Knowledge, Information and retirement saving decisions: Evidence from a large scale intervention in Chile

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Abstract

All over the world, retirement income is increasingly depending on an individual's savings choices over their lifetime. To assess if individuals are saving enough for their old age at least three questions are relevant: Do they know how much saving is necessary to achieve a desired living standard in old age? Would they make different decision is faced with new information about their ongoing retirement savings? Is there enough time or is it too late to improve their retirement income by increasing current savings? A growing literature has shown evidence of widespread financial illiteracy in the US and other developed countries, which would prevent making adequate choices. In this article, we exploit a unique large scale natural experiment to analyze the impact of improving information, in the form of a new personalized pension projection on the retirement saving behavior of Chilean workers. Using matching techniques and a rich administrative data set, we find that the new information provided caused an increase in the probability of making voluntary contributions for old age, of approximately 1.4 percentage points, for individuals in the 40-50 age-group. The effect on younger cohorts was smaller. The impact on women is significantly larger than that on men, potentially reflecting a higher sense of urgency. As expected, individuals exposed to a positive tax benefit when making voluntary contributions exhibit a significantly larger impact than tax exempt individuals, but individuals with high projected replacement rates present a slightly higher impact than those with lower replacement rates. Overall, these results show how a simple improvement in the information provided by pension administrators can have important effects on individual savings decisions.

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1. - Introduction

All over the world, retirement income is increasingly depending on an individual's savings choices over their lifetime. While government sponsored retirement schemes (like the US Social Security System) provide a reasonable stream of resources for old age, middle and high income workers are expected to make their own savings arrangements, either through employer sponsored pension plans, matching contribution schemes (like the 401K) or individual savings through tax preferred investment vehicles.[2]

To adequately plan for retirement, individuals need information about their current situation, the different choices available to them, and some minimal mathematical and abstraction capabilities to properly process this information. There is growing concern, however, regarding the low level of financial literacy among the general population. The baby boomer generation does not seem to have accumulated sufficient financial wealth beyond housing (Lusardi and Mitchell, 2007a), with particularly low asset levels for female-headed households (Weir and Willis, 2000). Even if financial sophistication could be overcome by the use of retirement planning services, the existing evidence suggests that these services are rarely sought and, when they are, it is mostly done by individuals with initially higher levels of financial literacy (Lusardi and Mitchell, 2008). Furthermore individuals with less exposure to financial planning tend to make "wrong choices": saving less than required, in poorly diversified portfolios or not profiting from tax-favored instruments (Lusardi and Mitchell, 2007c).[3]

In a Defined Contribution scheme, the level of the benefit is not known beforehand, and individuals face uncertainty about how their current savings will translate into future benefits. In this setting, one key piece of information required by individuals to make active decisions to improve their retirement wealth is the pension level they are expected to receive given their current financial wealth and their historic savings behavior. Assuming that individuals can reasonably form an expectation of the income level they would like to receive in old age, the comparison between desired and projected income could induce them to save more, transfer their wealth into more conservative or aggressive portfolios, postpone retirement or, at least, seek retirement planning advice. While it is always possible to make these adjustments, the effectiveness of these choices depend on the time horizon until retirement: while small changes when young can have a large impact on retirement, individuals with low asset levels when approaching retirement age can do little to improve their situation, except perhaps postponing their exit from the labor force.

In this article, we exploit a unique large scale natural experiment to analyze the impact of a personalized pension projection (the PPP) that was sent in July 2005 to practically all Chilean active dependent workers, on their retirement saving behavior. The objective of this intervention was to simplify the information received by pension system members, in order to allow them to make better decisions. In essence, we compare the savings behavior of

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[2] For a recent review of pension financing sources in developing countries, see OECD (2009).
[3] According to Greene (2010), approximately half the US workforce do not have retirement savings plan at work, less than 10% of those without plans at work contribute to an IRA plan, only 42% of American adults have tried to calculate how much they need to save for retirement, and even among those nearing retirement (45-59 year olds), only about half have tried (51%).

individuals during the first twelve months after receipt of the PPP with that of comparable individuals who were not sent this statement due to some specific administrative rules.

This analysis allows us to look at two different questions. First, if individuals were well aware of their current financial stance, receipt of this projection should have no effect on their retirement-related savings behavior. Our analysis serves as a test of the full information hypothesis. Second, the large scope of the intervention allows us to look at different subgroups of the population. As mentioned earlier, the age dimension is particularly important, as the possibility to correct misalignments between expectations and projections depends crucially on the time horizon until retirement. The gender dimension is particularly important for the Chilean case, as the actuarial nature of the Chilean pension system tends to directly translate differences between men and women in the labor market to differences in their old age income: Chilean women tend to work less frequently, receive lower wages for a comparable job, retire earlier and live longer.[4] We also look for differential impacts among individuals with different income levels (as retirement related voluntary savings are tax exempt, we would expect a higher effect on this group, keeping other factors constant) and with different projected replacement rates (the ratio of pension to pre-retirement income).

Our results suggest that the new information provided to plan members —the level of pension that they would be able to finance— did change their behavior: the receipt of the statement by individuals increased their probability of making voluntary contributions, particularly in the older group (40 to 50 years of age), by more than 1.3 percentage points. The effect on younger cohorts was smaller, consistent with myopia or liquidity constraints. The impact on women is significantly larger than that on men, potentially reflecting a higher sense of urgency. As expected, individuals exposed to a positive tax benefit when making voluntary contributions exhibit a significantly larger impact than tax exempt individuals, but individuals with high projected replacement rates present a slightly higher impact than those with lower replacement rates. Overall, these results show how a simple improvement in the information provided by pension administrators can have important effects on individual savings decisions.

The next section will provide more detail on the PPP, section 3 will present the impact evaluation exercise, its methodology, data and results and in section 4, we conclude.

2. – Conceptual Framework.

Should individuals change their savings behavior when exposed to new information in the form of a personalized pension projection?

The traditional model of consumption and savings decisions is one where the agent maximizes lifetime expected utility subject to the amount of income and assets it is able to generate and accumulate over the life-cycle. As Lusardi and Mitchell (2009) point out, a fully rational decision maker needs to consider prospective survival probabilities, discount rates, earnings, investment returns and retirement benefits when making this decision. A long list of attempts

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[4] Some of the differences, however, are compensated by the non contributory pension provisions, particularly after the 2008 pension reform that greatly expanded the poverty prevention pillar, including a bonus to women for every child. See Fajnzylber (2010) for simulations on the gender impact of the 2008 reforms.

to introduce bounded rationality into the maximization process exists in the economic literature (see for example Conlisk (1996)).

A recent modification to the standard model, introduced by Reis (2006), takes into account that the maximizing agent incurs a cost whenever she has to obtain, process and interpret new information in order to make optimal decisions. The existence of this cost makes the agent become rationally inattentive to relevant new information, updating the consumption plan at discrete intervals. Inattentiveness leads to sub-optimal savings. The model further implies that there exists a planning costs threshold above of which agents optimally choose not to make plans, whereas for planning costs below this level, agents choose to follow infrequently updated plans on consumption.

Under this conceptual framework, Policymakers may have at least two tools to improve decision making and active participation of members: Information dissemination and financial education. Policymakers may mandate more information (in order to increase access) and improve information quality, or simplify information, (in order to improve understandability). Financial education programs or campaigns are generally geared towards increasing the capabilities of individuals in understanding the information they have been given. Both types of intervention intend to diminish the decision maker's planning costs, making her more attentive and increasing the frequency by which plans are updated. In the context of retirement savings, this may imply better financial planning for retirement, more active decision making and higher savings rate.

The empirical literature is rapidly growing with the addition of studies that try to measure the impact of information on retirement savings decisions. Chan and Stevens (2008) ask why is it that if people are so mis-informed, research finds that people react to incentives in the pension system. They find that well-informed individuals are five times more responsive to incentives in pension plans than the average individual. They also find that behavior of ill-informed individuals is consistent with their own misperception of pension incentives rather than being unresponsive to any incentives. This suggests an important role of providing better information in order to make better decisions.

However, improving information or making individuals more attentive may not be enough. Research in psychology and economics often finds a disconnection between intention and action. Although individuals may be better informed and pay more attention to their financial situation, inertia may be a powerful force that prevents changes in behavior. This is one of the reasons why modifying the default option may have an important impact on savings.[5] A growing empirical literature has tried to measure the effectiveness of these strategies. In general there is evidence that education campaigns and information dissemination may help improve decision making, but have limited impact. Duflo and Saez (2002) find that attendance to information seminars boosts participation in retirement plans, even among coworkers of the individuals who belonged to the treatment group. This result suggests that information provided through certain channels which allow for social interactions may have spillover effects that make them more effective. Clark et al (2006) analyze the effect of financial education seminars offered by TIAA-CREF, finding that participants report a significant increase in intended participation and savings rate in the program, but a milder effect on actual

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[5] See for example Choi et.al. (2002)

participation and behavior in the first few months following the seminar, which is consistent with the received information increasing comprehension, but not being enough to overcome inaction. In the context of developing countries, where both financial literacy and demand for financial services is lower, Cole et al (2009) find that the provision of a financial literacy program had modest effects on the likelihood of opening a bank savings account for uneducated and financially illiterate households and no significant effect overall. In contrast, small subsidy payments had a significant effect on opening a savings account and were more than twice as cost effective as the financial literacy training.

Related work deals with the effect of providing simplified information, in a format that is easier to understand given the current capabilities of the individual receiving the information. Kozup et al (2008) document that simplified information about mutual fund characteristics provided in graphical format increases subjects' sensitivity to past performance and influences perceptions and evaluations of different mutual funds. However, Beshears et al. (2009) find no effect of the actual Summary Prospectus adopted by the SEC on portfolio choices made by participants in an experimental setting. The paper most closely related to our study is Mastrobuoni (2006), which assesses the impact of a new Social Security statement on information and retirement decisions in the United States. It finds that the introduction of the statement significantly improved information but did not imply an overall improvement in workers' retirement behavior. However, it does find a significant impact in important groups. In particular, uninformed workers appear to make better retirement decisions after the statement was introduced, with the important exception of African American workers. This result suggests an important role for the provision of this kind of information for relevant target groups. On the other hand, people between the ages of 62 and 65, which are the ages used in the Social Security statement for benefit projections, become less sensitive to Social Security incentives, suggesting that these ages are strong focal points. This finding should warn policymakers that the subset of information to be presented to individuals should be chosen very carefully to avoid potential confusion or misinformation effects.

Our paper is the first that we have knowledge of that estimates the impact of an improved and simplified information provision at a national scale using a quasi-experimental setting in a DC context. In our case the intervention consisted of including a personalized pension projection in the periodic account balance statement sent to members of the mandatory pension plan in Chile. This additional information simplifies the comparison of current savings levels with that which would be necessary to achieve an implicit target retirement income, which could potentially have an impact on retirement savings decisions. The next sections give more detail about the personalized pension projection (called PPP) and present the impact evaluation methodology and results.

3. The Personalized Pension Projection

The pension system in Chile has changed significantly throughout its history. In 1980, the traditional PAYG system was replaced by an individual capitalization scheme, with defined contributions, private management of funds, free choice of Pension Fund Administrators (AFP) by program participants and state supervision. The system was defined as mandatory for

all dependent workers entering the labour force for the first time, and voluntary for those who were affiliated to the old system, as well as for the self-employed.

Despite the fact that the system has been in place for more than 25 years, recent surveys suggest a strong lack of information about some characteristics of the scheme. Tables 3.1 and 3.2 summarize results from a Social Protection Survey conducted in 2004 that asked a representative sample of members about knowledge and participation in the system. This analysis is separated by the same age and gender groups that define the different designs for the PPP (see section 3).

Table 3.1 – Information about the pension system, by age and gender

Age		Do you have Voluntary Savings?		Have you ever received any statement of your AFP?		Do you know how much money you have in your individual account?		Do you know in which type of funds your savings are invested?	
		Men	Women	Men	Women	Men	Women	Men	Women
Group 1: individuals aged 20-30	yes	2%	1%	72%	66%	46%	42%	35%	31%
	no	98%	99%	28%	34%	54%	58%	64%	68%
Group 2: men aged 30–55 and women aged 30–50	yes	3%	3%	73%	66%	60%	50%	36%	31%
	no	97%	97%	26%	34%	40%	50%	63%	69%
Group 3: men aged 56–63 and women aged 51–58	yes	2%	2%	66%	66%	62%	51%	27%	29%
	no	98%	98%	33%	34%	38%	49%	70%	69%

Source: Own calculations based on data from *Encuesta de Protección Social* (EPS 2004).

Table 3.2 – Information about retirement options, by age and gender

Age		Do you know that you can retire early?		Would you retire later if you would receive a better pension?		Do you know about pensions options?	
		Men	Women	Men	Women	Men	Women
Group 1: individuals aged 20-30	Yes	53%	55%	0%	0%	5%	5%
	No	47%	45%	65%	100%	94%	94%
Group 2: men aged 30–55 and women aged 30–50	Yes	63%	60%	13%	31%	10%	9%
	No	37%	40%	72%	45%	89%	91%
Group 3: men aged 56–63 and women aged 51–58	Yes	72%	67%	45%	28%	22%	17%
	No	28%	33%	54%	67%	78%	83%

Source: Own calculations based on data from *Encuesta de Protección Social* (EPS 2004).

Note: In some cases, individuals did not answer or answered that they did not know the answer. This explains why some of the totals do not add up to 100%.

The results show that nearly 99% of all individuals have no voluntary savings plan, regardless of age and gender[6]. In addition, about 30% of them said they have not received information from their AFP regarding their accounts. Faced with the question of whether they know how much money they have in their individual accounts, young people are relatively less knowledgeable than older people. With respect to whether they know where their savings are invested, only 30% said they know the type of fund in which they are located. Almost 40% of the people do not know that they can retire early. Younger participants declare they would not be willing to retire later, even if this involves a better pension. However, older individuals are more likely be willing to retire later in order to increase their pension. Finally, there is strong ignorance about the types of pension vehicles that could be chosen at the time of retirement.

Before the introduction of the PPP annex, the typical statement included the updated account balance and a summary of the contributions made in the previous 4-month period. In order to use this information to estimate the pension to be received, a member would need to make important assumptions and relatively complex calculations. With this in mind, the PPP was developed as a mandatory part of the statement to be included by all AFPs. A clearly standardized calculation methodology was defined and a simple presentation was designed to provide members with a personalized pension forecast, based on the total balance of accumulated funds and the number of years remaining before the member reaches legal retirement age, plus a series of assumptions on the rate of return of the funds, the amount of future contributions and the contribution density.[7]

In order to test the level of understanding and the effectiveness of the material, a focus group was consulted , which provided the guidelines for the design of the final version. As a result, the following pension forecast scenarios were defined for members over thirty years of age:

1) Members who are more than 10 years away from reaching legal retirement age - women between 30 and 50 years of age and men between 30 and 55 years - receive a personalised appendix which forecasts their pension in two extreme scenarios: in the first, the person contributes every month up to legal retirement age, using for this purpose the average earnings of the last six contributions; in the second, the person stops contributing and retires at the legal age with the funds accumulated up to that moment. For both scenarios, the Pension Fund is assumed to have had a real annual rate of return of 5%. The member is then presented with a series of recommendations to increase the value of his/her pension, such as voluntary savings, contributing as a self-employed worker or delaying retirement.

2) Members who will reach legal retirement age in 2 to 10 years time - women between 51 and 58 years of age and men between 56 and 63 years - are presented with an appendix explaining the advantages of postponing their pension decision. A forecast is made for each person, where it is assumed that the member contributes for half the months up to legal retirement age and retires at that age; a second forecast is constructed in which he/she contributes for half the months until 3 years after reaching legal retiring age (63

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[6] As of December 2004 a total of 285,727 voluntary savings accounts existed in the AFP system, representing 3.8% of total members at that date. Voluntary participation is higher among active contributors to the pensions system, the target population of our impact evaluation.

[7] See the appendix for an example of the PPP statement.

years for women and 68 years for men) and retires at that age. In both cases, the Pension Fund's real annual rate of return is assumed to be 5%.

In the case of members below the age of 30, a decision was made not to make a pension projection, as the exercise seemed meaningless considering the low number of contributions made by these individuals. It made more sense to inform them and make them clearly aware of the importance of their contributions at an early age and the great importance that these contributions have on retirement balances and pensions (close to 40% of old age savings, under some standard assumptions).[8]

As table 3.3 shows, the PPP has been included once every year since 2005. Starting in 2007, the projection was sent to all affiliates, regardless of their recent activity (close to 8 million individuals). Our analysis focuses on the first year of the program (2005).

Table 3.3 – History of statements sent including the PPP annex

Date	Activity
July 2005	First time the PPP was included in the statements sent to all members who had made contributions during the January-April 2005 quarter.
July 2006	Second time the PPP was included in the statements sent to all members who had made contributions during the January-April 2006 quarter.
March 2007	First time the PPP was included in the statements sent to all members (regardless of recent activity).

According to the administrative records for 2005, more than 3.3 million individuals were sent a PPP annex, of which close to 3 million were 10 years away or more from legal retirement age.

Table 3.4– Universe of members who were sent a Personalized Pension Projection

Sex	More than 10 years away from legal retirement age	Less than 10 years away from legal retirement age
Male	1,843,297	160,039
Female	1,113,627	185,229
Total	2,956,924	345,268

When we analyze some of the information provided in these statements, such as Taxable Earnings (TE), number of months with contributions in the previous year, estimated pensions in each scenario and the corresponding replacement rates, the evidence shows that there are strong differences by gender. Women have Taxable Earnings equivalent to 80% of men's TE. They are also less likely to contribute in the previous year and on average have estimated pensions that are less than half than those of men in each projection scenario. This feature of the Chilean pension system has been previously documented[9] and is largely affected by low (formal) labor market participation rates among women and interrupted work careers associated with taking care of children and relatives.

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[8] Examples of the different statements can be found in Appendix 1.
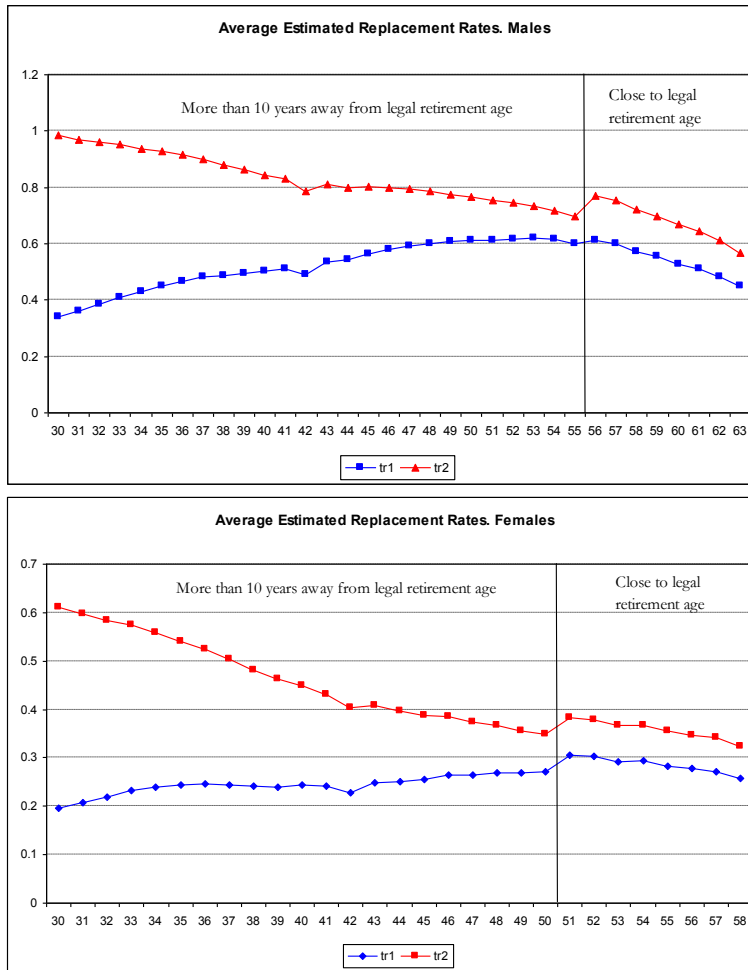[9] See for example Berstein and Tokman (2005) or Fajnzylber (2010).

Table 3.5 – Average characteristics of men and women who were sent a PPP annex

Variable	Female	Male	All	Female/Male ratio
Average Taxable Earnings	$ 273,399	$ 341,369	$ 314,635	80%
Months	7.72	8.88	8.43	87%
PPP1	$ 68,065	$ 162,355	$ 125,268	42%
PPP2	$ 126,096	$ 276,616	$ 217,412	46%
Replacement Rate 1	0.35	0.50	0.44	70%
Replacement Rate 2	0.57	0.84	0.73	68%

The average replacement rates by age implicit in the information sent in this statement are shown in figure 3.1. The vertical line divides the age-groups to which different statements are sent. Men below 55 years of age and women younger than 50 are sent a statement such as the one shown in Appendix 1, where the estimated pension is provided under the alternative scenarios: not to contribute until legal retirement age (tr1) and contributing for all the periods (tr2). Older workers are sent a PPP such as the one shown in appendix 1, where the extreme scenarios are to retire at the legal retirement age or three years later. The small spike in the replacement rate at the base scenario when moving from one age group to the next corresponds to the effect of assuming a 50% contribution density until legal retirement age rather than no contributions. The spike in the alternative scenario shows the effect of postponing retirement by 3 years (assuming a 50% density) rather than having a 100% contribution density until legal retirement age. It is clear from these results that postponing retirement has a stronger effect on the estimated pension than the density of contributions at advanced ages. Also notice that in the first age-group, on average, older individuals receive pension estimations which are more similar in both scenarios than those of younger individuals.

Figure 3.1 – Estimated replacement rates from the 2005 PPP statements

Average Estimated Replacement Rates. Males

More than 10 years away from legal retirement age

Close to legal retirement age

tr1   tr2

Average Estimated Replacement Rates. Females

More than 10 years away from legal retirement age

Close to legal retirement age

tr1   tr2

4. – Impact evaluation of the introduction of the PPP

The main goal of this section is to evaluate whether the additional (and individually tailored) information had an effect on the savings behavior of individuals who received the statement. We will concentrate on middle-aged individuals (between 30 and 50 years old), who received two different projections: one under the assumption that they make no additional contribution until retirement and one assuming that they contribute every month until retirement. The adequacy of expected retirement income can be weighted in these two scenarios and if deemed insufficient the individual can take remedial actions, such as starting or increasing voluntary contributions. We will look at the probability of making voluntary contributions after receiving the PPP as our outcome variable of interest. In the Chilean Pension system, members can make voluntary contributions additional to the mandatory savings made in AFPs. Since the beginning of the system, this option has been available at the same AFP that the individual chooses, but starting in 2002 a Capital Markets reform allowed banks, insurance companies, mutual funds and other financial institutions to offer investment vehicles for voluntary pension savings. By June 2005, 83% of all voluntary accounts were managed by AFPs. A little less than 200,000 accounts with a positive balance existed in AFPs, which is equivalent to 27 members with voluntary savings per 1000 members of the pension system. Figure 4.1 shows the evolution of the number of accounts per 1000 members and the average balance of these accounts. The figure shows that the introduction of the PPP coincides with a subsequent increase in the number of accounts with positive balance per 1000 members, while the second and third mail out of the PPP coincide with subsequent increases in the average balance of these accounts. Although the timing of these changes is indicative, further analysis is needed to identify whether the introduction of the PPP had any causal impact on voluntary savings.

Figure 4.1 - Voluntary Savings Accounts in AFPs: Number and Average Balance
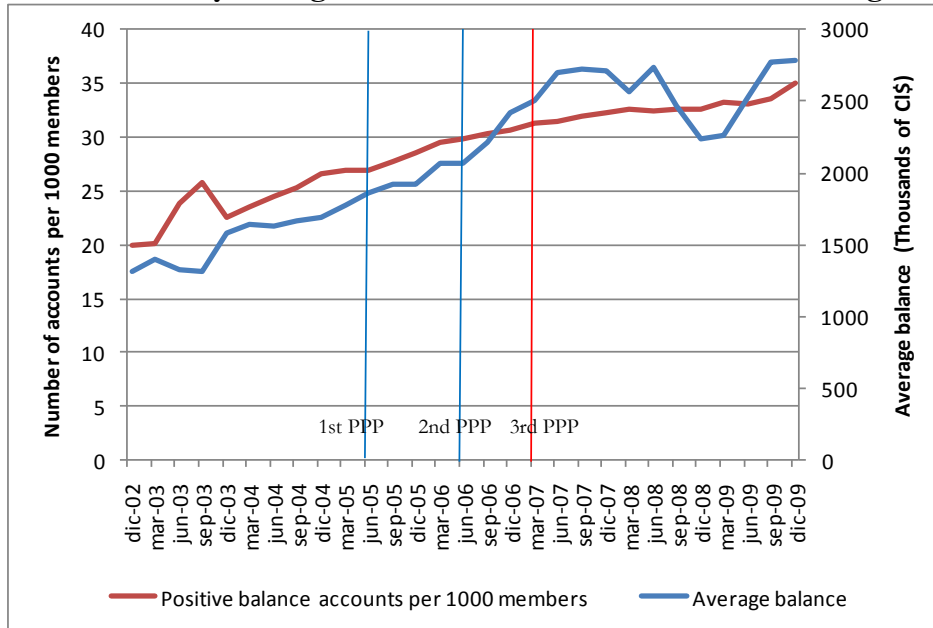
Source: Authors calculation based on Pensions Supervisory Authority, Statistical Bulletins

Given the design of the PPP, a number of identification strategies are potentially available to estimate the impact of this intervention on voluntary savings behavior. Given our outcome of interest and the rules under which the first statement was delivered to participants, we will focus on whether a participant received or did not receive the PPP. Only individuals who had made contributions during the January-April 2005 period were sent the July 2005 statement containing the first PPP. In addition, some individuals did not receive the statement, due to problems with their addresses. Our treatment group will consist of those who actually received the statement, while our control group is those individuals who were not sent the statement. Controlling for differences in observable characteristics of the members of each group, we could compare the outcomes of interest between members who received the statement and members who did not.

The basic idea behind this strategy is that individuals who did not receive a statement provide a control group for the individuals that did receive it. As this source of identification is not necessarily exogenous to the outcomes of interest (old age savings decisions), we use non-experimental techniques to address potential selectivity biases. This will be explained in more detail in the following sections.

4.2. – Data

To implement this strategy, a database was compiled for treated (individuals who received a statement) and control individuals (individuals who were not sent a statement). During the July 2005 wave, close to 3.3 million statements were sent to active members.[10]

The main concern with using the submission status as source of identification (i.e. using individuals who were not sent a statement as a control group) is the possibility that individuals who did not contribute in a particular quarter might be different in dimensions that may be related to savings behavior (for example, more stable jobs). In order to limit the analysis to groups that are likely to be more similar, we restrict the sample to individuals who presented at least one compulsory contribution after 2003.

Table 4.1 shows some of the characteristics of both the individuals who received the statements and those who did not. The main outcome of interest is a variable equal to one if an individual made voluntary contributions in one AFP Pension Voluntary Savings Account (known in spanish as an APV account) during the 12 months that followed the receipt of the PP statement. The one-year lagged version of this variable is presented in the first row of the table.

This table was constructed using a sample of individuals for which it was possible to observe the contribution and savings both before and after the introduction of the PPP.[11] A number of

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[10] Approximately 273 thousand statements were returned by the AFP postal services, mainly related to a change in the address of the person or wrong address. As mentioned earlier, a parallel analysis to the one presented in this article was performed using returned statements as a control group, but the selectivity bias turned out to be much stronger than the control group used here and these results were not included. See Fajnzylber et al (2009) for more details on this alternative identification strategy.

[11] Pretreatment variables were constructed using the Affiliates Pension Histories (HPA), a longitudinal administrative database based that was collected on a representative sample of 24 thousand members of the AFP system. More detailed on this database can be found in Berstein et al (2006).

measures were constructed to capture potential pre-treatment differences in observable characteristics between the two groups.

The comparisons suggest that in practically all dimensions the two groups are statistically different, calling the need for quasi-experimental techniques to be used to account for potential unobservable differences. In particular people who did receive the PPP tend to be older, have higher density of contributions and salaries, and are in general more likely to make voluntary contributions, which is our outcome of interest. All these results are expected, since making regular compulsory contributions (the main reason for being sent a statement) is likely correlated with being more attached to pension savings in general.

Table 4.1 – Pre-treatment characteristics of individuals who received statements and those who were not sent one.

Characteristic	Average among individuals who received the statement	Average among individuals who did not receive the statement	T-test for the difference in means
Voluntary savings during previous year	0.021	0.005	(6.17)**
Age as of June 2005	39.772	39.661	(0.7)
Male	0.632	0.612	(1.43)
Average covered wage during 2005 (ch$ million)	0.312	0.183	(21.50)**
Density of contributions between age 20 and June 2005	0.571	0.377	(26.81)**
At least one compulsory contribution between July 2004-June 2005	0.976	0.689	(23.56)**
Average Balance in Compulsory savings account (in UF)	23259.899	12213.425	(13.90)**
Average Balance in Voluntary savings account (in UF)	109.992	3.976	(4.91)**
Positive balance in voluntary savings	0.052	0.010	(11.33)**
Observations	7472	1468	

Robust t statistics in parentheses

* significant at 5%; ** significant at 1%

4.3. – Methodology

The main challenge that occurs when trying to evaluate the impact of an intervention (such as the introduction of the PPP) on potential outcomes of interest (such as the amount of voluntary retirement savings performed by individuals) is in estimating what would have happened to an individual in the counterfactual situation in which she hadn't been exposed to the intervention (if she hadn't received the statement). This is only possible if we can observe the behavior of an individual both before and after the intervention and/or we can credibly identify individuals who can serve as a control group for the treated individuals. When no random assignment is available (as in the evaluation of experimental drugs), finding a credible control group (one that is very similar to the treated individuals) is a difficult task, as assignment is usually determined by characteristics that we do not observe and that could be related to the outcome of interest.

The field of program evaluation has made significant progress in the last years, borrowing techniques from statistics and applying them to construct quasi-experimental estimators that

allow researchers to evaluate the effect of social interventions in settings where no experimental identification is possible. Most of the recent developments are oriented to make use of rich information about pre-treatment observable characteristics to control for unobservable differences that may be correlated with the potential outcomes of interest.[12]

An important literature that assesses the performance of alternative matching estimators based on randomized experiments and Monte Carlo simulations has recently developed. First Dehejia and Wahba (1999) claimed that simple cross-section matching estimators perform well when trying to replicate treatment effects based on experimental evidence. Later, Smith and Todd (2005) found that their results are very sensitive to the sample used and the variables included to estimate the propensity score. Based on Monte Carlo simulations, Zhao (2004) finds that when the correlations between covariates and the participation indicator are high, propensity-score matching performs relatively well, but when the sample size is too small, propensity score matching does not perform well compared with other matching estimators; He also finds that matching on covariates using the Mahalanobis metric is relatively robust under different settings.

In our case, we will first use the concept of overlap introduced by Rosenbaum and Rubin (1983), i.e. we discard treated individuals who do not have a reasonable counterfactual set to choose from in the control group. To do so, we estimate a parsimonious specification of the propensity score (the probability that a person belongs to the group of treated individuals, conditional on his or her pre-treatment characteristics). This means fitting a logit model using presence in the treated group (having received a statement) as dependent variable and the pre-treatment variables presented in table 4.1 as covariates. In order for the balancing property to be satisfied, several interactions between these variables were introduced as covariates in the model. The final specification chosen was the most parsimonious one that satisfied the balancing property for each age group. The result of this exercise is presented in table 4.2.

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[12] See for example Rosenbaum and Rubin (1983), Dehejia and Wahba (1999), Heckman, Ichimura and Todd (1998), or Abadie and Imbens (2001). See Imbens and Wooldridge (2009) for a recent survey of this literature.

Table 4.2 – Estimation of the propensity score for receiving a statement
(estimated coefficients and standard errors)
Control Group = Individuals who were not sent a statement

Variables	Dependent Variable = 1 if received a statement, 0 if statement was not sent	
	Age between 30 and 50	Age between 40 and 50
Age as of June 2005	-0.162	0.057
	(-1.76)*	(2.00)**
Contributions made 2005		2.182
		(7.47)***
Male * Contributions made 2005		-0.42
		(3.81)***
Density of contributions between age 20 and June 2005 * Contributions made 2005	2.297	2.223
	(6.41)***	(3.19)***
Density of contributions between age 20 and June 2005 * Voluntary savings during previous year		4.128
		(1.81)*
Density squared of contributions between age 20 and June 2005	-0.503	
	(-1.33)	
Male * Positive Voluntary Account balance	-1.003	
	(-1.42)	
Density of contributions between age 20 and June 2005 * Average covered wage during 2005 (ch$ million)	0.985	1.521
	(1.37)	(1.42)
Average covered wage during 2005 (ch$ million) * Contributions made 2005	1.711	
	(2.10)**	
Age as of June 2005 * Contributions made 2005	0.034	
	(7.26)***	
Average covered wage during 2005 (ch$ million)	5.143	7.149
	(5.79)***	(7.19)***
Average squared covered wage during 2005 (ch$ million)	-6.093	-6.352
	(-9.97)***	(-7.01)***
Contributions made 2005 * Positive Voluntary Account balance	0.802	5.071
	(1.33)	(1.76)*
Average covered wage during 2005 (ch$ million) * Positive Voluntary Account balance	1.408	6.743
	(1.53)	(3.58)***
Density of contributions between age 20 and June 2005		3.78
		(1.26)
Voluntary savings during previous year * Average covered wage during 2005 (ch$ million)		-3.843
		(-2.49)**
Density of contributions between age 20 and June 2005 * Age as of June 2005		-0.097
		(-1.49)
Age as of June 2005 * Positive Voluntary Account balance		-0.127
		(-2.08)**
Age squared as of June 2005	0.002	
	(1.55)	
Age as of June 2005 * Male	-0.01	
	(-4.10)***	
Average covered wage during 2005 (ch$ million) * Male	0.503	
	(1.39)	
Constant	2.264	-4.506
	(1.24)	(-3.44)***
Observations	8940	4469
Balancing property satisfied	yes	yes

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

As Rosenbaum and Rubin (1983) show, if properly estimated, the propensity score should contain all the relevant information to assess the overlap condition. Figure 4.2 shows the distribution of propensity scores for treated and control units, for the 30-50 age group. As expected, treated individuals present more mass close to one, whereas the propensity score for untreated individuals is more widely spread along the entire interval.

Figure 4.2 – Propensity score distribution among treated and control units
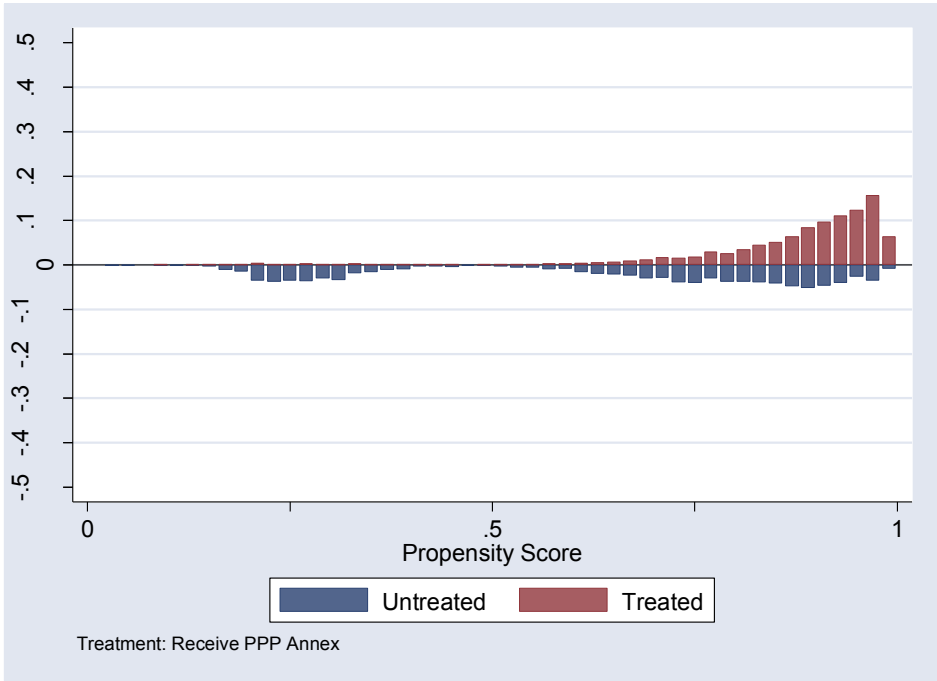
With the overlap condition in mind, individuals with propensity score below 0.093 or above 0.9978 were dropped from the sample in this age group.

We then turn to the estimation of average treatment effects on the treated. For this step, we used a number of different methods:

- A simple Ordinary Least Squares (OLS) regression using all the pretreatment variables as covariates. The specification used can have the interpretation of average treatment effect (ATE) or ATE on the treated, under the additional assumptions that the conditional expectations of the potential outcomes are linear in the observables and treatment effect is constant.[13]

- Average treatment effect on the treated using a nearest-neighbor propensity score matching (NNPSM) method. Under this method, the propensity score is used to identify, for each treated individual, the control unit with the closest propensity score.[14]

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[13] Alternatively, one could allow for treatment to vary with the observables by including an interaction between the treatment variable and all the observed characteristics (expressed in differences with respect to the sample mean among the treated). This will be included in future work.

[14] All the estimations were performed using the statistical package Stata. Propensity score matching estimators were implemented using routines developed by Sascha Becker and Andrea Ichino (2002).

- Average treatment effect on the treated using a propensity score radius matching (PSRM) method. In this case, the search for similar control units is restricted to individuals with a propensity within a certain neighborhood of the treated person.[15]
- Nearest neighbor using matching on covariates (MC). In this method, the entire vector of covariates (instead of the propensity score only) is used to identify the control individual with the closest observable characteristics to the treated unit.[16]

4.4. – Results

In this section, we present estimators using the methodologies described earlier, applied to two age-groups (30-50 and 40-50).

Table 4.3 presents the detailed results of the OLS estimator applied to the two age groups. We use the same variables included in table 4.2. The outcome of interest (the dependent variable) is a dummy variable equal to 1 if the person made at least one contribution to an AFP individual voluntary savings account in the 12 months that followed reception of the PPP statement (July 2005 – June 2006).

As we can see, the average treatment effect is positive on both specifications but statistically significant only in the 30-50 age group. The estimated effect is 0.3% in this case, i.e., an individual who received a statement presents a probability of making voluntary contributions in the first 12 months after receiving it approximately 0.3 percentage points higher than individuals who did not receive it. Considering that during the July 2004-June 2005 period, only 1.75% of the individuals aged between 30 and 50 years old made voluntary contributions in an AFP, the estimated marginal effect of receiving a PPP statement is quite significant.

The control variables included in the regression suggest that the probability of making voluntary contributions is strongly serially correlated (having made contributions the previous year is a strong predictor) but also increases with age, taxable earnings and whether the individual had a positive balance in their voluntary savings account at the beginning of the period. Women are generally more likely to be making voluntary contributions. These results are consistent with the most common way of making voluntary contributions, automatic payroll deductions made by employers and with the tax exemption associated to these contributions, which naturally increases with the covered wage.

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[15] More specifically, we use a 0.05 radius in the implementation of this estimator.

[16] For a discussion on matching estimators using Stata, see Abadie et al (2004). In our estimations, we use 1 nearest neighbor, the Mahalanobis metric for calculating distances between vectors of covariates, the bias-corrected version of the matching estimator and we present heteroskedasticity-consistent standard errors using 4 matches in a second matching stage. We impose exact matching on gender and 5-year age groups.

Table 4.3 – OLS estimators of the Average Treatment Effect
Dependent Variable=1 if made voluntary savings during first year after statements were sent
Control group: Individuals who were not sent a statement.

Variables	Age between 30 and 50	Age between 40 and 50
Treatment status (1 if received a PPP statement)	0.003	0.001
	(1.91)*	(0.60)
Voluntary savings during previous year	0.706	0.686
	(20.21)***	(14.25)***
Age as of June 2005	0.000	0.000
	(1.78)*	(0.18)
Male	-0.004	-0.005
	(-1.83)*	(-1.520)
Average covered wage during 2005 (ch$ million)	0.043	0.041
	(5.35)***	(3.85)***
Density of contributions between age 20 and June 2005	-0.009	-0.003
	(2.06)**	(0.590)
Contributions made 2005	-0.001	-0.002
	(-0.970)	(-1.230)
Positive balance in voluntary savings	0.068	0.065
	(4.93)***	(3.71)***
Constant	0.011	-0.007
	(1.420)	(-0.330)
Observations	8937	4461
R-squared	0.55	0.55

Robust t or Z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Using the same covariates included in the previous specifications, the following table repeats the OLS results, together with the average treatment on the treated results from the different matching estimators introduced in the previous section.

Table 4.4 – Alternative estimators of the Average Treatment on the Treated
Dependent Variable=1 if made voluntary savings during first year after statements were sent
Control group: Individuals who were not sent a statement.

Method	Age between 30 and 50	Age between 40 and 50
Regression (OLS)	0.003	0.001
	(1.91)*	(0.600)
Nearest Neighbor Prop. Score matching	0.018	0.022
	(4.211)***	(3.605)***
Propensity Score radius (0.05) matching	0.014	0.020
	(4.965)***	(5.261)***
Matching in covariates, exact gender and age group	0.009	0.0137
	(5.69)***	(11.28)***
Observations	8937	4461

Notes: Robust t or z statistics in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

The results suggest, in a highly consistent manner, that reception of the PPP statement had a positive effect on the probability of making voluntary contributions during the 12 months after receiving the statement. The average impact ranges from 0.1 percentage points to 2.2 percentage points, being significantly different from zero (at least at a 10% significance level) in all but one specification. Estimators based on propensity score matching suggest larger impacts than regression estimators but which are similar to those based on matching on covariates. The main difference between the matching results based on propensity score and those based on covariates is the restriction, in the latter case, that matching on gender and age group be exact (i.e. that control individuals are searched only within the same gender*age cell of the treated members). In fact, covariate-matching specifications not requiring exact matching (not reported here) gave results very similar to those produced using propensity score. The observed difference could imply that the true propensity score is not well approximated by the estimated probit model. For this reason, our preferred estimators are those based on matching on covariates with exact gender and age correspondence (the last row). For these estimators, the average impact is equal to 1.37 percentage points for the 40-50 age group and 0.9 percentage points for the 30-50 age group. The larger impact for the older group is consistent with the idea that individuals become increasingly concerned with their pension prospects as they approach retirement age and, when possible, start taking actions to improve it. As mentioned earlier, the results presented here appear to be of significant magnitude, highlighting the importance that information can have on the pension-related decision making process of participants.

Table 4.5 presents the same type of results but for a subsample of individuals who did not make voluntary contributions during the year prior to receiving the statement (July 2004-June 2005). This could be interpreted as a difference-in-difference estimator, conditional on individuals who did not make voluntary savings prior to the intervention. In this case, the dependent variable is equal to one only when individuals **start** making voluntary contributions the year after the statement was sent. As before, the control group (individuals who were not sent a statement) provides us with an estimate for the change in behavior between the two periods for the treated individuals, had they not received the statement. This allows us to

better control for pre-treatment differences in the voluntary savings behavior of treated and controls.

Table 4.5 –Average Treatment on the Treated – Conditioning on not having made contributions during previous year

Dependent Variable=1 if made voluntary savings during first year after statements were sent, *conditional on not having made contributions during previous year.*
Control group: Individuals who were not sent a statement.

Method	Age between 30 and 50	Age between 40 and 50
Regression (OLS)	0.003	0.002
	(4.02)***	(1.74)*
Nearest Neighbor Prop. Score matching	0.008	0.007
	(7.512)***	(5.117)***
Propensity Score radius (0.05) matching	0.008	0.007
	(7.512)*	(5.117)***
Matching in covariates, exact gender and age group	0.0059	0.0071
	(4.55)***	(7.01)***
Observations	8771	4374

Notes: Robust t or z statistics in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Results are positive, significant in all specifications, but smaller than in the previous case, with the impact of the PPP ranging from 0.2 percentage points to 0.8 percentage points on the probability of initiating voluntary contributions. Our preferred estimator (matching in covariates, with exact coincidence of gender and age group) suggests a moderate but strongly significant effect (0.7 and 0.6 percentage points for the 40-50 and 30-50 age groups, respectively) of receiving the statement on the probability of starting making voluntary contributions.

4.5. – Robustness Check

All the results presented in the previous section rely on the main identifying assumption that controlling for similar observed characteristics, treatment is ignorable, i.e. it can be considered as independent of the outcomes of interest. This assumption cannot be directly tested, as it is a statement about the distribution of unobserved characteristics of the individuals and its relationship with the outcome of interest. However, it is possible to test whether the same methodology applied to a context in which one should not expect to find an effect of belonging to the treatment group provides estimators not economically or statistically different from zero.

Along these lines, we apply the same methodology of the previous section to a counterfactual situation in which all the relevant measurements are done one year prior to the actual implementation of the PPP, but keeping the same treatment status as in the original specification. If the estimated effects of the previous section are due to selection bias (i.e., if conditional on observed controls, individuals who did not receive the PPP are systematically different to treated individuals in dimensions that are correlated with the outcome of interest) they should persist once we move all the measurements backward. If, on the contrary, the

estimates cannot be associated with endogenous selection, we shouldn't be able to reject the hypothesis that they are equal to zero.

Table 4.6 presents the equivalent estimators to table 4.4, but applied to the data one year prior to the actual implementation (pretreatment variables measured for the July 2003-June 2004 and the outcome variable measured for the period July 2004-June 2005).

We can see that in most specifications, we cannot reject the null hypothesis that the effects were equal to zero. In our view, this provides a strong test that our results (particularly those based on matching on covariates) reflect the causal impact of receiving a PPP statement on the voluntary savings decision of AFP affiliates.

Table 4.6 – Counterfactual estimators of the Average Treatment on the Treated (all variables measured one year earlier)
Dependent Variable=1 if made voluntary savings during first year after statements were sent
Control group: Individuals who were not sent a statement.

Method	Age between 30 and 50	Age between 40 and 50
Regression (OLS)	-0.004	-0.004
	(-1.31)	(-1)
Nearest Neighbor Prop. Score matching	0.008	0.008
	(1.426)	(0.886)
Propensity Score radius (0.05) matching	0.009	0.015
	(2.595)**	(2.910)**
Matching in covariates, exact gender and age group	-0.009	-0.011
	(-1.57)	(-1.37)
Observations	7793	3776

Notes: Robust t or z statistics in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

4.6. – Alternative outcomes

In all specifications presented so far, the outcome of interest has been whether the individual made at least one voluntary contribution during the 12 months following receipt of the PPP. In this section, we present three alternative outcomes related to voluntary savings behavior during the same period: the number of months in which the person made a contribution to an APV account (Y2), the number of months in which the person made voluntary savings contributions to a non-pension voluntary saving account[17] in an AFP (Y3) and whether the person made voluntary savings contributions to a pension or non-pension voluntary saving account in an AFP (Y4).

Table 4.7 presents the average impact on these outcomes under the different estimators, for the 30-50 age group. Under our preferred estimator (matching on covariates), receiving the PPP would increase the number of months with positive APV by 0.043, the number of months with positive contributions to a pension or non pension voluntary savings account by

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[17] These accounts are similar to the APV accounts but without tax exemption or withdrawal penalties. They are also known as second accounts (*Cuenta 2*).

0.288 and the probability of making at least one contribution to any voluntary savings account (pension or non pension) by 3.8 percentage points. These results are also interesting, since there are design differences between both savings mechanisms (APV and savings account). While an APV account receives favorable tax treatment, individuals face penalties if they withdraw part or all of the balance before retirement. On the other hand, savings accounts have no tax incentives (which are irrelevant for middle and low income workers exempt from income taxes) and provide liquidity in the form of a maximum number of withdrawals (usually 3 or 4) per year. This means that a savings account could be a more appealing savings vehicle for low income and younger individuals.

Table 4.7 –Average Treatment on the Treated for alternative outcomes of interest
Control group: Individuals who were not sent a statement

	Dependent Variable: Number of months with voluntary retirement contributions (Y2)	Dependent Variable: Number of months with voluntary contributions to savings account (Y3)	Dependent Variable: Number of months with any voluntary contributions (Y4)
Nearest Neighbor Prop. Score matching	0.045	0.081	0.022
	(0.613)	(0.917)	(1.94)*
Propensity Score radius (0.05) matching	0.039	0.408	0.045
	(0.930)	(6.87)***	(6.251)***
Matching in covariates, exact gender and age group	0.043	0.288	0.038
	(3.1)***	(3.52)***	(4.85)***
Observations			

Notes: Robust t or z statistics in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

4.7. – Results for subgroups of the population

So far, estimates were presented for all the treated individuals in the relevant age groups. We would expect, however, that the impact of additional information should be different for certain subgroups among the treated. In particular, we expect to find higher impacts among women, among individuals who are in the positive tax brackets (not tax exempt) and individuals with low projected replacement rates.

Legal retirement age for women and for men is different in Chile: 65 for men and 60 for women. As projections are based on these ages, the higher life expectancy at retirement contributes to the general trend that women tend to have lower pensions than men. At the same time, the generally shorter time to retirement might also increase the sense of urgency of women who receive the projection. We therefore expect to see a greater effect among women than men.

As voluntary contributions receive a tax benefit only if the individual is in an income bracket where he or she has to pay taxes, we expect the impact to be at least partially affected by the tax range of the individual. Finally, we expect the impact to be smaller for individuals with relatively high projected replacement rates, as these individuals should be closer to their desired benefit.

Table 4.8 presents the results of the average treatment effect on the treated for the three subgroups mentioned above. Individuals were divided by gender, by whether they were exempt from taxes (with taxable income above Ch$409,158 in 2005), and by the projected replacement (above or below the median replacement rate among the treated). Estimation was restricted to individuals in the 40-50 age range and conditional on not having made voluntary contributions during the previous year.

Table 4.8 –Average Treatment on the Treated for alternative subgroups – Conditioning on not having made contributions during previous year

Age between 40 and 50, Control group= Individuals who were not sent a statement

	Men	Women	Tax exempt	Not tax exempt	High replace-ment rate	Low replace-ment rate
Regression (OLS)	0.000 (0.07)	0.004 (1.92)*	0.002 (2.14)**	0.010 (1.99)**	0.000 (0.05)	0.003 (2.10)**
Nearest Neighbor Prop. Score matching	0.006 (3.615)***	0.010 (3.622)***	0.003 (2.832)***	0.021 (4.286)***	0.008 (3.328)***	0.007 (3.885)***
Propensity Score radius (0.05) matching	0.006 (3.615)***	0.010 (3.622)***	0.003 (2.832)***	0.022 (4.287)***	0.008 (3.328)***	0.007 (3.885)***
Matching in covariates, exact gender and age group	0.006 (5.30)***	0.010 (4.74)***	0.003 (3.68)***	0.021 (5.84)***	0.008 (4.80)***	0.007 (5.88)***
Observations	2767	1599	3481	887	1687	2692

Notes: Robust t or z statistics in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

As expected, the impact on women is significantly larger than that on men, potentially reflecting their higher sense of urgency caused by the reception of the projection, given that the level of pensions shown in the projections are much lower than those for men (see figure 2.1). Also consistent with our prior beliefs, individuals exposed to a positive tax benefit when making voluntary contributions exhibit a significantly larger impact than tax exempt individuals. This could also reflect the generally lower liquidity constraints of higher income individuals. Contrary to what we expected, however, individuals with high replacement rates present a slightly higher impact than those with lower replacement rates.[18]

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[18] This result could partly be explained by potential measurement error in the projected replacement rate, which was specially constructed for all individuals but without all the relevant information. In particular, recognition bond information was not available to construct an appropriate estimate of pension wealth when the projection was made. If recognition bond amounts are negatively correlated with balances in the individual accounts, the relationship in replacement rates could be reversed, particularly for individuals in this age group, who are likely to have a significant share of their pension wealth as recognition bonds.

5. - Final Remarks

The PPP represents a substantial improvement in the quality of information provided to participants in the Chilean pension system. For the first time in its 25 years of existence, members were exposed to official information about the expected level of pensions they would receive. Although these projections are based on a number of assumptions, they allow members to make informed decisions that could improve their pension prospects, by making or increasing the amount of voluntary savings (for those who can), ensuring that their contributions are correctly paid, contributing as self-employed workers or delaying the retirement decision.

It is not often, however, that changes of this magnitude are subject to rigorous statistical evaluations to determine their impact on individual behavior or to improve on its design. To the best of our knowledge, this is the first time that this type of evaluation has been implemented on the effect of improved information provision on individual decision of participants in defined contribution pension systems[19].

Our results suggest that the new information provided to participants in the system, by showing what their current savings would provide in the future, did change their behavior: individuals who received the statement increased the probability of making voluntary contributions, especially in the older group (40-50), by more than 1.3 percentage point and increasing the probability of starting to make contributions (conditional on not having done so in the previous year) by more than 0.7 percentage points. The effect on younger cohorts was smaller, consistent with some form of myopia or liquidity constrains. The identification strategy, mostly based on the use of matching estimators built on observed pre-treatment characteristics of individuals who received the PPP and those who were not sent one, were reinforced as a result of applying them to a period when no effect was expected.

Conceptually, these results are interesting, since the recent literature on behavioral economics suggests that inertia is so strong that improving information is unlikely to result in significant changes in actual savings decisions (insert citations). However, our results suggest that simplified information may help individuals to better align their savings plans with their retirement income goals, even in systems with mandatory participation or automatic enrollment. Improved information is attractive given its relatively low cost when compared with massive financial education or awareness campaigns. That this strategy is able to yield positive behavioral impacts makes it a valid option in the array of tools available for policymakers to increase the level of retirement savings. As more studies that evaluate the impact of different strategies to increase retirement savings become available, policymakers may have better information on which to base their decisions about what strategies to adopt.

The launching of the PPP followed a debate about the advantages of providing more information in a context of low financial education against the risk that individuals may interpret these official projections as promises about their future pensions, something that cannot be guaranteed in defined contribution systems. The results presented here provide a strong argument for continuing and improving on this policy. The implication that better

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[19] For recent international experiences on information provided in DC pension systems see Rinaldi and Giacomel (2008)

information is able to improve savings decisions reinforces the importance that regulators and pension providers should give to this issue.

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Appendix – PPP in the intermediate age group
(men between 30 and 55, women between 30 and 50), 2005 version, translated by the authors

> ## Your future is in your hands,
> ### Inform yourself about your pension!

Personal information   **Information as of   April 30, 2005**

Name	First Last (man)	**Accumulated balance**	$ 7.131.584
ID	x.xxx.xxx-x	**Recognition bond**	$ 460.815
Age	43	**Average last 6 incomes**	$ 317.419

Important: In the last 12 months, you contributed: 6 months

What would your pension be if you …

	You would receive an estimated pension of
… stop contributing and retire at **age 65?**	**$113.018**
… keep contributing every month for **$317.419** and retire at **age 65?**	**$176.054**

For the calculation of the estimated pension, we assume a 5% return on your savings and that you have a spouse two years younger

You can improve your pension:
- If you are self-employed, you can contribute directly in your AFP
- Remember that you can retire after reaching the legal retirement age. If you delay your retirement, your pension will increase.
- Inform yourself about the Voluntary Pension Savings (VPS) and the Voluntary Savings Account (*Account 2*)
- There exists a minimum pension guaranteed by the State of $77.077. If your estimated pension is below this amount, inform yourself about the prerequisites to obtain this benefit.

> If you desire a more detailed pension projection, contact your AFP at:
> **AFP** xxxxxxx   www.**afp**xxxx.cl   **Phone**: 800-xxx-xxx

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