance scheduling capabilities.

⁶ The SMS platform we utilized did not allow for diacritical marks, so Banco Unión became Banco Union in all correspondence.

TABLE OF ALL SMS MESSAGE VARIATIONS: STUDY 1

Content	Personalization	Action Orientation	Duration
<i>Approx. 6,070 each</i>	<i>Approx. 33,375 each</i>	<i>Approx. 33,375 each</i>	<i>Approx. 22,250 each</i>
1. Financial Education: Focus on Saving (1) 2. Financial Education: Focus on Saving (2) 3. Financial Education: Focus on Saving (3) 4. Focus on Cuenta Con Ella: Benefits (1) 5. Focus on Cuenta Con Ella: Benefits (2) 6. Focus on Cuenta Con Ella: Benefits (3) 7. Focus on Cuenta Con Ella: Procedures (1) 8. Focus on Cuenta Con Ella: Procedures (2) 9. Focus on tPago 10. Spend only what you need 11. Plan for the future	<i>Beginning of message:</i> i. "Dear [Client Name]," ii. "Dear client,"	<i>End of message:</i> i. "Banco Union, the bank at your home." ii. "Visit a Banco Union branch to find out more!"	i. Client receives 4 monthly SMS messages ii. Client receives 5 monthly SMS messages iii. Client receives 6 monthly SMS messages
12. Control	<i>(control group receives no SMS messages)</i>		

STUDY IMPLEMENTATION

The SMS campaigns occurred between July and November 2015, spaced approximately four weeks apart, with the last SMS messages sent just before Christmas. Banco Unión staff coordinated with BeMobile to transmit the campaigns on a single day each month. BeMobile, in turn, reported delivery status back to Banco Unión and IPA.

Round	Date Sent	Number of Clients	Success Rate ⁷
1	Tuesday, July 7, 2015	66,747	99.98%
2	Saturday, Aug 8, 2015	66,747	99.99%
3	Tuesday, Sep 1 & Monday, Sep 7, 2015 ⁸	66,747	99.99%
4	Monday, Sep 28, 2015	66,747	100%
5	Tuesday, Oct 27, 2015	44,522	100%
6	Monday, Nov 30, 2015	22,225	99.99%

⁷ "Success" in this case means the SMS was successfully sent to the network and was not returned as undeliverable. We were not able to tell if 1) the SMS was actually delivered to the phone (e.g., if the phone was turned off for several days, the SMS would not have been deliverable), or 2) the client read the message.

⁸ Technical issues with one of the telecoms forced a delay for certain recipients.

All rounds had 99.99% success rate or higher. “Success” means the message was successfully sent to the network and was not returned as undeliverable. We were not able to tell if 1) the SMS message was delivered to the phone (e.g., if the phone was turned off for several days, the SMS message would not have been delivered), or 2) the client read the message.

RESULTS

The bank monitored which of the clients in the sample opened accounts with the bank. The bank was only able to detect 197 new accounts in this group of clients, a take-up rate of 0.27%. Regression analysis along all treatment conditions confirms that the SMS campaigns had no impact on account openings.

DISCUSSION

The SMS campaigns did not increase account take-up among this clientele. This may have been due to the targeting of the SMS: the campaign was rolled out well after an initial marketing campaign had already targeted this population, so those left without accounts were those least likely to want to open them.

We can also consider that the SMS failed to suggest a value for the accounts that was attractive enough to motivate clients to open an account. Perhaps if the SMS contents varied and communicated multiple benefits of the account to the same client, we would have observed a higher rate of account opening.

STUDY 2

MESSAGES INTENDED TO BOOST ACCOUNT USAGE

By June 2015, Banco Unión had already recruited over 2,000 clients to open new Cuenta Con Ella and Cuenta Clavo accounts. We worked with the bank to design a single SMS campaign to send to half of this group of new clients to encourage building savings balances through pursuit of a specific goal.

SURVEY OF SAVINGS GOALS

Banco Unión implemented a brief phone survey to learn about savings goals that its new clients had. The bank then used this information to personalize the SMS messages.

The bank attempted to reach 2,147 clients and ultimately reached 540 after three attempts. The highest number of clients wanted to buy a house, save for emergencies, or save for a vehicle. The median savings goal was RD\$200,000 (approx. US\$4,555).

The wording and responses of the questions were as follows.

QUESTION: “Do you have any savings goal, or something special that you want to achieve this year or in the next few years?”

Category	%
Purchase a home	28.2%
Emergency or contingency fund	20.2%
Purchase a vehicle	16.9%
Start a business	10.4%
Home improvement	9.4%
Invest in business	4.3%
Vacation-Wedding-Party-Funeral	3.0%
Education	2.6%
Other	5.0%
Total	100%

n = 531

QUESTION: “Tell us, then, the total amount you need to save to reach that goal.”

	Females	Males	Total
RD\$1-RD\$25,000	12%	7%	10%
RD\$25,000-RD\$50,000	6%	9%	7%
RD\$50,000-RD\$75,000	12%	9%	11%
RD\$75,000-RD\$100,000	2%	3%	3%
RD\$100,000-RD\$150,000	12%	9%	10%
RD\$150,000-RD\$200,000	5%	8%	6%
RD\$200,000-RD\$500,000	31%	35%	33%
RD\$500,000+	19%	20%	19%
Grand Total	100%	100%	100%

n = 539 (307 females, 232 males)

ANALYSIS OF SURVEY COMPLETION

We examined which characteristics were associated with survey completion to document potential bias in the results. Clients in San Cristobal, San Pedro de Macoris, or Santo Domingo provinces were more likely to complete the survey than those in the capital district or Santiago province (29 percent vs. 22 percent likely, $p < .01$). However, account balance, age, and gender did not differ between those who completed the survey and those who did not.

To distinguish the potential impact of observables on study outcomes, we independently stratify treatment assignment by gender, age, account balance, geographic area, and survey completion.

SAMPLE SELECTION

The study included clients who met the following criteria:

- Had a savings account with Banco Unión and had received a remittance directly into the account
- Did not have an active loan with Banco Unión, although they may have had a prior loan that had been fully repaid
- Had a verified mobile phone number on a compatible network
- Did not have an account balance in the highest 5%

The final study included 2,087 clients. Because Study 1 focused on unbanked clients and Study 2 focused solely on banked clients, there was no overlap in the study samples.

VARIATIONS IN SMS MESSAGE CONTENT

Introduction: Personalized or Generic

As in Study 1, we randomly varied the introduction between a generic ending — “Dear client”—and a personalized one — “Hi [first name]”.

Core Content

Due to the relatively small sample size, we were only able to test one type of message. Since we had data on clients’ savings goals, we suggested a focus on goal attainment. We had previously tested a goal-oriented message in the Philippines, but the message generically referred to a “savings goal” because we did not have such personalized data. By employing it in this context as well, we could hazard a guess as to the relative effectiveness of including personal goal information in the message.

For those who completed the baseline survey, we personalized the message to include the type of goal and monthly savings amount they had specified. For those who did not complete the survey, including those who could not be reached, the first SMS asked them to think about a savings goal and how much they could save monthly to achieve it (no replies were requested, so this was a rhetorical question). Subsequent messages reminded clients to save towards their goal.

	Content
For those who responded to the survey:	<i>A friendly reminder from Banco Union: don't forget to save for your goal of \$[GOAL AMT] for [GOAL CATEGORY]! Banco Union, the bank at your home.</i>
For those who didn't respond to the survey:	First message: <i>A friendly message from Banco Union: Do you have a savings goal? What is it for? How much can you save towards it per month? Banco Union, the bank at your home.</i>
	Subsequent messages: <i>A friendly message from Banco Union: don't forget to save to reach your goals and dreams! Banco Union, the bank at your home.</i>

We randomly assigned half of the group (1,027 clients) to a comparison group which received no messages.

TABLE OF ALL SMS VARIATIONS: STUDY 2

Content	Personalization
<i>Approx. 1,066 clients</i>	<i>Approx. 533 each</i>
1. Goal-oriented message	<i>Beginning of message:</i> i. "Dear [Client Name]," ii. "Dear client,"
2. Control	<i>(control group receives no SMS messages)</i>

STUDY IMPLEMENTATION

The SMS campaigns occurred between July 2015 and February 2016, spaced approximately 4 weeks apart. Banco Unión staff coordinated with BeMobile to transmit the campaigns on a single day each month. BeMobile, in turn, reported delivery status back to Banco Unión and IPA.

Round	Date Sent	Number of Clients	Success Rate
1	Friday, July 31, 2015	1,063	100%
2	Friday, Aug 28 & Monday, Sep 7, 2015 ⁹	1,063	100%
3	Friday, Sep 25 & Monday, Sep 28, 2015 ¹⁰	1,063	100%
4	Monday, Oct 26, 2015	1,063	100%
5	Wednesday, Nov 25, 2015	1,063	100%
6	Monday, Dec 21, 2015	1,063	100%
7	Tuesday, Jan 26, 2016	1,063	100%
8	Thursday, Feb 25, 2016	1,063	100%

DATA ANALYSIS

Using anonymized transaction data from June 2015 to April 2016, we analyzed whether the messages affected clients' transactions and deposits. Transactions that clients did not initiate, such as interest payments or automatic fees, were excluded. We calculated each measure in the following table three times: once for deposits, once for withdrawals, and once for deposits and withdrawals.

⁹ As with Study 1, technical issues with one of the telecoms incurred a delay for 18 percent of recipients.

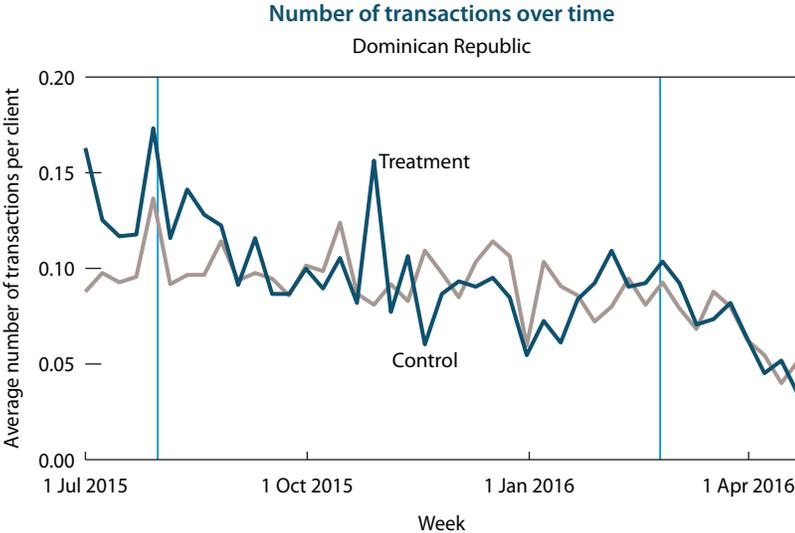
¹⁰ Technical issues with one of the telecoms incurred a delay for 49 percent of recipients.

Outcome	Description	Broken down by transaction types:	Broken down by time periods:
Transacted	1 if the client made any relevant transactions in the time period, 0 otherwise	<ul style="list-style-type: none"> All transactions Deposits Withdrawals 	<ul style="list-style-type: none"> Pre/post treatment 28-day window¹¹
Amount of transactions	Total of the amount of relevant transactions in the time period; converted to \$US and winsorized at 99% and 95%	<ul style="list-style-type: none"> All transactions Deposits Withdrawals 	<ul style="list-style-type: none"> Pre/post treatment 28-day window
Net deposits	Total deposits minus total withdrawals over the time period; converted to \$US and winsorized at 99% and 95%	<ul style="list-style-type: none"> All transactions 	<ul style="list-style-type: none"> Pre/post treatment 28-day window
Number of transactions	The number of relevant transactions in the time period (untransformed)	<ul style="list-style-type: none"> All transactions Deposits Withdrawals 	<ul style="list-style-type: none"> Pre/post treatment 28-day window

RESULTS

Account activity was generally low: 21 percent of clients made a transaction after the SMS campaigns began. As Figure 1 illustrates, transaction activity fell over time.

FIGURE 1. Transaction activity declines over time. The red lines indicate when SMS began and ended.



¹¹The 28-day window is a time period for analysis across all related messaging sites and corresponds with a 4-week SMS cycle followed by most sites. The first window begins when the first SMS is sent, and extends forward and backward in time in 28-day intervals from there. Since all Banco Unión clients in the treatment group received SMS on the same day, we were able to calculate windows for the comparison group as well based on the same intervals.

FIGURE 2. Volume of deposits over time. Deposit volume was volatile but declined over time. Graph includes all clients, whether or not they deposited. Among clients that made at least one deposit, 232 were in the treatment group, and 217 were in the control group. The vertical lines represent when the SMS began and ended, respectively.

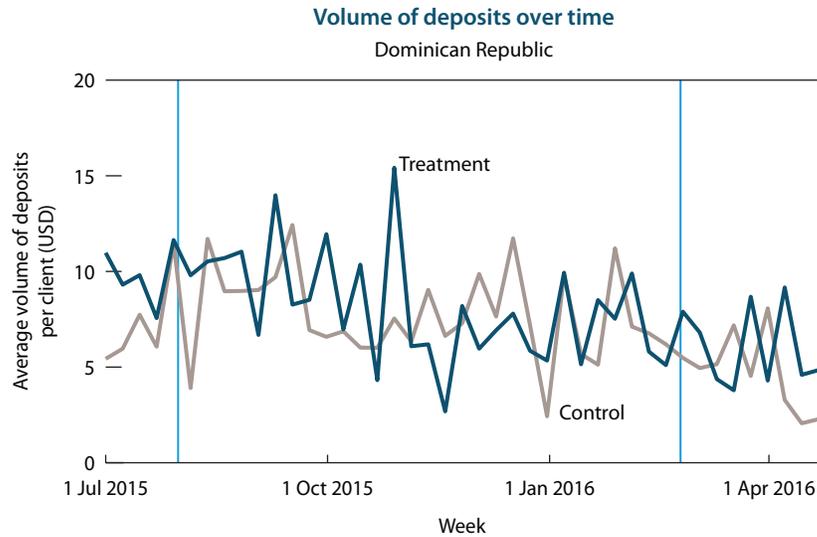
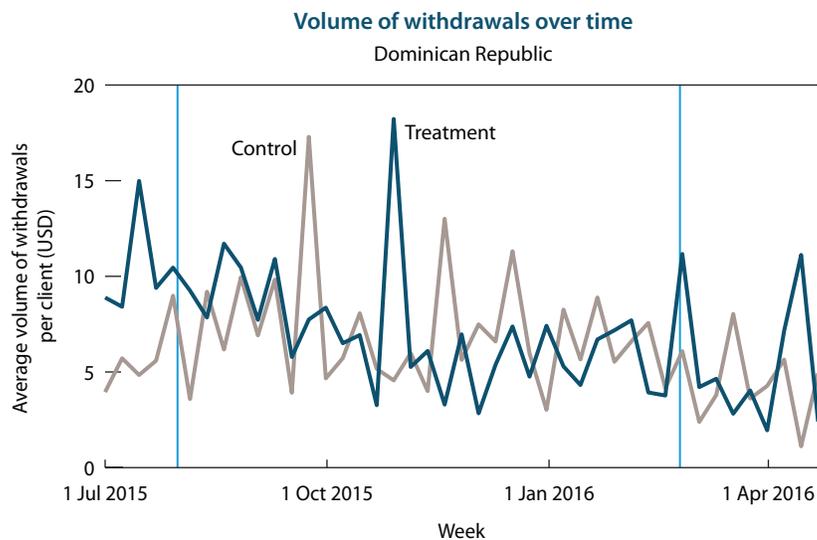


FIGURE 3. Volume of withdrawals over time. Withdrawal activity was also volatile and declined over time. Graph includes all clients, whether or not they withdrew. Among clients that made at least one withdrawal, 238 were in the treatment group, and 203 were in the control group. The vertical lines represent when the SMS began and ended, respectively.



We used regression analysis to identify the causal impact of SMS on client transactions and savings.¹² It appears that the SMS messages led clients to transact less within a given 4-week window than the comparison group. Our most conservative estimate shows that clients who received messages had a US\$13.91 lower transaction volume within a four-week period, on average, on a base of \$41.45, representing a 33 percent decline. Clients were also about 25 percent less likely to make a transaction in the same period (a reduction of about 1.5 percentage points from a base of 7 percent). This decline in both number and volume of transactions was split evenly across deposits and withdrawals, so the overall change in balance was not detectable within a 4-week window.

Looking at activity over the entire period after the SMS campaign began, the outcomes change slightly. By pooling the variation that naturally occurs in a short period, many of the impacts lose their significance. For example, clients that received the SMS messages are no less likely to transact, and they have no smaller transaction volume, than clients who did not receive the messages.

Outcome	Time Period: 4-week window (panel)			Time Period: Entire post-SMS period		
	All transactions	All deposits	All withdrawals	All transactions	All deposits	All withdrawals
Transacted	-0.0156** (0.00657) <i>0.0745</i>	-0.0143** (0.00655) <i>0.0734</i>	-0.0136** (0.00621) <i>0.0683</i>	0.0181 (0.0169) <i>0.193</i>	0.0194 (0.0164) <i>0.180</i>	0.00381 (0.0167) <i>0.192</i>
Amount of transactions	-13.91** (5.861) <i>41.45</i>	-6.553* (3.394) <i>24.18</i>	-6.146* (3.237) <i>21.41</i>	-25.78 (70.03) <i>477.2</i>	-10.93 (40.38) <i>227.8</i>	-10.19 (35.80) <i>262.5</i>
Net deposits	-0.000452 (0.00363) <i>0.0179</i>			-0.653** (0.311) <i>-0.850</i>		
Number of transactions	-0.0688 (0.0587) <i>0.335</i>	-0.0389** (0.0187) <i>0.161</i>	-0.0253 (0.0457) <i>0.187</i>	0.0842 (0.644) <i>3.352</i>	-0.0918 (0.245) <i>1.872</i>	0.176 (0.455) <i>1.608</i>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Control group mean in italics. Amounts are in USD.

Having completed the survey and receiving subsequent SMS tailored to the client's own savings goal made clients even more likely to draw down their account. Clients who both completed the survey and were assigned to receive SMS messages had US\$1.75 less in their accounts after eight months than the control group did.

¹² We used OLS regression for outcomes measured over the whole post-treatment period. We used random effects GSE regressions, with standard errors clustered at the client level, to measure impact at the person-window level (i.e., outcomes within each 28-day window).

DISCUSSION

Why did SMS messages that reminded people to save towards a goal seemingly backfire? The answer is not immediately apparent. This is the only study we are aware of where the reminders have significantly decreased transaction activity and account balances; other studies have either shown a positive impact or none at all.¹³

Because the content did not vary, we cannot say for sure whether it was the SMS itself or the specific text that changed clients' behavior. For example, perhaps clients receiving an SMS from the bank interpreted this as the bank's effort to cultivate a close relationship that the client did not want, and so clients found this annoying. Fraud has been an issue in the banking sector in the Dominican Republic, and therefore clients may be fearful that a bank that wishes to communicate with them would do more harm than good, even though Banco Unión does not fit this profile.

Perhaps the content of the SMS discouraged saving by reminding clients of a goal that seemed out of reach. There is some evidence from other domains that the size of a goal matters greatly: goals that seem out of reach can have a discouraging effect.¹⁴ Those who completed the survey, and therefore set a goal, were more affected by the messages per our analysis. The median monthly savings goal was RD\$2,500 (US\$57), with some as high as RD\$33,333 (US\$705). Although the phone survey staff was instructed to encourage reasonable monthly savings goals, perhaps clients were overly optimistic during the survey and were later discouraged by a monthly "price tag" that seemed too high.

On the other hand, it is also possible that the SMS were effective, and clients used a vehicle outside of the bank to pursue their goals, such as through a loan or a savings account at another institution. Focus group discussions revealed that it was common for clients to hold accounts in multiple institutions, as they met different needs. (Banco Unión has positioned itself as a bank for remittances and does not have as wide a footprint as do larger, national banks.) Perhaps clients, in being encouraged to save for a goal, decided to do so in another account using funds normally reserved for the Banco Unión account.¹⁵

Future research by the bank could explore the truth behind the possibilities discussed above. A deeper understanding of the type of relationship desired by the client, as well as the breadth of financial tools available to them, may aid future communication.

¹³ Karlan et al., op. cit.; Cadena and Schoar, op. cit.; Karlan, Morton, and Zinman, op. cit.; see also Akbaş, M., Ariely, D., Robalino, D. A., & Weber, M., 2016. How to Help the Poor to Save a Bit: Evidence from a Field Experiment in Kenya. Available at <http://sites.duke.edu/merveakbas/files/2014/08/How-to-help-the-poor-.pdf>, as well as Rodriguez, C. and Saavedra, J.E., 2015. Nudging Youth to Develop Savings Habits: Experimental Evidence Using SMS Messages. *CESR-Schaeffer Working Paper*, (2015-018). Available at <http://csd.wustl.edu/Publications/Documents/WP16-19.pdf>.

¹⁴ For a recent example involving online courses, see: Rogers, T. and Feller, A., 2016. Discouraged by peer excellence: Exposure to exemplary peer performance causes quitting. *Psychological science*, 27(3), pp.365-374.

¹⁵ These hypotheses are conjecture; we were not able to evaluate them due to resource constraints.

CONCLUSION

We ran two experiments to explore whether SMS could be used to encourage account opening and saving with remittance recipients in the Dominican Republic. Neither study was successful at increasing our outcomes of interest; in one study, the reminders to save appear to have depressed transaction behavior and account balances.

Because we only glimpsed at one financial product in each household's portfolio, it is possible that the messages were overall welfare-enhancing. However, it is clear they were not an effective tool for the bank to drive engagement. Even so, this does not preclude further testing, using different content not related to clients' savings goals. The bank also might do well to engage in further understanding their clients' desired relationship with the bank, and in which ways one- and two-way communication can help.

Innovations for Poverty Action

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