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# Setting Up a Communication Package for the Italian NDC

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LUGLIO 2019

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## ABSTRACT

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# Setting Up a Communication Package for the Italian NDC\*

In the last 30 years the Italian pension system was repeatedly reformed and counter-reformed, increasing uncertainty about future pensions. A low level of financial literacy exacerbated this problem. In 2015, the Italian Social Security Institute (INPS) launched a project to allow all insured workers to have more precise information about their future benefits. This paper analyzes the results of a survey carried out to evaluate the project's performance. The findings are encouraging – around 80 percent of respondents rate the INPS service as at least “very helpful.” Even if 42 percent of the sample overestimates their future pension, 16–29 percent reveal a willingness to change their expectation on retirement income after receiving new information.

**KEYWORDS:** Financial Literacy, NDC, Retirement Planning

**JEL CODES:** H55, G14

### Abbreviations and Acronyms

INPS Italian Social Security Institute  
IV Instrumental Variable

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## 1. Introduction

Since the beginning of the 1990s, the Italian pension system has been subject to several significant reforms. The “Fornero reform,” introduced in 2012, is merely the last of a series of measures that modified Italy’s national pension system. The first reform in 1992 (the so-called “Amato reform”) was followed by the Dini reform in 1995 and by three minor subsequent adjustments introduced in 1997, 2005, and 2007.<sup>1</sup>

This process resulted in: an increase in the minimum pension age; the gradual transition from a defined benefit system toward a defined contribution one; and a drop in the replacement rate. These reforms standardized the rules for the future, but also generated major differences in treatment between younger workers (those who had no contributions paid prior to 1995), middle-age workers (with less than 18 years of contributions paid in 1995), and older workers.

These are the most significant changes in the Italian pension system in the last 20 years. However, this was no smooth ride, as these changes often overlapped and were incoherent with one another: periods of tightening were suddenly followed by periods of loosening and derogations, undoing some of the previous reforms. This inevitably produced anxiety and uncertainty among future retirees.

As a result, today a vast number of people tend to overestimate their future pensions, and Italy’s low rate of financial literacy exacerbates the situation. Analyses, based on data by the Bank of Italy, indicate a widening of the gap between the expected and effective replacement rate, together with heterogeneity in the population’s knowledge of basic social security concepts.<sup>2</sup>

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<sup>1</sup> Legislative Decree n.503/1992; Law n. 335/1995; Law n. 449/1997; Law n. 243/2004; and Legislative Decree n. 252/ 2005.

<sup>2</sup> Comparing the prereform period (1989–1991) and the postreform period (2000–2002), the percentage of people who overestimate or underestimate their replacement rate by 25 percent or more increased from 10 percent to 14 percent among employees, from 10 percent to 16 percent among civil servants, and from 11 percent to 29 percent among the self-employed (Bottazzi, Jappelli, and Padula 2006).

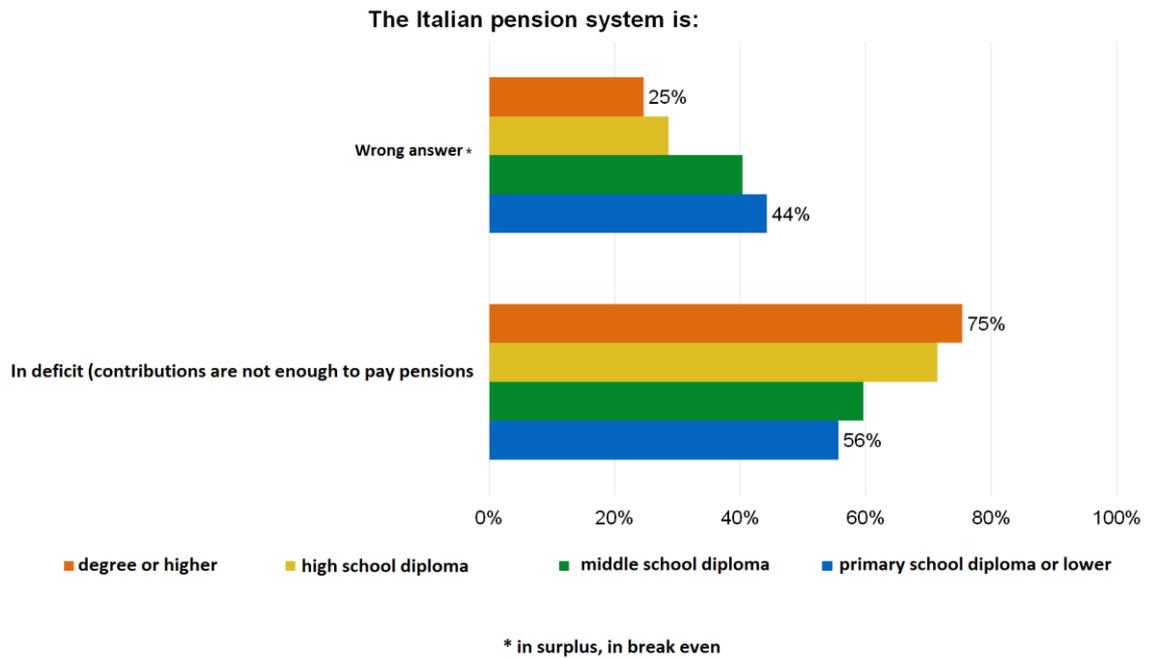
A survey carried out by INPS (the Italian Social Security Institute) in 2016 seems to confirm these findings. The questionnaire asked respondents a few basic questions on the functioning of the pension system in a multiple-choice framework, where only one answer was correct. The results from this survey show that people with higher education levels tend to have higher scores, probably because they are more financially literate and have a better understanding of the mechanisms that regulate the national social security system (Figure 1.1 and Figure 1.2).

The probability of receiving a wrong answer is relatively higher for questions that refer to how the contributions deposited into the system are employed. The majority of respondents believe that contributions are deposited into a personal account that they will tap into when they retire. Just over one-third (32 percent) of graduates (33 percent of those with a high school diploma) are aware of the fact that Italy has a pay-as-you-go system. This figure drops to 24 percent among those with only a primary school diploma.

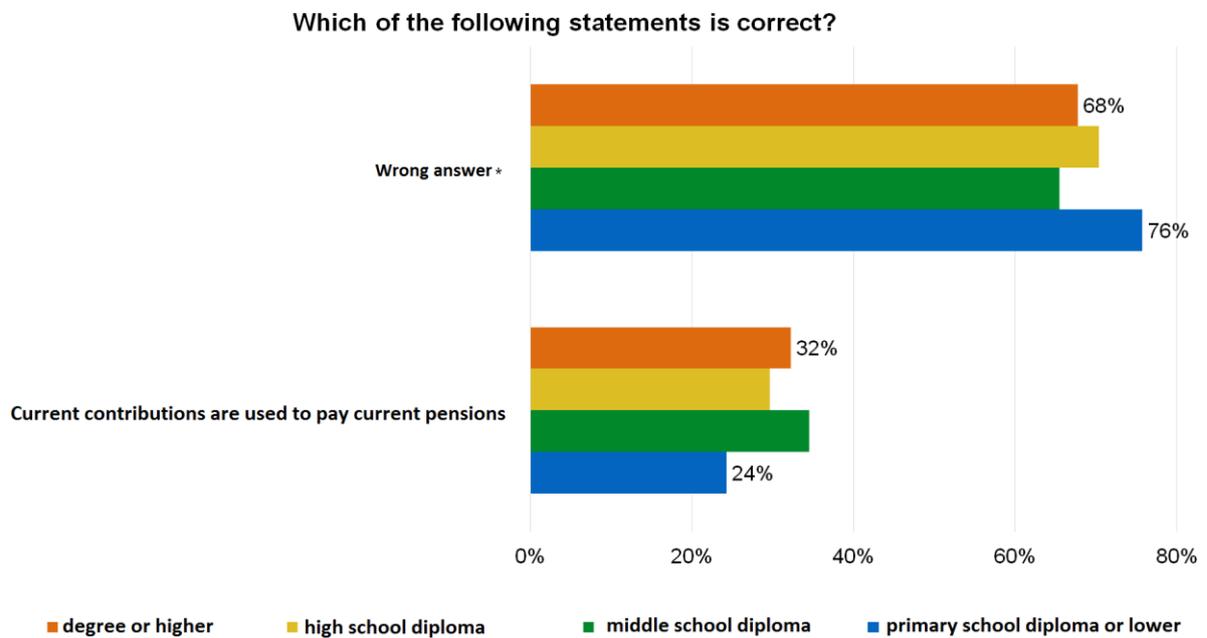
Evidence shows that the number of correct answers (current contributions are used to pay current pensions and contributions are not enough to fund them) increases with age, as people get closer to retirement, while younger people appear to be less familiar with the functioning of the pension system. This age effect is evident in the above-mentioned analyses on the expectations regarding the replacement rate. Workers who entered the labor force more recently display a higher tendency to have naive expectations. This is true also for workers with discontinuous careers, for employees in small firms, and for the self-employed. In addition to lacking information, these groups of people do not have solid certainties about their future incomes. They also do not seem to have adequate tools enabling them to make informed choices that will allow them to reduce the risk of having low incomes after retirement.

This paper shows the first results of a communication campaign (the so-called “*La mia pensione futura*”; referred to as “My future pension” hereafter) launched by INPS in 2015 to let all INPS-insured workers know when they will be able to retire and to provide a prediction of their future pension level.

**Figure 1.1: Knowledge of the Italian pension system financial situation, by education**



**Figure 1.2: Knowledge of the Italian pension system features, by education**



\* Option 1: Contributions flow into an individual account from which every worker will tap into when she will retire  
 Option 2: A part of contributions flow into an individual account, the other part is used to pay current pensions

Source: INPS survey 2016.

## 2. Pension reforms and communication

The reform process of the Italian pension system, starting in 1992 with the Amato reform, put greater responsibility on all workers, who are responsible for planning their retirement. To keep their current standard of living when they retire, workers should invest part of their savings into a complementary pension scheme along with the first-pillar public pension.<sup>3</sup> Moreover, the 1995 reform changed the calculation method, making the assessment of future benefits more difficult. Specifically, like Sweden, Italy opted for a defined contribution retirement plan in which notional accumulated contributions are transformed into an annuity at retirement.<sup>4</sup>

Current literature clearly points out that workers' ability to carefully plan their retirement, and adjust consumption and savings over the working life, is closely related to financial literacy levels: higher literacy results in more knowledgeable behavior. Lusardi and Mitchell (2011) showed that 30–40 percent of the differences in the savings rate of individuals close to retirement can be attributed to differences in their levels of financial literacy.

Italy is a country with a low financial literacy. Italian financial literacy lags behind other advanced economies, as highlighted by the Organisation for Economic Co-operation and Development (OECD 2014) and by Klapper, Lusardi, and van Oudheusden (2015). The latter show that only 37 percent of Italians correctly understand basic financial concepts, much less than the European Union average of 52 percent. In addition, di Salvatore et al. (2017), using the results of Bank of Italy surveys conducted in 2017, demonstrate that just a minor part of this gap depends on Italian sociodemographic differences compared to other countries.

This low level of financial literacy is one of the main reasons why pension reforms, especially the most disruptive ones, should be adequately communicated and explained to workers. For

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<sup>3</sup> One year after the Amato reform, changes in complementary pension system were approved to develop a supplementary funded pillar (D.Lgs n.124/1993).

<sup>4</sup> Pensions are related to the contribution paid over the working life, capitalized every year by a five-year moving average of gross domestic product growth, and to retirement age. Capitalized contributions are then annualized at retirement by multiplying them by an age-related conversion coefficient.

example, Sweden also moved to a contribution-based method for the calculation of pensions at the end of the 1990s.<sup>5</sup> Since 1999, just one year after the reform passed, the Swedish social security agency (Försäkringskassan) has automatically sent a statement (the “Orange Envelope”) to all resident citizens aged 28 years or more of their current personal pension position, including an estimate of their future pension benefit conditional on their planned retirement age and on different assumptions about the growth of the Swedish economy. Swedish workers can obtain a forecast that also includes their occupational pension and any private pension. In 2018 the Swedish pensions agency decided to exclude the projection from the statement. The aim is to move toward a digital “Orange Envelope,” and projections (state pension, occupational pension, private pension plans) will be made in digital interactions with contributors via MinPension.se, the agency’s website.

In Italy, the law that introduced the 1995 reform, which radically changed the pension calculation method, envisaged a communication campaign to ensure that all Italian citizens would be able to fully grasp the implications of the reform on their future pensions. In contrast with Sweden, however, it took more than 20 years after the Dini reform to launch this campaign.

Section 3 provides details on Italy’s communication campaign, while section 4 analyzes user satisfaction with the “My future pension” program using feedback collected on a survey.

### **3. INPS “My future pension” campaign**

#### **3.1. Establishment of “My future pension”**

The expectations of Italian workers regarding their replacement rate trend downward irrespective of the categories under analysis (Figure 3.1). This means that Italian workers have negative expectations regarding their future pension, understandable given the characteristics of the new regime. However, there is a distance between expected retirement

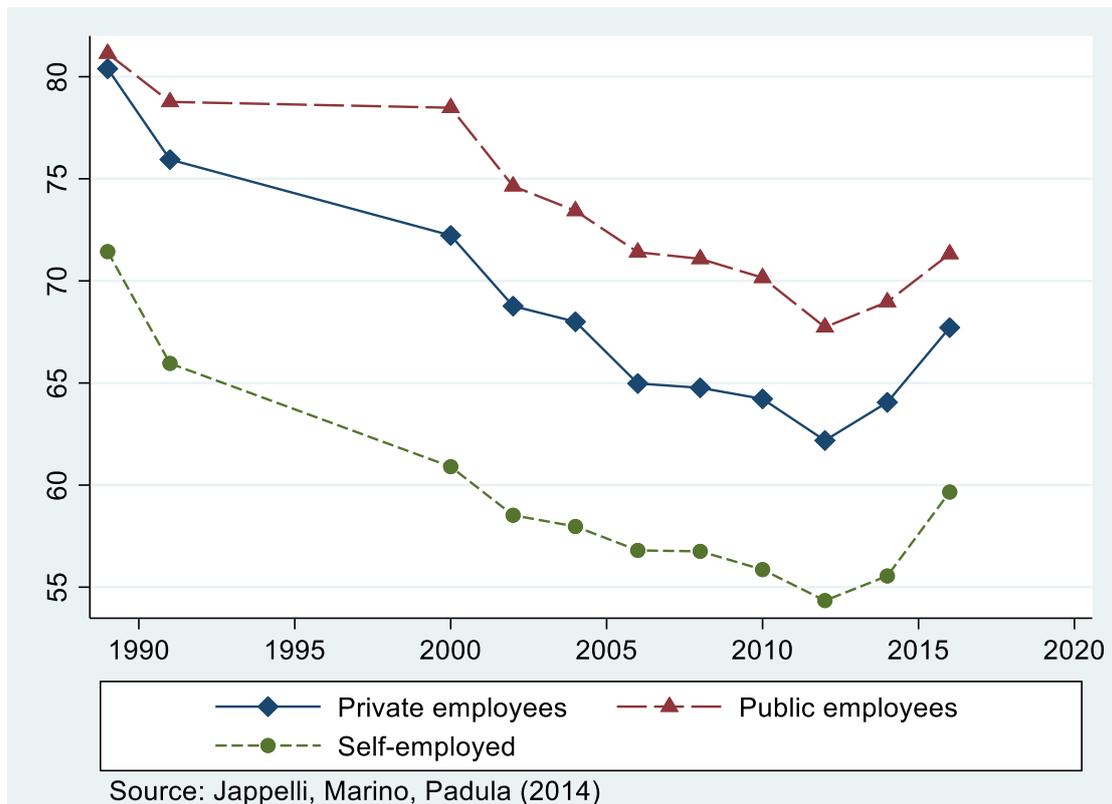
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<sup>5</sup> The proposal for Swedish reform was drawn up between 1992 and 1994 but it was adopted in 1998. For a detailed description of the Swedish pension reform, see Pollnerová (2002).

age and that will be applied to younger workers. As for the retirement age, “during the last 15 years, expectations have been very optimistic, and young generations may have accumulated an insufficient amount of wealth” (Jappelli, Marino, and Padula 2014).

In this specific setting it is always advisable to give clear financial information.

**Figure 3.1: Italy’s expected replacement rate by employment group, 1990–2016**



Source: Jappelli, Marino, and Padula computation on SHIW data (Jappelli, Marino, and Padula, 2014).

In 2015, INPS launched a project called “My future pension” to inform insured workers (at least those insured by INPS – i.e., almost 90 percent of the Italian workforce) of when they will be able to retire and to give them some order of magnitude of their future pension incomes at retirement. This online service will gradually allow all workers to estimate their future pension on the basis of their past careers and on the projection of their future contributions until retirement.

To start with, the service was opened to roughly 19 million INPS-insured workers,<sup>6</sup> beginning with the youngest ones with at least a three-year contribution record. The service was offered to private sector employees, the self-employed, most of the workers contributing to “special” industry-level funds (a legacy of past ad hoc rules for some specific categories of workers), and workers contributing to the so-called “*gestione separata*,” a fund established in 1995 for those workers who did not, at that time, have a dedicated social security fund (i.e., some independent workers, occasional workers, etc.).

Three years after the launch of the project, essentially all private sector employees and the self-employed now have the opportunity, if they register and log onto the platform, to use this tool.

In its startup phase, an email was sent to 5.6 million INPS-insured workers (registered on the INPS website), inviting them to use the online program. This was followed by the delivery of around 4 million Orange Envelopes, starting in 2016, only to those who were not registered on the INPS website. The Orange Envelopes contain workers’: account of past contributions, date of earliest possible retirement, and a forecast of the future pension, based on expected economic scenarios and on likely future salary progression (assuming the current job is held until retirement). Furthermore, an accompanying letter invited workers to get an INPS PIN code and to use the online service.<sup>7</sup>

In the beginning of 2018, INPS started to open up this service to public sector employees. Their access to the program is currently limited, though, since it is difficult to map the entire working career of a number of civil servants (particularly those who are most mobile and change employers often), and especially to track their payments to their specific social security fund. However, INPS is investing time and resources to solve these difficulties and recently opened up the program to a sample of 30,000 public-sector employees.

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<sup>6</sup> Of these INPS-insured employees, around 15 million are in the private sector while almost 4 million are self-employed.

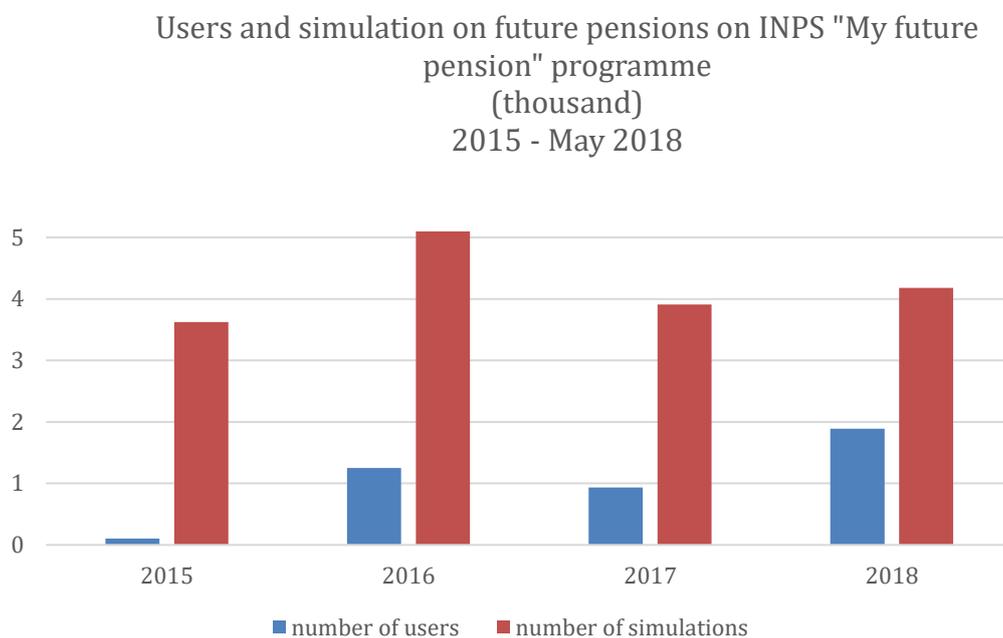
<sup>7</sup> Examples of the personal statement sent by INPS and by the Swedish pensions agency are shown in the Appendix.

### 3.2. Use of “My future pension”

Over the first three years of “My future pension,” more than 3 million unique users logged onto the INPS website to estimate their future pension. Between 2015 and May 2018, users made 14.5 million simulations. This means that many users took advantage of the interactive features of the program, and used it more than one time (4.5 times on average), simulating different scenarios such as gaps in their future contributions or a less favorable growth scenario for the Italian economy.

Access to the service was highest in the first two years (Figure 3.2). This suggests that people responded to the incentives of emails and Orange Envelopes sent in 2016 to reach those workers who, not being registered on the INPS portal, did not have a PIN code and thus could not access “My future pension.”

**Figure 3.2: Number (millions) of users and simulations of future pensions on INPS’s “My future pension” website, 2015–May 2018**



Source: INPS data.

The 2018 data in Figure 3.2 suggest that legislative changes play a role in increasing people’s propensity to gather information on their pension record. In 2018, there is, in fact, an increase

in the number of users of the service. This is probably related to the new voluntary early retirement option (*Ape volontaria*) that allows individuals to retire early but with a penalty on the amount.

*Ape volontaria*, introduced by 2017 Budget Law, is essentially a pension-guaranteed financial loan. This scheme allows all workers who satisfy certain conditions (among which the most important are to have less than three years until retirement, and to have an estimated monthly pension above 1.4 times the minimum) to be granted a loan from a bank for a maximum of three years. This loan is then paid back over 20 years and the monthly rate deducted from the INPS pension.

To help workers understand this sophisticated scheme, and to ensure they are informed of the fact that *ape volontaria* will have a permanent impact on their future pension, INPS created an online “simulator.” This tool allows users to estimate the minimum and maximum monthly loan they will be granted from the bank, the monthly payment that will be deducted from their future pension, as well as their retirement date.

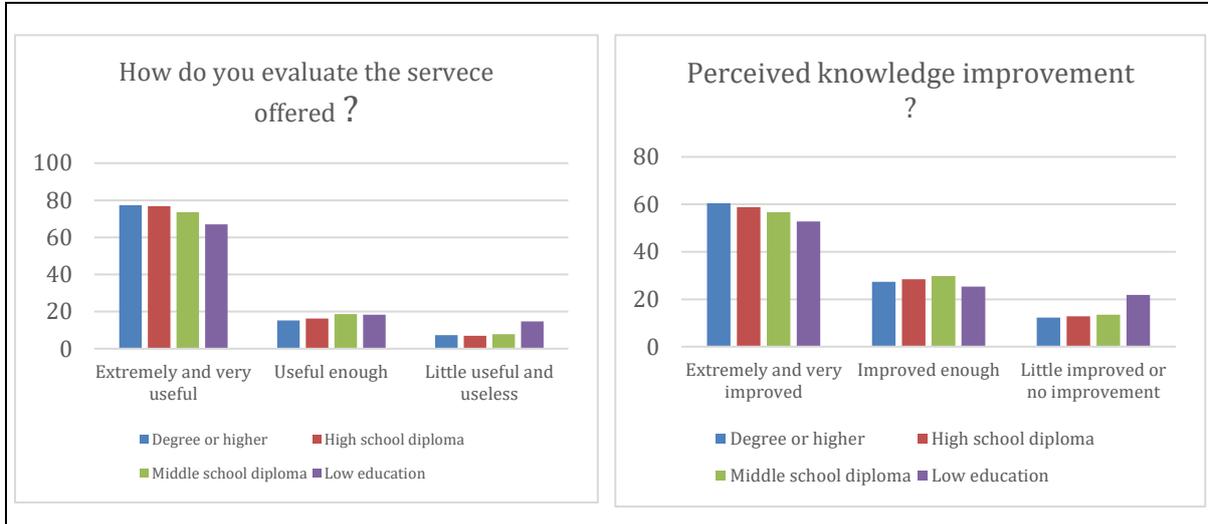
In addition to the legislative shock, which pushes people to evaluate whether it is possible to exploit the new available option, a more direct effect may increase the number of visits to the “My future pension” service. The *ape volontaria* simulator, in fact, requires people to insert an estimated value for their future pension, an estimate that few people can make correctly without using the “My future pension” online service.

#### **4.      User feedback on “My future pension” and Orange Envelopes**

After using the “My future pension” program, online users are asked to complete a questionnaire that allows for monitoring of user satisfaction, usability, and usefulness of the service provided. The following tables and figures show the results of almost 90,000 questionnaires (85,527 filled in by private sector employees and the self-employed, 1,831 by civil servants), accounting for almost 3 percent of users who ran a simulation. The percentage of those who find the program extremely/very useful is high (over 76 percent on average)

(Figure 4.1); the majority (59 percent on average) think the program gave them significant additional information; and 95 percent of respondents judge it user-friendly.

**Figure 4.1: Users’ satisfaction with “My future pension” service, by education level**



Source: INPS data.

Table 4.1 shows descriptive statistics for the key variables in the analysis: a set of sociodemographic controls: *age*, *gender*, and a set of binary variables (dummies) indicating *level of education*. Overall, 26 percent of respondents are women; the age bracket spans from 21 to 80 years, with an average of 52; and most respondents have a high school diploma (58 percent) while around 20 percent of respondents have a Bachelor’s degree or higher.

A series of information about the difficulty of performing the simulation is also collected. *Need help* is a dummy equal to 1 if the respondent needed some help using the program, while the dummy *unfriendly* indicates that the online service was difficult to use. Overall, around 5 percent of respondents find the task difficult. A variable *night* indicates that the simulation was performed between 10 pm and 7 am, when productivity is generally lower and it is more difficult to focus on financial tasks, even the most elementary ones. Seven percent of respondents completed the questionnaire at night.

Another set of variables is analyzed to understand if the simulation helped individuals to improve their knowledge of their future pension. The variable *overestimating* is a dummy

equal to 1 if the simulated pension was lower than expected and 0 if the simulated pension was higher or very similar to the expected one. Notably, 42 percent of respondents overestimated their future pension (Table 4.1). The variable *willing\_change* describes the propensity to change expectations on the future pension. This question is asked after the result of the simulation, thus when respondents should update their expectation. This variable is equal to 1 for those individuals willing to change their expectation; after using the program, 38 percent of respondents are willing to change their expectation on their future pension. After computing it for just those who overestimate, the figure increases to 47 percent.

This is interpreted as “bare bones” proof that respondents might take precise actions based on new information received about their future pension.

**Table 4.1: Summary statistics from “My future pension” user satisfaction survey**

Variable	Mean	Median	Standard Deviation
willing_change	0.38	0.0	0.48
overestimating	0.42	0.0	0.49
female	0.26	0.0	0.44
age	52.15	54.0	8.31
no edu	0.00	0.0	0.04
primary	0.01	0.0	0.10
middle school diploma	0.19	0.0	0.39
high school diploma	0.58	1.0	0.49
b.a. degree	0.18	0.0	0.39
higher than b.a.	0.04	0.0	0.19
very useful	0.76	1.0	0.42
unfriendly	0.05	0.0	0.22
need_help	0.06	0.0	0.24
night	0.07	0.0	0.26

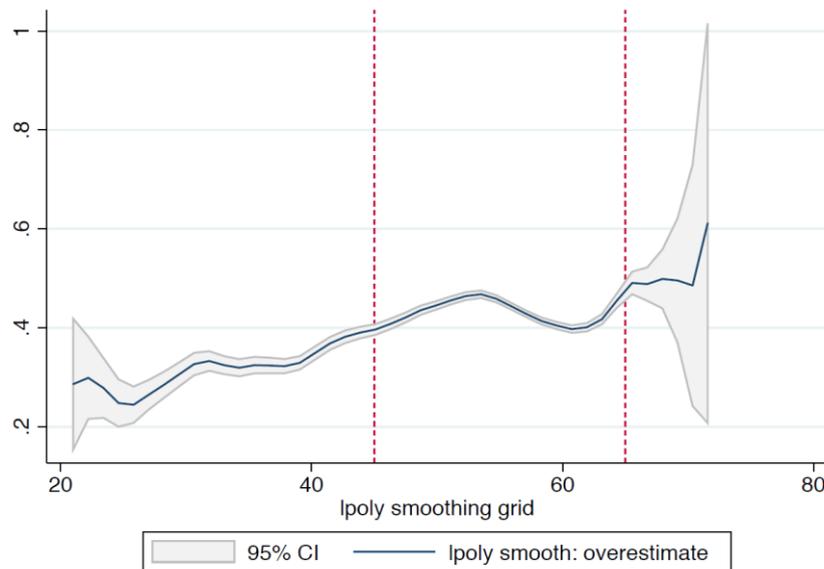
Source: Authors' estimates based on INPS data.

A series of nonparametric local polynomial regressions is also performed to show how the age profile is associated with a different probability of overestimating the future pension or of taking action after the simulation (as indicated by the *willing\_change* dummy).

Figure 4.2 shows very heterogeneous ability to estimate the future pension along different age profiles. In particular, between 45–65 years of age, where the sample is thicker and the

local polynomial is estimated more precisely, the inability to estimate the pension properly has a reverse U-shaped form. This inability grows until (around) 55 years and then tends to decrease sharply. This demonstrates that individuals tend to gather more information on their pension only when they start to approach retirement.

**Figure 4.2: Local linear regression of *overestimating* as a function of *age***



Source: Authors’ estimation based on INPS data.  
 Note: Dependent variable: *overestimating*; Regressor: *age*.

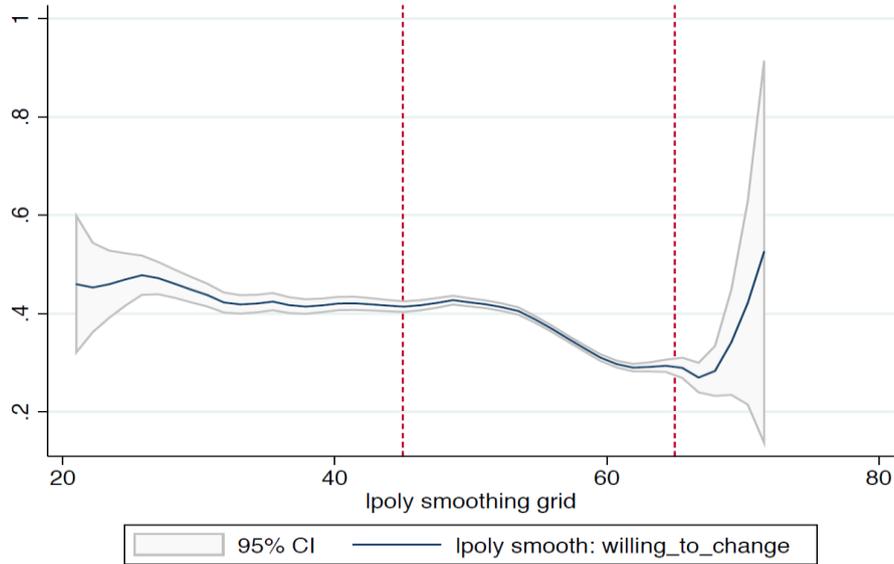
In line with this tendency, the willingness to take action after receiving information about the future pension also has a reverse U-shaped pattern (Figure 4.3).

The growth pattern is less pronounced for the age bracket 45–65 than before, but the propensity to change expectations is high until the age of 55 and decreases sharply afterward.

Figure 4.4 shows a similar pattern, but the willingness to change is always higher than that shown in Figure 4.3. This evidence is straightforward considering that these data include just people who overestimate their future pension.

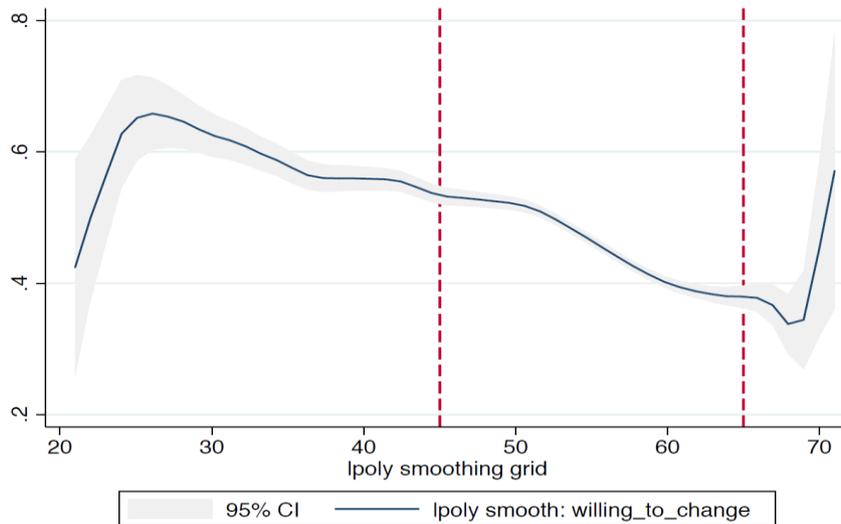
Taken together these two pictures suggest that those who overestimate their future pension are then more willing to change their habits after receiving information on their realistic pension check – that is, when the information gap shrinks.

**Figure 4.3: Local linear regression of *willing\_change* as a function of *age* (whole sample)**



Source: Authors' estimation based on INPS data.  
 Note: Dependent variable: *willing\_change*; Regressor: *age*.

**Figure 4.4: Local linear regression of *willing\_change* as a function of *age* (sample of overestimators)**



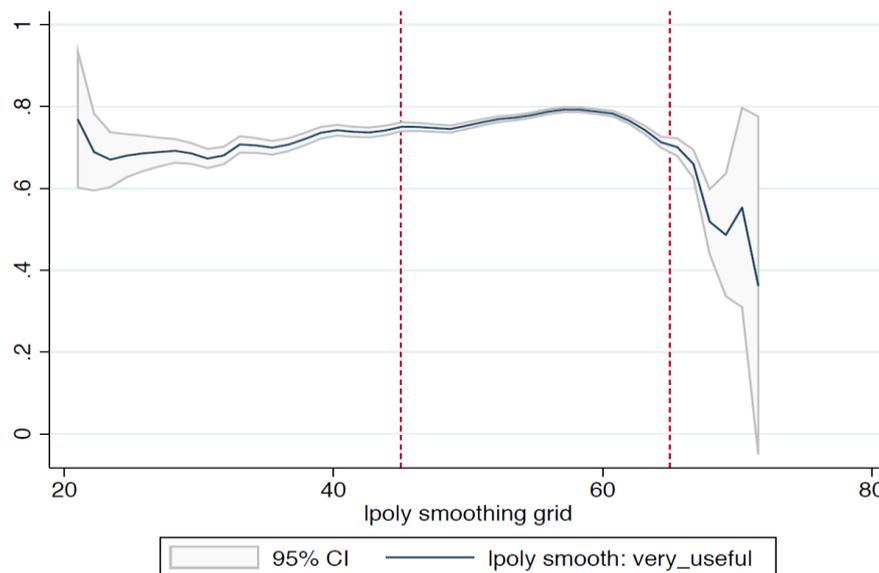
Source: Authors' estimation based on INPS data.  
 Note: Dependent variable: *willing\_change* conditioned; Regressor: *age*. Analytic sample restricted to those who overestimated their future pension.

Finally, individuals 55 years and older found the simulation less useful (Figure 4.5), confirming that the information provided is less useful when individuals already have a decent estimate of their pension in mind.

These last results are interpreted as bare bones proof that when respondents tend to overestimate more, the information provided by the simulation is more useful and respondents are therefore more satisfied with the program.

Conversely, the little drop just after age 60 suggests that older people are less satisfied because they have less time and fewer opportunities to take action to increase their future pension.

**Figure 4.5: Local linear regression of *very useful* as a function of *age***



Source: Authors' estimation based on INPS data.  
 Note: Dependent variable: *very useful*; Regressor: *age*.

The last set of estimates is aimed at understanding why individuals overestimate their future pension and which characteristics induce them to revise their expectation and to subsequently take some action after receiving better information about their pension.

First, it is worth remembering that an empirical analysis on this sample cannot claim causal results. The online simulations were performed by individuals who self-selected into the INPS website; these individuals have a higher demand for financial information and are probably more literate on this topic. To control for this self-selection bias, information on education and on the difficulties encountered in performing the simulation is used.

**Table 4.2: Results of IV and OLS regressions of *willing\_change* on *overestimating***

	IV		IV		OLS		OLS	
	First stage		Second stage		<i>willing_change</i>		<i>willing_change</i>	
	Coef	P value	Coef	P value	Coef	P value	Coef	P value
Overestimating			.297	0.000	.169	0.000	.164	0.000
Female	.001	0.735	.032	0.000	.034	0.000	.033	0.000
Age	.030	0.000	.015	0.000	.014	0.000	.014	0.000
Agesq	-.000	0.000	-.000	0.000	-.000	0.000	-.000	0.000
Unfriendly	.182	0.000			-.063	0.000	-.063	0.000
Need_help	.048	0.000			-.010	0.117	-.010	0.000
Night	-.008	0.178			-0.15	0.010	-.015	0.010
no edu							-.110	0.175
primary							-.079	0.018
middle school diploma							-.043	0.000
b.a. degree							.064	0.000
higher than b.a.							.084	0.000
cons	-.3635082	0.000	.070	0.140	.166	.000	.173	0.000
EDU_level FE	YES		YES		YES		YES	
Region FE	YES		YES		YES		YES	
Kleibergen-Paap Test:		863.615						
Observations		89358						

Source: Authors' estimation based on INPS data.

The first two columns of Table 4.2 show the first specification. This is an instrumental variable (IV) regression in which *willing\_change* is the dependent variable. It is assumed that *willing\_change* might be predicted by *overestimating*, so the analysis studies how overestimating the future pension affects willingness to take action after being given new financial information. This setup specifies *overestimating* as the endogenous variable, instrumented using the education dummies, *unfriendly*, *need\_help*, and *night*.

The rationale behind this specification is that one's precision to estimate future pension derives from one's financial literacy and ability to perform the simulation; the instruments want to capture these skills. When specifying this model, it is implicitly assumed that education and ability to perform the simulation predict *willing\_change* just through the ability to estimate. The first-stage regression on *overestimating* should resolve the selection bias due to unobserved financial literacy and produce consistent estimates on the correlation between

*overestimating* and *willing\_change* in the second stage. The model is closed by controlling for sociodemographic characteristics and a set of 20 regional and 6 education dummies. For brevity, estimates for these dummies are not reported, but they are mostly in line with theoretical expectations.<sup>8</sup> Even if far from being causal, some of the results are still informative.

The IV model shows that when individuals fail to estimate their future pension, they tend to change their willingness to take action in the future. Individuals who overestimate have a higher propensity to declare that they will change their future decisions regarding their pension, 29 percent more on average in comparison to individuals who do not overestimate. It is also worth noticing that the constant term in this regression indicates that a benchmark individual who does not overestimate<sup>9</sup> declares a willingness to change his future actions in just 7 percent of the cases. A K-P (Kleibergen-Paap) test shows that the instruments are relevant. In general, women do not tend to overestimate more than men, but they seem to be more prone to take action after an overestimation (3 percent more compared to men). Those who do not find the program user-friendly, or who declared to have asked for help using the program, have a higher probability of overestimating. The age profile results confirm the reversed U-shaped relation already shown in the local linear regression analysis. Column 3 is the “acid” form model<sup>10</sup> for the IV shown in columns 1 and 2. The “acid” specification confirms the previous findings and reports a positive and significant relation for *overestimating*. As expected by the “acid” form, the coefficient is lower in magnitude in comparison to the IV coefficient. The “acid” model confirms almost all the findings of the IV specification; notably, the reversed U-shaped pattern for the age profile is confirmed.

In the last column of Table 4.2, the “acid” specification is enhanced with a series of interaction dummies created by multiplying the *overestimating* dummy and the six education dummies. The results from this specification confirm the previous findings on the relation between the

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<sup>8</sup> These results are available upon request from the authors.

<sup>9</sup> The benchmark individual is a male resident in Abruzzo Region with a high school degree.

<sup>10</sup> In the IV setting, the “acid form” is a specification in which the dependent variable is regressed on the endogenous covariates and the instruments.

main variable of interest. Moreover, the interaction terms suggest that an “overestimating” individual with a higher education level is more willing to change her actions concerning future pensions than someone with a lower education level. These results lead to two interesting interpretations. First, more educated individuals exploit new financial information more easily, and are thus more prone to take action. Second, lower-educated individuals might give up after receiving negative information about their ability to estimate their future pension because they get discouraged when they realize that they did not estimate well.

Finally, the impact of providing additional information about future pension on workers’ behavior is evaluated using a sample of 1,000 people (who completed the survey) who used the program twice: the first time between June and September 2015, the second time between June and September 2016. For this sample, the analysis looks at the amount of contributions accrued in 2015 and 2016 (based on the last salary available on users’ records).

The findings suggest that those workers who had a tendency to overestimate their future pension before using the program increased the amount of hours worked (thus increasing their yearly salary and contributions). In fact, all respondents who overestimated their future pension showed an average increase in their salary from one year to the next of around 7.8 percent. In contrast, those people who correctly estimated (or underestimated) the amount of their future pension displayed an average increase in their salary of around 3.5 percent.

## **5. Summary and conclusions**

In the mid-1990s Italy transitioned to a nonfinancial defined contribution pension system. Yet this transition was implemented very gradually, and will be fully completed only in the 2040s.

The law that introduced this radical change in the Italian pension system envisaged a communication campaign to ensure that all Italian citizens would be able to fully grasp the implications of the reform on their future pensions. Yet this campaign was not launched for 20 years. Considering that financial literacy in Italy is below the European Union average (37 percent versus 52 percent), this type of communication is essential.

In May 2015 the Italian Social Security Institute (INPS) developed an online program “My future pension” – followed by the dispatch of around 4 million “Orange Envelopes” – that allows contributors to calculate an estimated future pension on the basis of their past careers and on the projection of their future contributions until retirement.

Over the first three years of the project, more than 3 million contributors logged onto INPS’s website to calculate their future pension. Taking advantage of the program’s interactive features, users have simulated different scenarios (more than four on average), such as simulating gaps in their future contributions or a less favorable growth scenario for the Italian economy.

The feedback received thus far on this communication campaign is encouraging. Around 80 percent of all users rate this service as either “very helpful” or “extremely helpful.” Roughly two-thirds of all users declare that the service significantly improved their understanding of the different factors that will determine their future pension. Roughly one-third state that they are likely to revise their expectations regarding their future pension. These revisions are more frequent among contributors who overestimated their future pensions, and, conditional on this overestimation, among those who are better educated.

To establish a causal effect of information on expectations, and potentially behavior, one would need to draw on random samples of treated and untreated individuals. The only available data to date are from a survey of those who used the service and completed the questionnaire attached to the simulation exercise. Yet the IV estimates are consistent with a causal effect of the information provided by the survey on the revision of expectations.

These results are reassuring for the current communication campaign launched by INPS among workers planning to take the “*ape volontaria*,” a bank loan provided at a subsidized rate for workers close to retirement, using the future pension as collateral. Given the complexity of the measure and the quasi-permanent effects it will have on monthly pensions, INPS structured a communication package to ensure that workers who opt for this measure are fully aware of all its implications.

Working closely with trade unions, INPS developed a communication kit, published on its website, that describes the different early retirement options introduced by the 2016 Budget Law and the potential beneficiaries. It also developed a new online simulator that allows interested parties to estimate the amount of their future pension and the amount to be repaid if they opt for *ape volontaria*.

## References

Botazzi, Renata, Tullio Jappelli, and Mario Padula. 2006. "Retirement Expectations, Pension Reforms and Their Impact on Private Wealth Accumulation." *Journal of Public Economics* 90: 2187-2212.

di Salvatore, Antonietta, Francesco Franceschi, Andrea Neri, and Francesca Zanichelli. 2017. "Measuring Financial Literacy of the Italian Adult Population." Paper presented at the ISI World Statistics Congress on "Financial Inclusion" Marrakech, Bank of Morocco.

Jappelli, Tullio, Immacolata Marino, and Mario Padula. 2014. "Households' Saving and Debt in Italy." *Journal of Economic Policy* 2–3: 175-202.

Klapper, Leora, Annamaria Lusardi, and Peter van Oudheusden. 2015. "Financial Literacy Around the World: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey." <https://www.finlit.mhfi.com>

Lusardi, Annamaria, and Olivia S. Mitchell. 2011. "The Outlook for Financial Literacy." In *Financial Literacy: Implications for Retirement Security and the Financial Marketplace*, ed. Olivia S. Mitchell and Annamaria Lusardi. Oxford, UK: Oxford University Press.

\_\_\_\_\_. 2014. "The Economic Importance of Financial Literacy: Theory and Evidence." *Journal of Economic Literature* 52: 1.

Organisation for Economic Co-operation and Development (OECD). 2014. PISA 2012 Results: Students and Money. Financial Literacy Skills for the 21st CENTURY, Vol. VI. Paris: OECD Publishing.

Pollnerová, Štěpánka. 2002. "Analysis of Recently Introduced NDC Systems." Research Institute for Labour and Social Affairs, December.

## Appendix



Mario Rossi

Address

Subject: Calculate your future pension

Dear Mr Mario Rossi,

INPS has recently released on its website the pension estimator “My future pension.” This useful tool can help you estimate the amount of **your future pension**.

In this letter we provide some information on the monthly allowance you will be able to count on when you retire.

The calculation is based on your contribution record and on an estimate of your future contributions. This calculation is not legally binding.

## The forecast of your pension

The calculation of your future pension is based on current legislation. Its amount depends on GDP growth rate, retirement age, working career and salary profile.

You can find the retirement date, the pension amount and both gross and net replacement rate in the table below.

	Old age benefit	Early retirement benefit
Retirement date		
Forecast of Pension		
Forecast of last salary before the retirement		
Gross replacement rate		
Net replacement rate		

Warning: Extra rules/conditions allowing you to anticipate the retirement are not considered

## Personal contribution account

The personal contribution record used to forecast your pension consists of two components: the first includes the sum of contributions you have already paid, the second is a projection of the amount of contributions you will pay, provided that your career path will not alter.

**Your contribution record**

Contribution Source	Period		Contribution accrued (week)		Earning	INPS Code
	Since	to	right	measure		
Employee Fund						
Deemed contribution: sickness						

Warning: You may need personal assistance from Inps to collect information on the different options available to you to value your contributions from different periods and Inps funds.

**Your future contribution record - simulated**

Contribution Source	Period		Contribution accrued (week)		Earning
	Since	to	right	measure	
Employee Fund					

You can use pension on line calculator “My future pension” ([www.inps.it](http://www.inps.it)) to assess the impact of change in key assumption (retirement age, total contribution accrued etc.) on your future pension and to make a tailored simulation of the future benefit. To use “My future pension” you need Spid (Public Digital Identity System), if necessary, we can provide Spid upon request.

# Annual Statement 2018

**PENSIONS  
MYNDIGHETEN**

You have earned this much towards your National Public Pension

## Your Pension Accounts

Changes during 2017 in SEK	Income pension	Premium pension	
Value 2016-12-31	1 078 853	226 710	
Pension entitlement for 2016	52 448	8 238	
Reduction of the pension entitlement due to balancing	- 552	-	
From deceased contributors	368	168	
Administration and fund fee	- 354	- 1 314*	
Change in value	29 503	16 289**	
Value 2017-12-31	1 160 266	250 091	<b>Total earned to the national public pension</b>
			<b>1 401 185 kr</b>

\* Including SEK 1710 discount on the fee for 2016.

\*\* Including SEK 82 as interest on your pension entitlement for 2016.

## Your Premium Pension

Premium pension account 2017-12-31	Value, SEK	Change in value, per cent	Fund fee, per cent	Chosen allocation, per cent	Current allocation, per cent
Equity Fund Sverige	73 502	11	0,47	30	29
Equity Fund Global	82 510	13	0,57	25	33
Interest Fund Sverige	18 759	1	0,14	25	8
Generation Fund	49 852	10	0,21	10	20
Pharmaceutical Fund	25 468	8	0,49	10	10
Total	250 091	10	0,43	100	100
<i>The average pension saver</i>		10	0,23		