The role of technology and behavioral economics in increasing pension savings: recent experiences in Chile, Colombia, Mexico and Peru

EXECUTIVE SUMMARY

On average, only slightly more than four of every ten workers in Latin America and the Caribbean contribute to any social security system, so about 130 million people are working without saving for a pension. Given this situation, innovative solutions are required. The growing penetration and use of new technologies among the population, along with the development of behavioral economics (a discipline that studies the psychological factors that account for people not always making the best economic decisions) opens a new realm of opportunities for overcoming the challenge of low pension savings.

Recent experience shows that new technologies and tools are being used in different countries, in the private sector and by some regulatory authorities, for approaching workers in a friendlier way and "nudging" them to make savings decisions they would not otherwise make by themselves. This report examines five alternatives for encouraging and promoting savings: (i) informative letters; (ii) SMS text messages; (iii) cell phone applications; (iv) digital service intermediation platforms; and (v) interactive tools that simulate future pensions.

Experience has shown that the impact of informative letters on increasing voluntary savings is modest, since one of the experiments run by SURA AM in Chile shows that only 36% answered them, 12% expressed their willingness to save, and only 3% actually formalized their savings, which is explained by the obligation of having to sign a contract after expressing the decision to save, making the process more complex.

The experience with SMS text messages in the BEPS program in Colombia (Periodic Economic Benefit System - a voluntary savings program targeting low-income individuals), shows that they are highly effective for those that already contributed, since 10 additional dollars of voluntary savings are generated on average for each dollar invested in sending messages.

When considering cell phone applications for encouraging savings, we found examples in the Übank platforms in Chile, Mexico and Colombia; and AforeMóvil and MIllas para el Retiro in Mexico. On the one hand, Übank, a Chilean start-up based in Mexico, allows people to save automatically based on a self-defined set of rules that seek to reward or punish them based on their behavior (such as, for example, the consumption of certain goods or guilty pleasure). Thus, the application transforms the lifestyle of its users into savings to fulfill their dreams and

goals. The first step consists in showing people that they can travel or buy a cell phone with their savings, and the second step is to convince them to save for long-term projects and retirement. The results are promising: the pilot program, applied to 500 BancoEstado users in Chile since September 2017, managed to increase savings by an average of 116% per user, compared to the control group.

AforeMóvil in Mexico, on the other hand, is an application created by the regulator (with the participation of several AFORES) to familiarize the population with the pension system in an easy and accessible way. The application helps overcome the main barriers limiting retirement savings. For example, it is user-friendly, offers automatic enrollment in an individual account with digital security, and enables viewing the account statement, making savings tangible. It sends personalized pension projections and provides geo-referenced information on how and where to save. More than 15,000 self-employed workers have opened individual accounts through the application, which has been operating for a year now, with more than 125,000 voluntary contributions for a total of USD 2.4 million.

Another promising application in Mexico is "Millas para el Retiro," (Miles for Retirement) also created by the controller, which facilitates voluntary savings through the monthly consumption of workers with their debit or credit cards (a certain optional percentage is deducted), thus linking spending patterns and consumption to a new pension savings habit.

In Peru, the Inter-American Development Bank (IDB) partnered with Cabify, a digital public transport intermediation platform similar to Über, for the purpose of encouraging long-term savings among its drivers. The purpose of the application is for Cabify drivers to be able to decide whether or not they want to save voluntarily, and

how and when they wish to do so, with a maximum of 3 clicks. Due to the high penetration of this platform among the population, if the messages turn out to be efficient in increasing savings and modifying behavior, there is a tremendous potential to exploit.

Finally, a good example of interactive tools that simulate future pensions is the Pensions Simulator in Chile. An experiment run by the Chilean Pensions Commission, the Catholic University and Adolfo Ibáñez University, showed that exposing workers to a personalized projection of their future pension amounts in self-service modules led to a 14% increase in their voluntary contribution amounts in the first 6 months, although the results began dropping off by the ninth month.

As already mentioned, the reality of the pension systems in the region highlights the urgency of seeking innovative mechanisms for increasing savings. Nonetheless, the effects of each tool must be precisely assessed to determine what works and what doesn't. Basically, mechanisms must be found that ensure that workers' savings decisions are permanent and not just short-term. Furthermore, the technological innovations that can be applied to encourage savings, hand-in-hand with the results of behavioral economics, require the adjustment of the regulations of the pension systems to enable eliminating the barriers that impede or limit savings.

INTRODUCTION

Is it possible for an SMS text message to encourage people to save for their future pensions? What would happen if one could save automatically when buying in a shop or supermarket? Would we save more for our pensions if we had that option on a Smartphone? New technologies and advances in behavioral economics have opened new opportunities for addressing one of the pension challenges facing the region: low pension savings.

This Pensions Note describes some recent experiences in Chile, Colombia, Mexico and Peru using technological advances and behavioral economics for encouraging employee pension savings. Some of these exercises are part of the "Retirement Savings Laboratory" program, an Inter-American Development Bank (IDB) initiative. Regulators and the private sector have embarked on other initiatives.

**One of the current challenges is to address insufficient retirement savings**

As can be seen in Graph 1, just over four out of ten workers in Latin America and the Caribbean (LAC), on average, contribute to a pension system at any given time. This means that about 130 million people are working without saving for a pension (IDB, 2013).

One of the factors explaining this reality is the functioning of the labor market, characterized by high levels of informality and a significant formality - informality flow[1]. Since the region has little capacity for generating formal employment, the labor market fails to enforce sufficient savings to finance the pensions of a large number of workers (because there are workers who never had a formal job in their lives, or because they only had intermittent formal jobs). According to the IDB's projections, between 66 and 83 million people will reach retirement age without having generated the savings required for financing an old-age pension.

Another one of the underlying factors in this explanation is that human nature creates psychological barriers that delay the decision to save. Although opinion polls show that workers in the region want to save, (IDB, 2018), this explains why few manage to do so (IDB, 2018).

Graph 1
Percentage of contributors vs. employees, Latin America and the Caribbean, 2010.
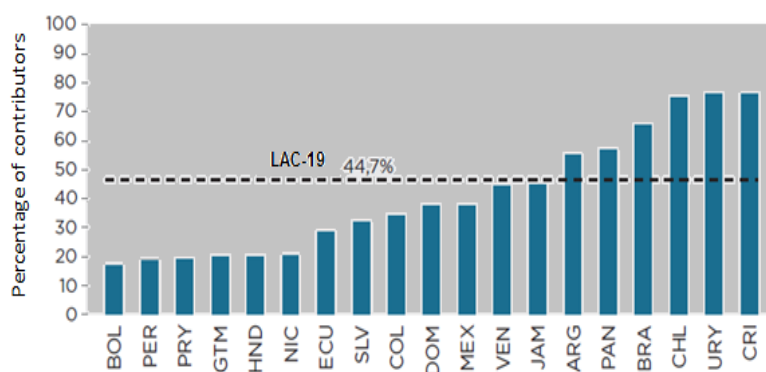
Source: IDB (2013).

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[1] On average, 21% of workers who are formerly employed today, will be in the informal market within a year. Around 9% will be informal wage earners, another 4% will be self-employed, and the rest will have gravitated to unemployment or inactivity (IDB, 2013).

Innovative solutions are required to increase savings

Insufficient pension savings and the overall situation of the pension systems in the region, imperiled by the future of the labor market, call for innovative solutions involving new technologies and psychology (based on the results of behavioral economics), in order to encourage pension saving and thus enable the obtainment of better pensions.

Faced with this challenge, and the need for the LAC population to save for their old age, the IDB launched the [Retirement Savings Laboratory](#) in 2017[2]. This initiative seeks innovative formulas for encouraging savings through procedures based on behavioral economics and the use of new technologies and digital solutions, backed up with reliable evidence of their effectiveness through rigorous impact assessments.

There has also been interest in the private sector (through the so-called Fintechs, emerging financial technology companies) and among regulators, in developing mechanisms and novel tools for encouraging behavioral changes regarding saving decisions. Five alternatives for encouraging or promoting savings based on these experiences are described below.

1. Informative letters for promoting voluntary savings (IDB, 2017)

Chile: Informative letters to the employees of SURA Asset Management Chile

In this initiative, employees of SURA Asset Management Chile, a multinational company in the pensions, savings and investment area, were encouraged to save in a simple manner

within an administrative process already being performed by the company. This aims to address one of the greatest psychological impediments that prevents us from making a decision that we really want to make, i.e. "postponement" or "procrastination."

With the aim of increasing participation in the savings system already applied by the company (Group Voluntary Pension Savings, GVPS[3]), and the amount saved, SURA AM Chile invited its employees to save through the four informative letters included in an annual administrative process that workers must be involved in for adjusting their salaries for inflation. Different behavioral economics tools were combined in the informative letters: presentation of the active savings option, simplification of the decision through suggestions, and a reminder that action is necessary (see Figure 1 in the Appendix). The informative letters were randomly sent to the more than 2,300 employees of the company, differentiated by the degree to which they highlighted the subsidy (match) granted in APVG, as well as the minimum amount that could be saved.

Two months later, the results were as follows:

(i) 36% of employees answered the letters, making an active decision.
(ii) 12% of workers expressed their willingness to save.
(iii) Only 3% of employees fully formalized their savings (the letter in itself was not a contract, and an additional administrative process was involved).
(iv) The most effective letter was the one that contained the information regarding the subsidy, or match, highlighted in the text and, as a first

savings option, the amount that maximizes the subsidy offered.

(v) 40% of those who decided to save did so because of the minimum amount presented in the letter.

(vi) The percentage of workers who engaged in GVPS through this initiative increased by 3 percentage points, from 57% to 60% of the total number of employees of the company (approximately half of the increase can be attributed to new savers).

(vii) The amount saved as a percentage of salary increased by 0.45 percentage points, from 1.85% to 2.3%.

Although they did manage to increase participation in the GVPS scheme without additional costs for the company, the results are modest. The fact that only 36% of workers answered the letter highlights the importance of the mechanism through which the savings option is presented. Moreover, in view of the fact that only 3% of employees formalized their decision to save, it is clear that saving for retirement should be an easy process, and as automatic as possible. Hence, it is advisable to: (i) offer the option of participating in the GVPS scheme in the initial employment contract, so as to increase the number of workers who choose to actively participate in it; and (ii) reduce transaction costs, simplifying GVPS procedures, so that more workers decide to formalize it.

2. SMS text messages to encourage savings (IDB, 2017)

Colombia: Messages to those enrolled in the BEPS program

This initiative examined the formation of savings habits through reminders via SMS, and was implemented in collaboration with Colpensiones, the IDB and Innovations for Poverty Action (IPA).

Reminders via SMS seek to minimize the influence of behavioral biases that limit savings, especially short-term perspectives (the fact that people tend to focus on more immediate matters, rather than long-term perspectives). While there is evidence that these messages can help to keep the focus on retirement saving, there is no evidence that persisting with such methods will increase long term saving.

In response to the fact that most Colombian workers do not regularly contribute to the pension system, the Government created the Periodic Economic Benefits System (PEBS) in 2015.

In order to motivate those enrolled in the BEPS program who were not saving (inactive) to start saving, and those who were saving (active) to save more, the initiative proposed sending out SMS messages as follows: 120 thousand individuals enrolled in the BEPS program were assigned to receive two SMS per month for four months; 60,000 for eight months; and 60,000 for twelve months (see Figure 3 for an example of received messages). The behavior of those who received the messages was compared with the 150 thousand other comparable enrolled members who did not receive messages while the initiative lasted. The most successful strategy was assessed every four months and new strategies were designed for participants to continue receiving messages.

After sending out two SMS messages per month for four months, it was found that the messages had been highly effective among the enrolled members who were already contributing: for each dollar invested in sending SMS text messages, 10 additional dollars of savings were generated in the PEBS. The messages were particularly more effective in people aged 45 or more enrolled in the PEBS, which shows that when people start ageing, that "future me" does not seem so far away anymore. The messages were also more effective among individuals who had only recently enrolled in the BEPS, which

demonstrates the importance of having close communication with affiliates from the moment they enroll, thus generating these savings incentives dynamics.

The bad news is that SMS messages were less effective in convincing those who were not enrolled in the BEPS to save. One of the hypotheses being considered to explain this result, is that perhaps there are other barriers that prevent saving in this subset of people. Hence, a possible strategy for understanding their needs and doubts regarding savings in the BEPS consist in directly calling them by phone.

3. Cell phone apps that encourage savings

Chile, Mexico and Colombia: Pilot program for the Übank application (Übank, 2017)

Übank is a Chilean fintech based in Mexico City, which is currently operating in Latin America with some financial institutions in Chile, Mexico and Colombia. This company created an automatic savings application that allows people to save automatically through rules that transform their lifestyles into savings to fulfill their dreams and goals[4]. I.e. the system enables its users to save based on a set of rules, which they themselves draw up, that seek to reward or punish them depending on their behavior. The application uses Machine Learning and behavioral economics procedures to encourage and automate savings,[5] to categorize the transactions of users and

understand where they are spending more money, to find new savings opportunities.

The application functions directly with users. It works with a banking institution that captures savings that are subsequently distributed to a savings balances (revenue sharing).

The application aims to apply behavioral economics by generating "nudges" for encouraging pension savings. To do so, the first step consists in showing people that they can meet immediate or short-term goals (like travelling or buying a cell phone) with their savings (see Figure 2 in the Appendix) , and the second step is to induce them to develop a savings culture that will make them save for longer-term projects and retirement. Whenever a user fulfills a goal, the app automatically creates a new goal and transfers his savings rules to this new goal to continue with the savings habit.

Übank is currently working in pilot projects and integration in Chile to offer the product through BancoEstado and Banco Santander. The pilot program, applied to 500 BancoEstado users in Chile since September 2017, has managed to increase savings by an average of 116% per user, compared to the control group. Banco Santander is currently integrating the application with its systems, so it can be offered to 900 thousand digital banking users.

Übank, as previously mentioned, is also working in Mexico, through:

- Bank Banregio (since October 2017): the bank is working on integrating systems for developing a pilot program to test Ubank on 500 of the bank's employees over a period of 6 months.
- AFORE SURA (since November 2017): the pilot program seeks to encourage voluntary savings among 500 clients through Übank (savings will be transferred to each client's voluntary contributions subaccount).

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[4] An application that is similar to the Ubank is the Swedish Qapital, which several international banks have installed in their customers' cell phones. Another similar application is Pensumo, founded in 2013, which currently operates in some localities in Spain (see further details here, here, and here).

[5] Machine Learning, or Automatic Learning, is a scientific discipline in the field of Artificial Intelligence that creates systems that learn automatically. Learning in this context means identifying complex patterns among millions of data. The machine that really learns is an algorithm that scans the data and can predict future behavior. In this context, "automatically" also implies that these systems autonomously improve over time, without any human intervention.

- HSBC Bank (since October of 2017): a pilot program is being designed to test Übank on 500 employees and customers, in line with HSBC's strategic focus on savings goals.

Finally, the design of a pilot and technological integration program for implementing the application in Banco Falabella, Viajes Falabella and CMR, has been underway in Colombia since 2017.

Mexico: AforeMóvil

To address the coverage and sufficiency of pensions challenge, the National Commission for the Retirement Savings System (CONSAR) and a group of AFORES (Pension Fund Managers) seek to use technology as a solution. In Mexico, nearly 78 million people use cell phones and two of every three users have a smart phone. Seeking to take advantage of this great opportunity, CONSAR and the AFORES launched the AFORE Móvil application in August, 2017, with the aim of making the Retirement Savings System (SAR) easier and more accessible to the population, improving awareness, encouraging active, informed choices and voluntary retirement savings for improving pension levels. The application helps to overcome the main barriers curtailing retirement savings, as shown in the following table.

Retirement saving barriers	AFORE-Móvil Solutions
60% of adults do not have an AFORE	Offers automatic enrollment in an AFORE account with digital security
20% don't know what AFORE they are enrolled in	Identifies your AFORE and provides comparative NET yields
35% of those who know what AFORE they are enrolled in, do not receive a statement	Enables viewing the AFORE statement, making savings tangible.
29% of Mexicans consider themselves incapable of understanding financial matters related to their retirement	It is a simple, user-friendly tool that uses colloquial language
16% of AFORE account holders do not save voluntarily because they do not know how to.	It provides geo-referenced information on how and where to save
80% of millennials say they need help to save	It offers tools that facilitate savings: direct payment, direct deposit (automatic payroll account charges) and pension calculators

Source: Blog Factor Trabajo, "AFORE Móvil: an app for millennials to save for retirement." Available on the Internet.

According to CONSAR (2018), AforeMovil currently provides 18 services to savers, highlighting a new service introduced in August 2018: consultation and sending of the "Customized Pension Estimate." It also points out that in the year that the application has been operating, it has achieved the following outstanding progress:

(i) The application has been downloaded more than 725 thousand times and 4.5 million services and on-line procedures have been requested.
(ii) More than 15,000 self-employed workers and 3,500 minors have opened AFORE accounts through the application.
(iii) More than 125 thousand voluntary contributions have been made through the application, collecting MXN 45 million (approx. US$ 2.4 million).

It is worth mentioning that the application uses cutting edge technology and biometric facial identification systems, whereby the user must take a selfie and provide some form of official personal identification, with which the system performs a face comparison to allow access, queries and the use of services without having to go to a

branch of the AFORE, greatly simplifying the process.

Mexico: Millas para Retiro (Miles for Retirement)

In November, 2017, CONSAR and the Ministry of Finance and Public Credit jointly launched the "[Millas para el Retiro](#)" application, a new system for facilitating voluntary savings in the AFORES through the monthly purchases of workers with their credit or debit cards, by deducting a certain optional percentage. The new application is an innovative alternative for workers, since it links spending and consumption patterns to a new retirement saving habit (CONSAR, 2017).

To charge the savings, a bank card and the mobile banking data must be entered for Paybook to display the month's expenses, and thus calculate the savings.

To use this tool, one must access the application through AforeMovil, enter a password[6] e-mail and personal Id. number. The bank card and the necessary financial data must then be entered for deducting the charges, so that Paybook will display the monthly spending and savings calculation; i.e., the application will display the established saving goals with a graphical representation and will detail the percentage of the purchase amount that will be saved, as well as the maximum limit. The minimum savings amount is MXN 50 (approx. USD 2.7) per week, and this amount will go directly to the voluntary contributions of the Afore account when incurring in regular expenses (supermarket, cinema, clothing, shoes, or cigarette and beer payments). The official results of the use of AforeMovil have not yet been published.

4. Use of digital services intermediation platforms in the "shared" economy

Peru: Long-term savings incentives for Cabify drivers

The growing rate of penetration of information and communication technologies, coupled with the proliferation of digital platforms based on these types of systems, have favored their growth among an increasing number of self-employed people. In a context in which the "shared" economy (with companies like Uber, Cabify or Airbnb) is rapidly gaining ground, can the formula of these successful companies be used for encouraging saving? (Silva-Porto, 2017).

According to Silva-Porto (2017), the shared economy blurs the relationship between the company and the worker. Uber, for example, does not employ drivers, but offers its users an algorithm that connects transportation supply and demand. With the disappearance of the traditional "company-boss" system, the responsibility for contributing to the pensions of these self-employed workers is now undefined.

One possible solution would be for companies to give their employees small "nudges" to encourage saving. They could, for example, send them reminders through the same application of the importance of thinking about retirement, offering immediate bonuses or rewards for saving (to help them overcome their tendency of thinking only in the present), or establish automatic discounts on their profits and direct them to a savings fund.

According to Silva-Porto (2018), in Peru the IDB partnered with Cabify, a digital transportation intermediation platform similar to Uber, to encourage long-term saving among the drivers that use this application. The purpose of the application is for Cabify drivers to be able to decide

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[6] Sole Population Registry Password (CURP).

whether or not they want to save voluntarily, and how and when they wish to do so, with a maximum of 3 clicks.

While developing the initiative, however, researchers discovered that pension systems are not designed to include self-employed workers. For example, in Peru there is a restriction on voluntary contributions for purposes other than pensions: they can be made by people who have been enrolled in the Private Pension System (SPP) for at least five years, or by affiliates aged 50 or more. The opposite is true in Mexico, where voluntary saving is very easy, since anyone can save any amount at any time. The moral is that the technological innovations that can be applied to encourage savings, hand-in-hand with the results of behavioral economics, require the adjustment of the regulations of the pension systems to enable eliminating the barriers that impede or limit savings.

5. Interactive tools that simulate future pensions and help to make savings decisions

Chile: Pension Simulator developed by the regulator

In 2011, the Chilean Pensions Commission (SP) and the OECD initiated an interactive tools project for increasing knowledge and promoting pension awareness. This tool provides a customized projection of future pension amounts, which cannot be easily obtained or estimated by members themselves. The tool also calculates the risk dimension in the final result and evaluates the effect of changing different parameters on the pension amount.

The on-line version of the Pension Simulator was launched in September, 2012, on the SP's website. The tool has been frequently accessed, recording an average of 9,000 visits per month.

Thereafter, between 2014 and 2016, the SP decided to carry out an experimental assessment in conjunction with the Catholic University and Universidad Adolfo Ibáñez. The purpose of the assessment was to measure the impact of offering customized pension information through a simplified Simulator, on long-term savings and contribution decisions. The target population of the assessment was the low- and middle-income sectors, since sponsors were aware that the on-line version of the simulator was used mainly by the higher-income population.

Thus, a random experiment was conducted in which participants were assigned to two groups based on their Id. card numbers: (i) customized simulation (treatment group); (ii) generic advice on pensions (control group). Eight self-service modules were installed with access to the simplified Simulator and identity validation in the offices of Chile-Atiende.

The results showed that:

(i)   The experiment had a positive and significant added impact on the amount of voluntary contributions, which increased 12.6% after 12 months of having been exposed to the Simulator in the self-service module.
(ii)   These results were maintained only within the first 6 months of visits to the module: voluntary contribution amounts increased by 14.2% in that period. The results started to drop off in the ninth month after the launching of the initiative.
(iii) Those optimists who overestimated their pensions significantly increased their voluntary savings amounts by 16.5%.

Thus, tools like the Pension Simulator are useful for the "future self" to win the battle against the "current self." Individuals have difficulty estimating the pension they will

receive, so that providing customized information can have a substantial impact on saving and retirement behavior. However, mechanisms must be provided that ensure that those decisions have lasting and not just short-term effects.

Appendix

Figure 1

Chile - Example of informative letter for promoting voluntary savings

SURA
ASSET MANAGEMENT

Dear (Name)

In SURA Asset Management Chile, we do not only seek to improve the financial future of our clients, but also that of our collaborators. Hence, we would like to invite you to take a step forward to a better future.

Take advantage of this moment to increase your pension savings, within the framework of SURA's Group Voluntary Pension Savings Program (GVPS). We invite you to fill in this form, indicating the amount and type of multi-fund in which you wish to invest your monthly contribution.

Remember that your additional contributions will transform into a better pension for your future

Furthermore, if you participate in GVPS, your savings will be complemented by SURA, which will contribute an additional amount equivalent to 50% of your contribution to your fund, with a cap of $5.000 per month.

Sincerely,

XXX

Human Talent Manager

I would like to destine the following monthly amount of my salary to my pension savings through SURA's GVPS program (this amount will be added to what you have already voluntarily saved today).

$10.000	$20.000	$30.000	$40.000	Another amount	Not for now

I would like to invest this amount in the following multi-fund (circle the letter of the multi-fund)

A	B	C	D	E
"Riskiest" Real average return since the beginning of the Multifunds	"Risky" Real average return since the beginning of the Multifunds	"Intermediate" Real average return since the beginning of the Multifunds	"Conservative" Real average return since the beginning of the Multifunds	"Most Conservative" Real average return since the beginning of the Multifunds
6.6%	5.7%	5.0%	4.7%	4.1%

Date   Collaborators signature   Id. Card No.

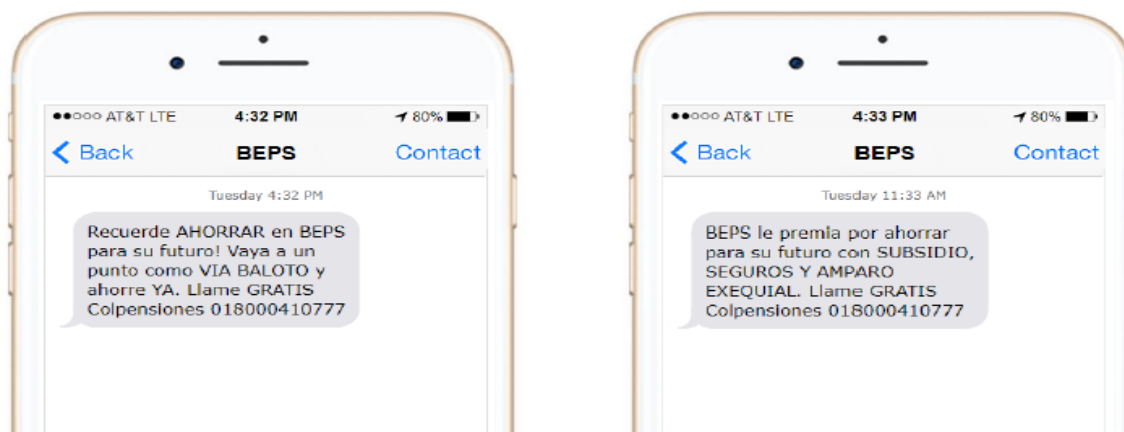Source: Silva-Porto (2018).

Figure 2

Operation of Übank

Source: Ubank (2017).

Figure 3
Colombia - Example of messages sent to members enrolled in the BEPS program

Source: Silva-Porto (2018).

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