

# Nudging long-term saving: The *Ahorra+* program

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## Abstract

This paper analyzes the effectiveness of a nudging mechanism adapted from Save More Tomorrow (SMART) by Benartzi and Thaler (2004). The goal of this mechanism was to promote long-term saving in a leading Spanish life insurance and pensions company in Spain. We analyzed the results of a pilot of the *Ahorra+* program. This pilot was implemented in 2016 with 240 company employees. The program significantly increased voluntary saving, enabling employees to enjoy a better retirement by helping them save more for the future. Specifically, the average annual voluntary contribution to the pension plan increased by 86.5%, and the number of workers making voluntary contributions increased by 252.9%. The impact of *Ahorra+* was greater among workers with the lowest savings: young people and low earners. The results of this field experiment confirm the effectiveness of using a default option to increase long-term savings patterns, even though the program targeted savers with high financial literacy and professional expertise in this area.

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## Keywords

long-term saving — nudging

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## Introduction

The Spanish public pension system consists of a single earnings-related benefit. In 2017, the maximum pension was 36,031. The primary challenge for the sustainability of the Spanish pension system is guaranteeing that retirees receive their pensions despite the rising old-age dependency ratio. In 2015, the number of individuals aged 65 and over per 100 people of working age was 29.6%. The projection for 2050 is 73.2% (OECD, 2015). Demographic transition threatens the sustainability of the Spanish public pension system. Alternative solutions to guarantee its sustainability have been proposed. These include tax increases to fund public pensions, structural reforms to increase the employed population and raise wages, and a reduction of the average pension, compensating this reduction with more resources from private savings (Rafael Domenech, 2016). Spain is a mid-ranked European country in terms of household financial assets. In 2015, only 15.3% of these household financial assets included life insurance reserves and pension plans, placing Spain in the bottom third of the ranking. Moreover, although 44% of Spaniards do not think they will have enough money when they retire, 57% of the Spanish population over the age of 36 have not yet started to save for their retirement (BBVA, 2015).

Although it is difficult to explain the widespread phenomenon of suboptimal saving using conventional economic theory, it can be easily explained using behavioral economics. People's quasi-hyperbolic preferences explain procrastination: Despite the need to start saving as soon as possible, we postpone the decision to save or increase our savings rate.

Moreover, the inertia or status quo bias means that we prefer things to stay the same by sticking with an earlier decision rather than making the effort to change it. Finally, we do not like our retirement savings to eat into our take-home pay. This feeling is heightened by our loss aversion, which is a key concept in behavioral economics. Loss aversion is associated with prospect theory and is encapsulated by the expression "losses loom larger than gains".

If behavioral economics helps us understand the causes of suboptimal saving, then it can also help us design strategies to nudge savers to increase their contributions to pension plans and other long-term savings products. The SMART (Save More Tomorrow) program, designed by Benartzi and Thaler (2004), is a seminal example of a behavioral-based strategy that helps people increase their savings rates. As discussed in Section 2, SMART and SMART-inspired programs have been effective in different regions for different profiles of savers. This study draws on this stream of literature. We designed and applied a pilot program based on Benartzi and Thaler's (2004) work. This program was called *Ahorra+* (Spanish for *Save+*). We tested the program using a field experiment with participants of a pension contribution system. The field experiment was carried out with the staff of a life insurance and pension company. In this environment, awareness of retirement needs is high, as is the level of financial literacy and sector expertise: Three quarters of participants had bachelor's degrees, and the participants had been working in the financial and insurance sector for 11 years on average.

This study yielded two primary conclusions. First, the

experiment shows that the Save More Tomorrow approach can also be effective in Spain. It can provide a welcome aid to support the sustainability of the Spanish pension system. Second, the experiment shows that the behavioral levers that make the Save More Tomorrow approach effective are also relevant when applied to subjects with a high level of financial literacy and professional experience in the sector of long-term saving. This second conclusion supports the idea that cognitive biases and decision heuristics cannot easily be short cut through education, training, and experience. However, nudge interventions, designed under a behavioral approach, are much more effective at fostering or mitigating the impact of cognitive biases and the effects of decision heuristics.

### Literature review and research hypothesis

In their seminal paper, Benartzi and Thaler (2004) proposed the Save More Tomorrow (SMART) savings program. SMART addressed a serious problem: Three quarters of workers in the US were not saving enough for their retirement. Furthermore, although they wanted to save more, they did not. SMART is a behavioral program whose choice architecture makes it easy for workers to save enough money for their retirement. In the SMART program, employees commit to, in advance and by default, the allocation of a portion of their future salary increases for their retirement savings. Despite the initial commitment, workers can freely leave the program at any moment and stop making contributions to SMART. The design of the SMART program uses three cognitive biases: (i) decisions whose effects are felt in the future mitigate the present bias; (ii) inertia works in favor of saving because the program is maintained until the participant actively chooses to abandon it; and (iii) linking savings increments to increases in salaries prevents loss aversion. Our application of SMART had a significant positive impact: A high proportion of employees to whom the program was offered accepted it (78%); the vast majority of employees remained after the fourth salary increase (80%); and the average savings rates of participants increased from 3.5% to 13.6% in 40 months.

Based on the seminal work of Benartzi and Thaler (2004), similar studies have been conducted in the US, Chile, Mexico, Denmark, and Sweden. All these studies have shown that automatic enrollment of employees in retirement savings plans (i.e., forcing participants to opt-out rather than expecting them to actively opt in) is a highly effective way of increasing pension savings. These programs are also well received by the employees themselves. In the US, 57.5% of plans have an automatic enrollment feature, ranging from 66.7% in large plans to 25.5% in small companies. This represents an increase of 5.7 percentage points from 2010. Default enrollment also partially matches differences in participation with respect to gender, race, age, and compensation (Madrian and Shea 2001; Beshears, Laibson, Choi and Madrian 2006). The Danish context provides further evidence (Chetty, Friedman, Leth-

Petersen, Nielsen and Olsen, 2013). In Denmark, 85% of individuals are passive savers, and automatic contributions affect these savers dramatically. Automatic contribution policies, which shape the behavior of passive savers, have lower tax costs and price subsidies, yet they are not adequately increasing savings for those who are least well prepared for retirement.

In October 2012, UK companies began to enroll their workers in their retirement plans. This new model started with companies with 250 or more workers, and it will extend to all employers by 2018. According to McKenzie, Liersch and Finkelstein (2006), the initial results show that the overall participation rate has increased from 61% to 83%. The opt-out rate across all public and private sector employers was 9%, ranging from 5% to 15% of workers who had automatically been enrolled. McKenzie, Liersch and Finkelstein (2006) conclude that contractual enrollment, including the authority to deduct pensions, is the most important factor influencing the opt-out rate. Based on these findings, several legislative changes have enforced the use of the SMART-based default option in the UK. These legislative changes have increased private pension savings in recent years (DWP's at GOV.UK, 2013).

To the best of our knowledge, however, no attempt has been made to analyze the effectiveness of SMART-based nudging in Spain, a country where the increase of private savings could be crucial for the sustainability of the pension system. The SMART program must be tested for countries with cultural frameworks that differ from the cultural framework in Anglo-Saxon countries, where most studies have been conducted. In addition to cultural context, differences in the coverage of public pension systems across countries can lead to major differences in decisions regarding long-term savings and retirement planning<sup>1</sup>.

The SMART-inspired program presented in this study was named *Ahorra+*. This program maintains the primary features prescribed by Benartzi and Thaler (2004). The program was tested in a leading Spanish insurance company. *Ahorra+* was applied to company workers who received a salary increase of at least 1% in 2016. For these workers, 50% of their salary increase was automatically paid as a voluntary contribution to their pension plan. This payment corresponded to a minimum of 0.25% and a maximum 1.5% of their total salary. The other 50% was paid as a salary increase in their monthly payroll. They were informed about their participation in *Ahorra+* through an executive post on the company intranet and by the company manager during the salary review. Participants were also informed that their default voluntary contribution would increase automatically by 10% each year, although they could opt out of the program at any point, starting from the third month of participation. They would subsequently receive their entire salary increase as part of their monthly payroll.

<sup>1</sup> For example, in Spain in 2014, the average net rate of pension substitution, a percentage of pre-retirement earnings, was 89.5%, while in the US, it was 44.8% (OECD 2015).

The *research hypothesis*, which is supported by the previously cited literature, can be stated as follows: participation in the *Ahorra+* program increases voluntary contributions to a pension plan, *even if participants have high financial literacy and professional experience in the financial and insurance sector*.

## Experimental design

The field experiment was designed using a within-subjects approach: The behavior of the same group of subjects was observed *before* and *after* implementing the program. This before-and-after experimental design is commonly applied in natural and social sciences (Charness, Gneezy and Kuhn, 2012). It is especially appropriate in cases where randomly assigning subjects to case and control groups is impossible. This was the case of the *Ahorra+* program, which could not be randomly assigned because of legal and managerial considerations.

The *Ahorra+* program was applied in 2016 to the 282 eligible company workers. After one year, 240 workers had already enrolled in the program and had completed a whole annual cycle of contributions to their pension plans. The opt-out rate of workers leaving the program was 14.9%. This rate varied across different groups of workers, as shown in Table 1<sup>2</sup>.

	Men	Women
Low salary	31.2%	33.3%
Lower-intermediate salary	38.9%	12.8%
Upper-intermediate salary	8.7%	7.7%
High salary	5.6%	3.0%

**Table 1.** Opt-out rates for *Ahorra+* by gender and salary.

The analysis focused on the value of contributions of the 240 workers who did not leave *Ahorra+*. These workers' contributions in 2015 (before participating in the program) and 2016 (while participating in the program) can be compared. The average age of these workers was 41 years, and 61.3% of them were women (38.7% men).

The behavioral measure considered in the experiment was the difference between participants' annual voluntary contribution to the pension plan before the program (December 2015) and after the program (December 2016). The research hypothesis of the average contribution in 2016 being greater than or equal to the average contribution in 2015 was statistically tested using a series of one-tailed t-tests for paired samples.

## Results

The primary goal of this study was to test the hypothesis that participation in *Ahorra+* increases workers' voluntary annual

<sup>2</sup> The range of salaries that defines each group is not shown to protect participants' confidentiality.

contributions to pension plans. Table 2 and Figure 1 present the average annual voluntary contribution (in euros) of the participants, with breakdowns by gender, age, and salary. The last two columns of the table show the results of the statistical tests of the null hypothesis. This hypothesis states that the contribution in 2016 is not strictly larger than the contribution in 2015. We wanted to test whether the contribution in 2016 was larger, not just different. Therefore, the p-values were computed for a one-tailed test.

The information presented in Table 2 provides empirical evidence to reject the null hypothesis. We therefore consider that the application of *Ahorra+* significantly increased the contribution of the workers who participated in the program (at the significance level of 1%). The average increment in the contributions per worker was 513, which represents an 86.5% increase from the average savings in 2015. The field experiment thus supports the effectiveness of using the default option to increase long-term savings patterns, even if participants have high levels of financial literacy and professional experience in finance and insurance.

*Ahorra+* had a significant positive impact on the savings patterns of all groups of workers. The null hypothesis can also be rejected for all the groups based on gender, age, and salary (at the significance level of 1%). In only one case was the null hypothesis rejected at the significance level of 5%. As shown in Table 2, the increment in average annual contributions was not uniform across different workers' profiles. The impact of *Ahorra+* was greater for workers with lower long-term savings, specifically for the youngest participants and participants with the lowest salaries.

Besides the increase in average contributions, additional findings reflect the positive impact of this program. First, the number of workers that made voluntary contributions to their pension plans rose from 68 in 2015 to 240 (*Ahorra+* participants) in 2017. Second, not only was the average voluntary contribution larger in 2016, but so too was the average total contribution. When considered together, compulsory and voluntary contributions grew by 19.71%.

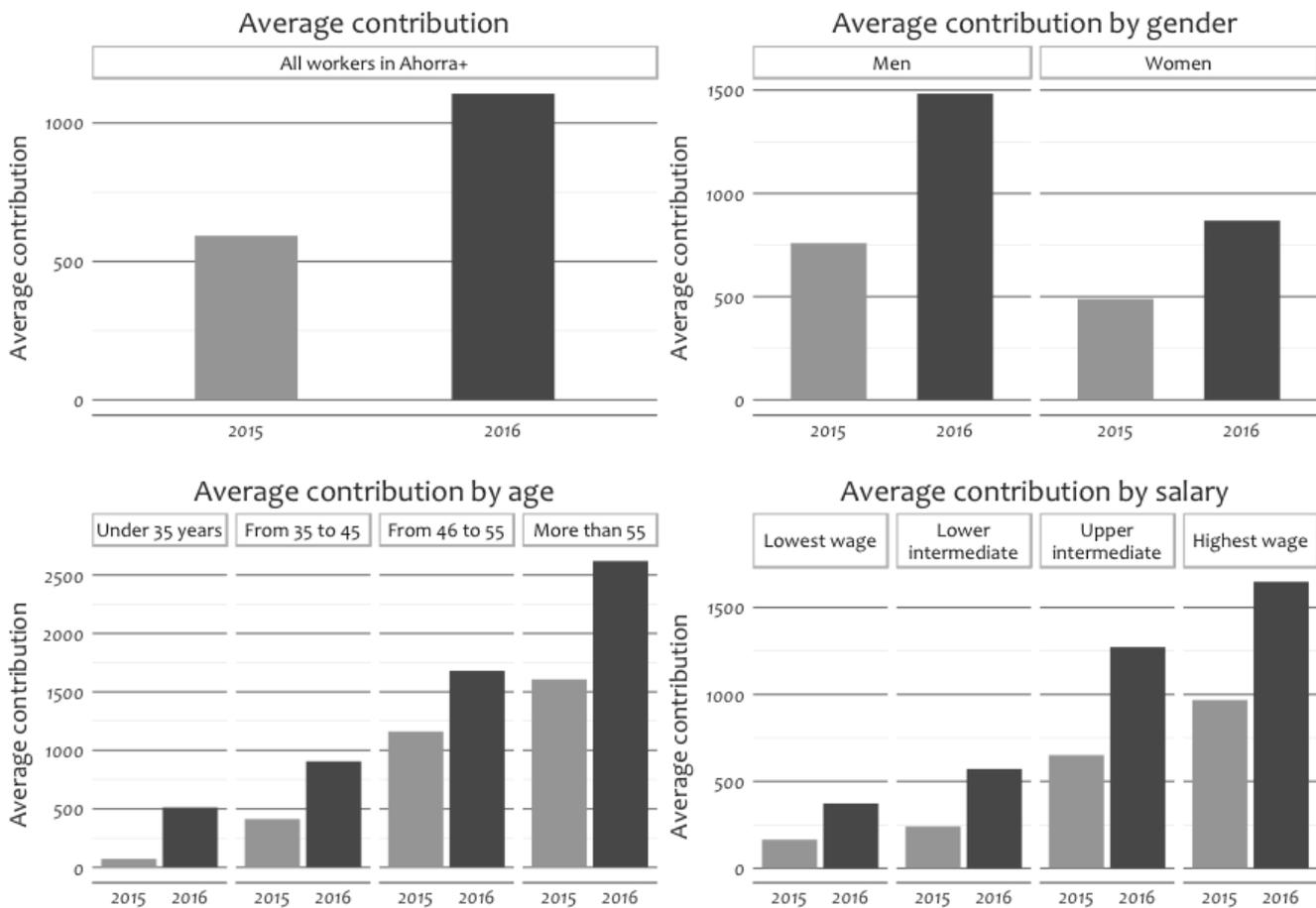
## Discussion

The results of this field experiment confirm the effectiveness of using the default option to increase long-term savings patterns in Spain. This program significantly increased voluntary savings, especially among the groups with the lowest savings: young people and low earners. The nudge approach to increasing savings worked even though the program targeted savers with high financial literacy and professional expertise in finance and insurance. These findings reflect the success of the program: the "intensity" of the nudge increases, yet there is no significant attrition.

Although the effectiveness of *Ahorra+* has been empirically established, other relevant research questions arise. Most pressing, how can the design of SMART-based programs be optimized to foster savings rates? *Ahorra+* establishes an automatic voluntary contribution of 50% of salary raises, up

	Number of workers	Average contribution in 2015 (€)	Average contribution in 2016 (€)	Increment (%)	t-test	p-value (one-tailed test)
All workers in <i>Ahorra+</i>	240	593	1,106	86.5	6.9	0.000
Men	93	759	1,483	95.4	5.7	0.000
Women	147	489	868	77.5	4.3	0.000
Under 35 years	36	72	512	611.1	4.6	0.000
35–45 years	134	413	906	119.4	4.6	0.000
46–55 years	60	1,161	1,680	44.7	3.8	0.000
More than 55 years	10	1,607	2,619	63.0	1.9	0.043
Low salary	39	165	373	126.1	2.6	0.007
Lower-intermediate salary	51	241	571	136.9	5.5	0.000
Upper-intermediate salary	67	651	1,272	95.4	3.6	0.000
High salary	83	968	1,648	70.2	4.6	0.000

**Table 2.** Impact of *Ahorra+* (2015-2016).



**Figure 1.** Impact of *Ahorra+* (2015-16).

to 1.5% of total salary. We should analyze how varying these parameters affects the results of the program. For instance, we should investigate how the opt-out rate would be affected by a change in the threshold. We should also establish the optimal

threshold by understanding the trade-off between the opt-out rate and the size of the average contribution. A second unanswered research question relates to the most efficient framing approach to present *Ahorra+* to workers. The program design

involves different behavioral levers. Workers' responses can be highly sensitive to the language and format that are used to communicate the primary features of the program. These research questions are currently being tackled by testing a new version of *Ahorra+* that was implemented in 2017.

A final research question that requires attention is how the performance of SMART-based programs evolves over time within the same organization. To answer this question, we will revisit the performance of *Ahorra+* in the near future. The program will continue. Participating employees will increase their contributions annually by 10%. Each year, the program will incorporate new employees who have received a salary increase of more than 1%. These changes will provide valuable data to develop the research agenda.

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## References

- BBVA (2015). *Las pensiones y los hábitos de ahorro en España*.
- Benartzi, S. (2012). *Save more tomorrow: Practical behavioral finance solutions to improve 401(k) plans*.
- Beshears, J., J. J. Choi, D. Laibson, D., and B. C. Madrian (2006). "The importance of default options for retirement saving outcomes evidence from the United States". Working Paper. *National Bureau of Economic Research*.
- Chetty R., J. N. Friedman, S. Leth-Petersen, T. H. Nielsen, and T. Olsen (2013). "Active vs passive decisions and Crowd-out in retirement savings account: evidence from Denmark". *The Quarterly Journal of Economics* 129(3), 1141-1219.
- DWP's research pages at GOV.UK (2013). *Automatic enrolment opt out rates: findings from research with large employers*. Report on the, At: [gov.uk/government/organizations/departments-for-work-pensions/about/research](http://gov.uk/government/organizations/departments-for-work-pensions/about/research)
- Doménech, R. (2016). *Is our pension system viable?*. BBVA Research, Press Article.
- European Commission (2015). *The 2015 Ageing Report*.
- Charness, G., U. Gneezy, and M. A. Kuhn (2012). "Experimental methods: Between-subject and within-subject design". *Journal of Economic Behavior & Organization* 81(1), 1-8.
- Madrian, B. C., and D. F. Shea (2001). "The power of suggestion: inertia in 401(k) participation and savings behavior". *The Quarterly Journal of Economics* 116(4).
- OECD (2015). *Pensions at a Glance 2015: OECD and G20 indicators*. OECD Publishing, Paris.
- OECD Pensions Outlook (2016). [keepeek.com/Digital-Asset-Management/oecd/finance-and-investment/oecd-pensions-outlook-2016\\_pens\\_outlook-2016-enpage21](http://keepeek.com/Digital-Asset-Management/oecd/finance-and-investment/oecd-pensions-outlook-2016_pens_outlook-2016-enpage21)
- OECD (2017). *Household financial assets indicator*. doi: 10.1787/7519b9dc-en
- PSCA (2015). *Releases Results of 59th Annual Survey of Profit Sharing and 401(k) Plans reflecting the 2015 plan-year experience of 614 DC plan sponsors*.
- Thaler, H. and S. Benartzi (2004). "Save more tomorrow™: Using behavioral economics to increase employee saving". *Journal of political Economy* 112(S1), S164-S187.