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ABSTRACT

Pension Information and Women's Awareness*

We explore the role of financial and pension information in increasing women's knowledge and awareness of their future pension status, and consequently, in reducing the gender pension gap. A representative sample of 1249 Italian working women were interviewed to assess their knowledge about pensions and financial issues and about their own savings and personal wealth planned for retirement. The responses showed that their knowledge and awareness of retirement planning was limited. We then ran a randomized experiment to evaluate the effect of increased information regarding pensions on women's awareness, knowledge, and behaviors. Women in the treated group were provided information in the form of three short online tutorials. A follow-up survey shows that these women became more interested and aware of pension schemes and retirement options after completing the tutorials and were more likely to be better informed and keen to obtain further information. When looking at changes in behavior, we find that treated women who are closer to retirement are more likely to believe that they would make different work-life decisions if they received specific pension information in a timely fashion. They are also more likely to have a supplementary pension fund if they are concerned about their standard of living after retirement.

JEL Classification: H31, G51, J22

Keywords: women, pension, savings, financial education

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1. Introduction

In recent decades, many countries have switched from defined-benefit to defined-contribution pension schemes, making pension information a crucial factor for workers in order to make rational retirement decisions. In the new institutional contexts, the ability to make optimal choices for work, savings and consumption may be hindered by a lack of knowledge, leading many workers to retire earlier and with lower pensions than if they had received better pension information. Since public pensions make up a large part of the total retirement income for many workers, it is important for governments to provide individuals with information about their public retirement benefits.

There is a significant male-female difference in pension coverage in many countries (see Figure 1). Women tend to live longer than men,¹ meaning they need to save more, and they are likely to spend a larger part of their retirement in widowhood. Moreover, women tend to have less attachment to the labor market than men, with interrupted careers because of childbearing and potentially relatively lower earnings over their life cycle. With fewer available resources and higher life expectancies, women's financial security after retirement is potentially more at risk than men's. As reported in Bettio, Tinios, and Betti (2013), Tinios et al. (2015) and Lis and Bonthuis (2019), "pensions of women are substantially lower than those of men, by 27% on average across the EU but by more than 40% in a few European countries. This average gap is higher than the one for hourly earnings at 14%." At the same time, women appear to be less informed than men (Lusardi and Mitchell, 2008). In the absence of adequate information, gender differences risk being exacerbated by recent pension system reforms.

[FIGURE 1]

The gender pension gap in Italy, which at 35% is higher than the European average, has been challenged by a continuous series of reforms implemented in recent decades, including several significant changes to the Italian pension system. One of these was the country's introduction in 1995 of a Notional Defined Contribution (NDC) scheme within a PAYG system, which tightly links pension entitlements to pension contributions. Within this new scheme, gender wage gaps over the worker's career translate into gender pension gaps. The country's 2011 pension reform sharply raised the retirement age to 67; this was a significant change for women, whose retirement age used to be five years lower than men's. Such reforms have increased both individual responsibility and the complexity of the formulae that determine benefits (Fornero, Oggero, and Puglisi, 2019). Women, in particular, seem to be ill-informed when it comes to retirement planning. In this increasingly complex environment, basic financial literacy has become a requisite for avoiding major mistakes and improving choices both in terms of labor supply and savings. In the current system, an employee's future pension is determined by the individual's labor history, as well as general economic (GDP growth) and

¹ Women in Europe live on average 3.4 years longer than men after age 65. In Italy, the difference is close to the EU average (Lis and Bonthuis, 2019).

demographic (general life expectancy) factors. Clear and transparent information is essential in this new framework, where the risk has shifted from the state to the worker. The gender divide could widen if women are not correctly informed.

In this context, the European Commission has encouraged governments to develop a clear communication system to assist individuals with retirement planning. The Italian Social Security Institute (INPS) now sends workers annual statements of their estimated pension benefits. Since 2016, private-sector employees and the self-employed can go to the INPS website to get information about the date of retirement and predicted replacement rate, or to map out the various scenarios for different career patterns.

This paper explores the role of financial and pension information in increasing women's knowledge and awareness about their future pensions and, thus, in reducing the gender pension gap. To explore this link, we interview a sample of Italian working women. In the initial questionnaire, we ask them to provide information about their personal characteristics, their family, working conditions, savings, and retirement. The data show a general lack of awareness among women about pensions and retirement planning. To assess the role of information, we randomize the sample into two sub-groups. The first (control) group received no treatment, while the second (treated) group completed three short tutorials providing information about the functioning of the pension system, the relationship between labor market dynamics and pensions, and basic elements of wealth accumulation and savings patterns. We then asked both groups to respond to a second questionnaire. By comparing the answers of the control and the treated group, we should be able to evaluate the impact of the information provided on women's awareness, knowledge and savings plans. The results indicate that women in the treated group were more likely to have better knowledge of the pension system and to be interested in obtaining further information about pensions. Furthermore, and especially for those women closer to retirement, the treatment had an impact on their labor market intentions and savings behavior.

The paper is organized as follows: the next section reviews the literature, section 3 introduces data and descriptive statistics from our first wave of the questionnaire, section 4 presents the results of the randomized experiment and empirical analysis, and section 5 concludes.

2. Literature review

Empirical studies in several countries have reported that many people do not plan for retirement even when they are approaching it. These findings entail important consequences, since the absence of planning for retirement may explain why some people reach retirement with little wealth (Lusardi, Michaud, and Mitchell, 2017). Nevertheless, the role played by pension information is not very clear.

Lusardi et al. (2017) developed and experimentally evaluated four novel educational programs delivered online: an informational brochure, a visual interactive tool, a written narrative, and a video narrative. The programs were designed to inform people about risk diversification, an essential concept for financial management. The effectiveness of these programs was evaluated using the RAND American Life Panel. Participants were exposed to one of the programs, and then asked to answer questions measuring financial literacy and self-efficacy. All of the programs were found to be effective in improving financial literacy, providing new evidence

for the value of programs designed to help individuals become more aware of the importance of financial decisions (Lusardi et al., 2017). Another evaluation of a low-cost online financial and demographic literacy program, implemented by the largest industrial pension fund in Italy, was provided by Billari, Favero, and Saita (2017). Not only did the program prove to increase participants' knowledge, it also led individuals to seek out further information on financial markets and choices related to financial planning. Moreover, the positive effect was found to last several months after the treatment.

Pension information has a positive impact on workers' knowledge about their benefits, but whether workers actually change their retirement behavior after receiving pension information is more controversial. Needless to say, taking action after receiving information on pension is not necessarily optimal if individuals are already well-prepared for their retirement. In countries like the US, where mandatory contribution rates and the private propensity to save are lower, saving for retirement is a major issue. In countries such as Italy, which have high levels of wealth, a high propensity, and high mandatory contributions, many workers might be better in a better position to face retirement. However, even in settings where mandatory contributions and savings levels are high, wealth can be tied to non-liquid forms, which are difficult to use, particularly with thin financial markets, where products for decumulation are virtually non-existent (Fornero, Rossi, and Urzì Brancati, 2016). Moreover, in the case of fragmented careers (typical of many women), workers may end up with insufficient pension resources.

Using the Health and Retirement Study data, Mastrobuoni (2011) analyzed the introduction of the annual Social Security Statement in 1995, and found that after receiving the Statement, workers were more likely to be able to provide a benefit estimate and their benefit estimate tended to be more precise, but the additional information did not have significant effects on retirement behavior. More recently, Debets et al. (2020) found that receiving a letter containing pension information has virtually no effect on actions taken for retirement preparation; however, it does have an indirect effect in making people more pension literate, which is a driver to retirement planning.

A recent comparison across countries has shown very large and significant differences by gender in financial literacy (Bucher-Koenen et al., 2017). Women have historically been less engaged in financial decisions in the household and are hence more exposed to the risk of bad wealth management and having an inadequate pension when they are older. Lusardi and Mitchell (2008) show that women are much less likely to plan - and thus less likely to be prepared - for their retirement than men. Fornero and Monticone (2011) explore the importance of financial literacy on men's and women's pension planning in Italy and found that women are less informed than men. Finally, analyzing the case of Italy using Bank of Italy data, Baldini, Mazzaferro, and Onofri (2019) explored the discrepancy between individuals' subjective expectations and the correct objective expectations of pension eligibility age (the retirement age) and replacement rates. According to their results, a significant proportion of workers, more frequently women, are not able to predict the correct level of their pension benefit or their retirement age.

3. The data

Within the framework of the REC project “CLEAR – Closing the gender pension gap by increasing women awareness,” we conducted a survey of a representative sample of 1249 working women in Italy.² The first questionnaire gathered information about the socio-economic characteristics of the respondents, their work and employment, their knowledge of pensions, savings, and personal wealth planned for retirement. This section describes the results from this first wave, and shows that not only do women have scarce information about the pension system and their income at retirement, but they also have poor financial knowledge and are generally in fragile financial conditions in terms of ensuring adequate income for their old age. This double shortcoming raises serious concerns about the ability of women to be prepared for retirement.

3.1 Characteristics of the sample

Table 1 describes the sample. The geographical distribution of the sample maps the national scenario, with most working women living in the Northern regions of Italy. Most respondents have a high school diploma or a university degree, and over 70% of the women in our sample live with a partner/husband, with half of them also living with children. Among the women with children, 13% have children aged 0–3 years, 8% have children aged 4–5 years, and 46% have children older than 5. Among children less than 3, about 55% attend childcare, while among children aged 4–5, 96% attend pre-school.

Two-thirds of the women (66%) work full time and less than 20% have a net income lower than €1,000 per month. Surprisingly, 5% of working women do not have a bank account.

[TABLE 1]

To assess the representativeness of our sample with respect to Italian working women, we looked at the characteristics of the population of working women in Italy in 2018, as provided by the Italian National Institute of Statistics (ISTAT). With regard to the geographical areas, as already noted, our sample shows the same distribution as the national population (ISTAT reports that 54% of working women live in the northern regions of Italy, the same percentage as in our sample). As for the distribution by educational level, ISTAT reports that the share of working women age 25–64 with a degree is 31%, while 45% have a high school diploma. Hence, as 43% of the respondents of our sample have a college degree or higher and 52% have a high school diploma, our sample is biased toward more educated women, who all have access to the online survey. Thus, our statistics on the level of pension information and awareness are an upper bound of the actual retirement preparedness of Italian working women. Moreover, more educated women tend to have more stable employment and better IT skills.

As discussed in the introduction, one of the most important explanations for the large gender gap in pensions is related to women’s labor-market behavior. Most women in the sample work in the private sector and only 22% work in the public sector. A large majority (66%) of the women in the sample work full-time and only

² The survey was conducted by Episteme with CAWI (computer-assisted web interviewing) interviews in April 2019.

30% work part-time. Again, this percentage is consistent with that of the entire population of working women in Italy, as ISTAT reports that 68% of working women aged 15+ are full-time workers. Our sample also includes 240 self-employed women, representing 19% of the sample. This percentage is also in line with that provided by ISTAT, which reports that 16% of working women aged 15–64 are independent workers.

3.2 Pension knowledge

The information regarding individual future pensions is available on the INPS website and from labor consultants and unions. Our survey shows that less than half (43%) of the sample have tried to obtain information about their future pension through the official channels. More than half of women (58%) believe they are not sufficiently informed about pension rules, while more than one in five (22%) reply that they will take care of it when the time is right. Therefore, only 20% of women consider themselves as being informed. Figure 2 shows that as women grow older, they gradually feel more informed about pensions, reaching a peak at age 64.

[FIGURE 2]

Almost one out of three women do not know what their retirement age (30%) or how much their pension (29%) will be; more than one fourth of the respondents (26%) expect that their pension will be the same or more than the salary they currently receive (or they do not know). Women were also asked the following four questions about the functioning of the pension system in order to test their actual knowledge:

- 1) The pensions of current retirees are financed with contributions paid today by active workers and employers: In your opinion, is this true or false? (3 possible answers: true, false, I don't know; correct answer: true);
- 2) Future pensions will be financed by future workers. In your opinion, is this true or false? (3 possible answers: true, false, I don't know; correct answer: true);
- 3) Which of the following statements is correct? 3 possible answers: my future pension benefit will be calculated on the basis of the average of my last wages, my future pension benefit will be calculated on the basis of the amount of contributions paid every year, I don't know (correct answer: my future pension benefit will be calculated on the basis of the contributions paid every year);
- 4) Which of the following statement is true? (4 possible answers: if life expectancy increases, the monthly pension benefit will increase, if life expectancy increases, the monthly pension benefit will decrease, monthly pension benefit does not depend on life expectancy, I don't know; correct answer: if life expectancy increases, the monthly pension benefit will decrease).

The number of correct answers is reported in Figure 3: only 9% of the sample correctly answered all the questions on pension knowledge, and more than 11% got all of the questions wrong.

[FIGURE 3]

Looking specifically into the four questions, 30% of women do not know that current pensions are financed by the contributions of current workers and employers, and 43% do not know that the mechanism will be the same for their future pension. Two-fifths of the sample do not know that their future pension will be based on the contributions paid and 75% do not know that if life expectancy increases, the pension decreases. Women

are, however, interested in improving their knowledge about pensions through different channels. They declare that they would like to receive information from specialized consultants. A letter containing the future amount of pension sent by the national pension agency would also be appreciated.

3.3 Wealth planning for retirement

According to the life-cycle theory, people should accumulate wealth while working and start decumulating after retirement. However, recent cohorts face more financial insecurity as they near retirement than their predecessors (Lusardi, Mitchell, and Oggero, 2018). Wealth accumulation is one way to counteract financial vulnerability: wealth, indeed, can be transformed into annuities and generate a flow of income. At retirement, having savings to fall back on is the first way to offset financial distress.

The primary measure of financial inclusion is holding a checking account. As noted in the previous section, 5% of working women do not have a bank account, while 27% of the sample are only co-owners of checking accounts. More than half of the respondents without a checking account have a net monthly income below €1,500, while their age distribution is almost uniform.

While personal wealth does represent a means to combat financial vulnerability at older ages, it can be a problem if the assets are not liquid: it is difficult, if not impossible in financial markets offering few products for smooth decumulation as in Italy, to transform wealth into a stream of income for topping up income. What we actually see in our sample is that the majority of women (61%) think that their future pension resources will not suffice to keep their standards of living aligned to their desired level (Table 2). Also, more than one-fourth (27%) state that they do not know the answer, and the percentage is even higher among younger women (32% of women age 25-40 answer “Don’t know” versus 23% of women older than 40). While we expect young individuals to be less worried, 23% is a remarkably large share for women that are approaching retirement.

[TABLE 2]

What actions can be taken to counterbalance the reduction in the perceived standards of living? One strategy for increasing savings would be to set aside more, for example, by subscribing to a pension fund or accumulating more. However, more than one-third (35%) of the women report that they are not saving anything, and 21% are saving just 1–5% of their annual income. Figure 4 shows the breakdown by age. The percentage of non-savers is much higher among respondents over the age of 40. On average, their younger counterparts save more.

[FIGURE 4]

A large majority of the sample (72%) does not have a separate pension fund. This means that the majority of working women rely entirely on their public pensions as a flow of future income after retirement. Moreover, many pension fund owners do not know how much their personal fund is worth, indicating that pension-fund planning is not a conscious form of retirement planning, but perhaps more of a passive choice. The percentage of women with a pension fund has an inverse U-shaped relation with age, with women in their forties most likely to be invested in a fund (Figure 5). Low percentages among older people could be the result of a cohort

effect, as those people used to be belong to a more generous defined-benefit public pension system.

[FIGURE 5]

4. The experiment

Is the provision of information about pensions and financial planning effective at increasing women's awareness? To provide an answer to this question, our sample of working women is randomized into two sub-groups. The first (control) group received no treatment and the second (treated) group watched three short tutorials (3-5 minutes each) providing information about the relationship between labor market dynamics and pensions, the functioning of the pension system, and the link between pensions and wealth and savings.

The information was provided through a series of booklets and videos that we specifically designed.³ Afterwards, the entire sample was asked to complete a second questionnaire covering questions about their working activities, characteristics of the pensions system and intentions regarding retirement and investment in pension funds.

By comparing the answers of the treated and non-treated women, we can evaluate the impact of the tutorials and explore the determinants of gender pension gaps.

Table 3 shows the characteristics of the sample of 801 working women divided by treated or control group and confirms that the sample is correctly balanced among observable characteristics.⁴

[TABLE 3]

Since decisions may depend on how close the woman is to retirement, our analysis considers heterogeneity by age and separates women closer to retirement age (older than 44) from the others. To ensure that our randomization holds when we consider these sub-groups, in Table 4 we also perform balance tests by age group.

[TABLE 4]

4.1 Results: Knowledge and information

The online tutorials were highly appreciated by the treated women: over 80% rated the choice of contents and the clarity of the tutorials as excellent or good for each of the three topics. Furthermore, about 80% of them declared that they learned a lot about and become more interested in the topics covered.

By making clear that information is important, our treatment encourages women to acquire better knowledge and to try to better understand their own pension situation. Interestingly, after the provision of the tutorials, treated and control women show different knowledge about the pension system and have a different perception about the importance of the information itself.

In order to estimate the effects of our tutorials, we specify a reduced form for our outcomes of interest, assuming that they are linear functions of the treatment and socio-demographic characteristics. Hence, we perform ordinary least squares regressions specified as follows:

³ The experiment was conducted between 2-15 July 2019. For details concerning the tutorials provided see <https://www.carloalberto.org/research/competitive-projects/clear-closing-the-gender-pension-gap-by-increasing-womens-awareness/>

⁴ In the second wave of the questionnaire, we have a sample of 801 working women.

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 Treatment_i + \varepsilon_i$$

where $i = \{1, \dots, 801\}$ are individual identifiers. X_{it} is a set of controls for individual i including age, educational attainment, and a dummy indicating whether the respondent has children; ε_i is the error term of the model. *Treatment* is a dummy variable whose value is 1 if the woman has been randomly assigned to the treatment group. β_2 is our coefficient of interest, i.e., it measures the change over different dimensions due to having attended our online tutorial.⁵ For each outcome being investigated, we split the sample into two age groups, as we expect older women closer to retirement to be more responsive to the treatment.

The first outcome we analyze is the impact of treatment on knowledge about the pension system. Figure 6 reports the share of women in the treated and control groups by the number of correct answers to the four questions on the functioning of the pension system. Although knowledge is still quite limited (only 11% of the treated women correctly answered all four questions), treated women answered more questions correctly than the women in the control group.

[FIGURE 6]

This result is partially confirmed in our regression analysis in Table 5. In fact, the estimates show that treated women learned more about pensions, measured by the correct answer given to question 4 specified above, i.e., the one related to the link between life expectancy and pension benefit. The improvement in knowledge involved both younger and older respondents (below and above age 44). However, we did not find a statistically significant effect on the other three questions. We also notice that having a university degree is strongly related to pension knowledge.

[TABLE 5]

The treatment had an impact not only on the women's knowledge about pensions, but also on their general and basic financial literacy. Individuals are usually considered as financially literate if they are able to correctly answer three questions assessing the understanding of fundamental concepts like interest rate, inflation, and risk diversification (Hastings, Madrian, and Skimmyhorn, 2013). The estimates reported in Table 6 show that treated women closer to retirement (older than 44 years old) are more likely to be financially literate compared to the untreated women. A possible explanation is that receiving pension information at older ages could have generated more interest in financial matters. This result is consequential, since a key factor in reducing financial vulnerability on the verge of retirement is financial literacy (Lusardi, Mitchell, and Oggero, 2020), and women are on average much less financially literate than men (Klapper and Lusardi, 2019).

[TABLE 6]

We also investigate the impact of treatment on women's awareness about their future retirement, measured by their desire to learn more about their personal pension situation. The regression results reported in Table 7 show that treated women want to have more information than non-treated ones. Interestingly, treated women closer to retirement age (older than 44) are more interested in acquiring additional information than the

⁵ We perform a t test on all the outcome variables investigated through a multivariate analysis to make sure that pre-treatment variables were not statistically different in the two groups.

untreated women, while for younger women this effect is not significant. This finding proves that more information increases women's awareness of their lack of knowledge about the pension system and the importance of the information itself.

[TABLE 7]

However, when we go deeper into the details of the functioning of the pension system, we find that the real knowledge of women concerning both their retirement age and the chance to swap earlier retirement for future pension benefits do not seem to be strongly affected by the treatment. Indeed, a non-marginal part of both groups (14%), when asked, answered that they do not know at what age they expect to retire. Moreover, when we ask women whether they are willing to give up a certain percentage of their pension benefit (5%, 10%, 20%, 30% respectively) in order to move up their retirement by three years, treated women showed higher percentages of answers accepting this exchange than the controls; however, the differences are not statistically significant. In other words, the information treatment does not change the profound knowledge of women regarding a crucial aspect of their pension (the age of retirement and the trade-off between early retirement and the amount of pension), thus making the role of information more salient.

4.2 Results: Behavior

Does more awareness translate into behaviors? To answer this question, we investigate whether the treatment has impacted women's economic decisions. To this end, we exploit data on whether women think that having more information about their retirement could lead them to making different life and work choices.

The estimates reported in Table 8 show that older treated women are more likely to think that additional pension information can change their work-life decisions. On the other hand, younger women are not affected by the treatment, indicating that once again that they may see retirement as too far off to plan for.

[TABLE 8]

As Table 8 shows, pension information can have an impact on women's labor-market decisions, so we now move to retirement decisions, and wealth planning in particular. As stated above, more than half of the sample think that their future pension resources will not suffice to maintain their current standards of living. Hence, we expect that the treatment would be effective only on the economic behavior of that particular sub-sample. In other words, we expect people to react only if they are not satisfied with their standard of living after retirement. If the pension maintains the standard of living, instead, there is no reason to modify one's behavior. We thus identify, within the sub-sample of women over 44 years of age, those stating they are worried about their standard of living during retirement and those who are not. Table 9 shows balance tests for these sub-groups, which guarantee that the randomization is still valid, so we can perform a valid analysis on these sub-groups.

[TABLE 9]

Table 10 shows the effect of the treatment on investing in a supplementary pension fund for the whole sample and for the two sub-samples. While the effect on the whole sample is not significant, we find more active wealth planning for retirement among older women who are worried about their standard of living at retirement. In fact, treated women over the age of 44 are more likely to hold a pension fund than the untreated

ones. The size of the effect is marginally significant, but positive. Hence, the information we provide with our online tutorials increases women's awareness (in the immediate future), translating into a positive effect on women's choices to ensure a more adequate income for their retirement age, by investing in a pension fund.

[TABLE 10]

5. Conclusions

We have explored the determinants of the gender pension gap by investigating the role of information. Our randomized experiment evaluates the impact of increasing the amount of information regarding pensions on women's awareness and knowledge as well as on their savings patterns. Treated women were given information through short online tutorials. A questionnaire was administered after the tutorials to determine whether the tutorials increased women's interest in pension information. Our results show that treated women are indeed more likely to be keen to gather information about their future pension. The tutorials also made women more likely to have a better grasp of the pension system and of basic economic concepts, and to be interested in obtaining further information. When looking at changes in behavior, we find that treated women who are closer to retirement are more likely to think that pension information can change their work-life decisions, and more likely to invest in a pension fund if they are concerned about their standard of living after retirement.

We have to keep in mind that the women in our sample belong to a generally more educated population segment, with more stable employment and good IT skills. However, we find that their overall level of knowledge about the Italian pension system and their familiarity with the notions of basic finance are very limited. Nonetheless, they are aware of their limited knowledge on the subject, and most of them would like to learn more, in the belief that this might lead them to make different choices. Information policy is thus important not only because it is likely to improve women's knowledge about their pension and financial situations, but also because it can improve women's economic decisions regarding their future.

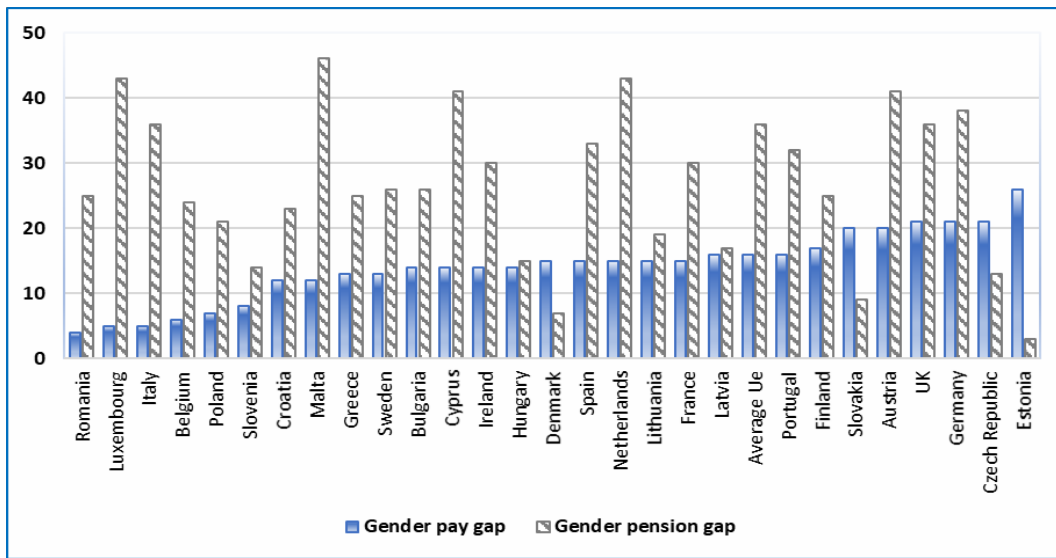
References

- Baldini, M., Mazzaferro, C., and Onofri, P. (2019). Pension expectations, reforms and macroeconomic downturn in Italy. What can microdata tell us? *Applied Economics*, 51(13), 1396-1410.
- Bettio, F., Tinios, P., and Betti, G. (2013). The Gender Gap in Pensions in the EU. European Institute for Gender Equality, Rome, Italy.
- Billari, F. C., Favero, C. A., and Saita, F. (2017). Nudging financial and demographic literacy: Experimental evidence from an Italian Trade Union Pension Fund (No. 1767). BAFFI CAREFIN, Centre for Applied Research on International Markets Banking Finance and Regulation, Università Bocconi, Milan, Italy.
- Bucher-Koenen, T., Lusardi, A., Alessie, R., and van Rooij, M. (2017), How financially literate are women? An overview and new insights, *Journal of Consumer Affairs*, 51(2), 255-283.
- Debets, S., Prast, H., Rossi M., and van Soest, A. (2020), Pension Communication in the Netherlands and Other Countries, CentER Discussion Paper Series No. 2018-047. Forthcoming on *Journal of Pension Economics & Finance*.
- Fornero, E., and Monticone, C. (2011). Financial literacy and pension plan participation in Italy. *Journal of Pension Economics & Finance*, 10(4), 547-564.
- Fornero, E., Oggero, N., and Puglisi, R. (2019). Information and financial literacy for socially sustainable NDC pension schemes. *Progress and Challenges of Nonfinancial Defined Pension Schemes: Volume 2. Addressing Gender, Administration, and Communication*, eds. R. Holzmann, E. Palmer, R. Palacios, and S. Sacchi, 187-216. Washington, DC: World Bank Publications.
- Fornero, E., Rossi, M., and Urzì Brancati, M.C. (2016). Explaining why, right or wrong, (Italian) households do not like reverse mortgages. *Journal of Pension Economics & Finance*, 15(2), 180-202.
- Hastings, J., Madrian, B., and Skimmyhorn, W. (2013). Financial Literacy, Financial Education, and Economic Outcomes. *Annual Review of Economics*, 1(5): 347-373.
- Klapper, L., and Lusardi, A. (2019). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*.
- Lis, M., and Bonthuis, B. (2019). Drivers of the gender gap in pensions: Evidence from EU-SILC and the OECD pension model. Social Protection and Jobs Discussion Paper; No. 1917. World Bank, Washington, DC.
- Lusardi, A., Michaud, P.C., and Mitchell, O.S. (2017). Optimal financial knowledge and wealth inequality. *Journal of Political Economy*, 125(2), 431-477.
- Lusardi, A., and Mitchell, O.S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98(2), 413-417.
- Lusardi, A., Mitchell, O.S., and Oggero, N. (2018). The changing face of debt and financial fragility at older ages. *American Economic Association Papers and Proceedings*, 108, 407-411.

- Lusardi, A., Mitchell, O.S., and Oggero, N. (2020). Debt and financial vulnerability on the verge of retirement. *Journal of Money, Credit and Banking*, 52(5), 1005-1034.
- Lusardi, A., Samek, A., Kapteyn, A., Glinert, L., Hung, A., and Heinberg, A. (2017). Visual tools and narratives: new ways to improve financial literacy. *Journal of Pension Economics & Finance*, 16(3), 297-323.
- Mastrobuoni, G. (2011). The role of information for retirement behavior: Evidence based on the stepwise introduction of the Social Security Statement. *Journal of Public Economics*, 95(7-8), 913-925.
- Shapiro, D., and Mott, F.L. (1994). Long-term employment and earnings of women in relation to employment behavior surrounding the first birth. *The Journal of Human Resources*, 29(2), 248–275.
- Tinios, P., Bettio, F., Betti, G., and Georgiadis, T. (2015). Men, women and pensions. Luxembourg: Publication Office of the European Union.

Figures

Figure 1. Gender gap in pensions and in wages across countries (%) 2018



Source: Eurostat

Figure 2. Information about pensions and women's age

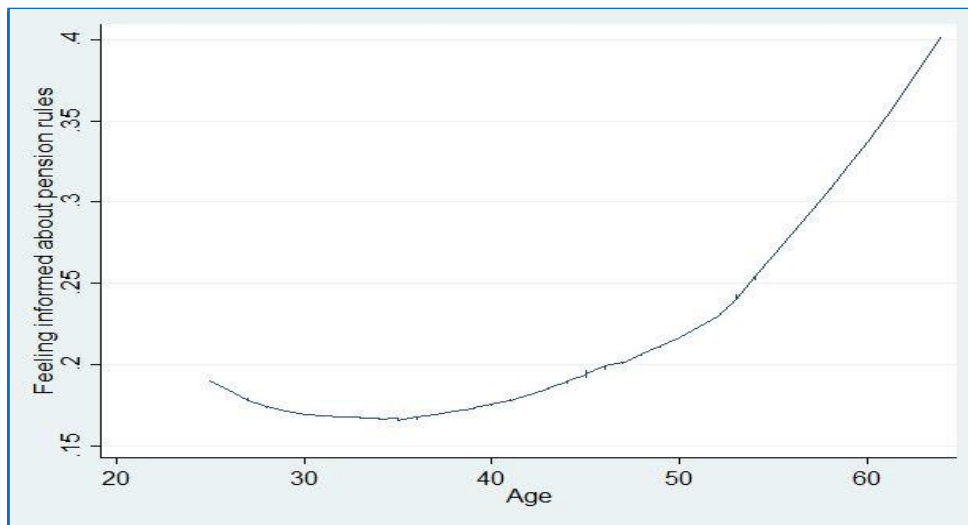


Figure 3. Knowledge of the Italian pension system: Proportion of correct answers

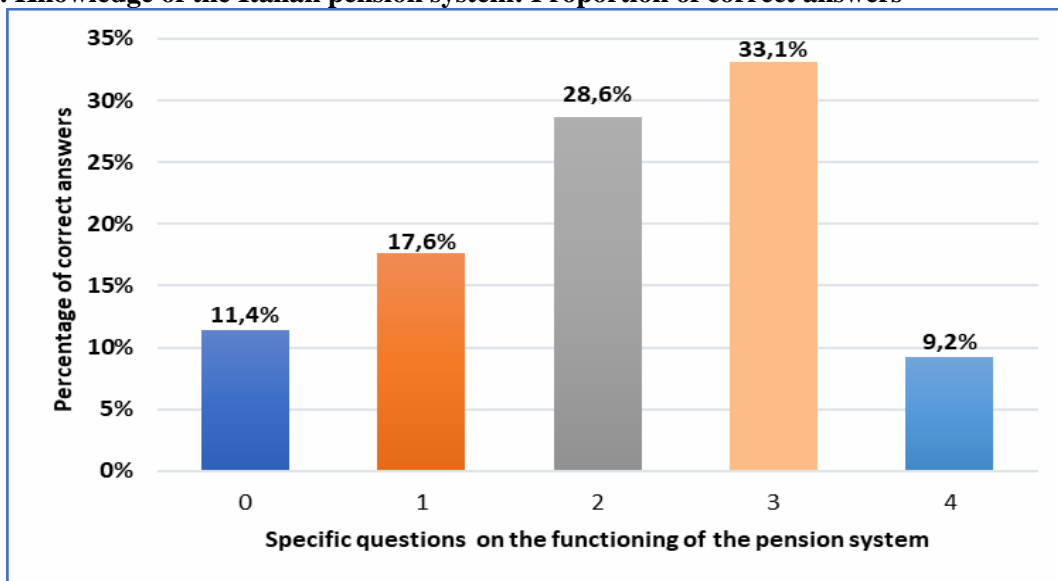


Figure 4. Saving behavior by age

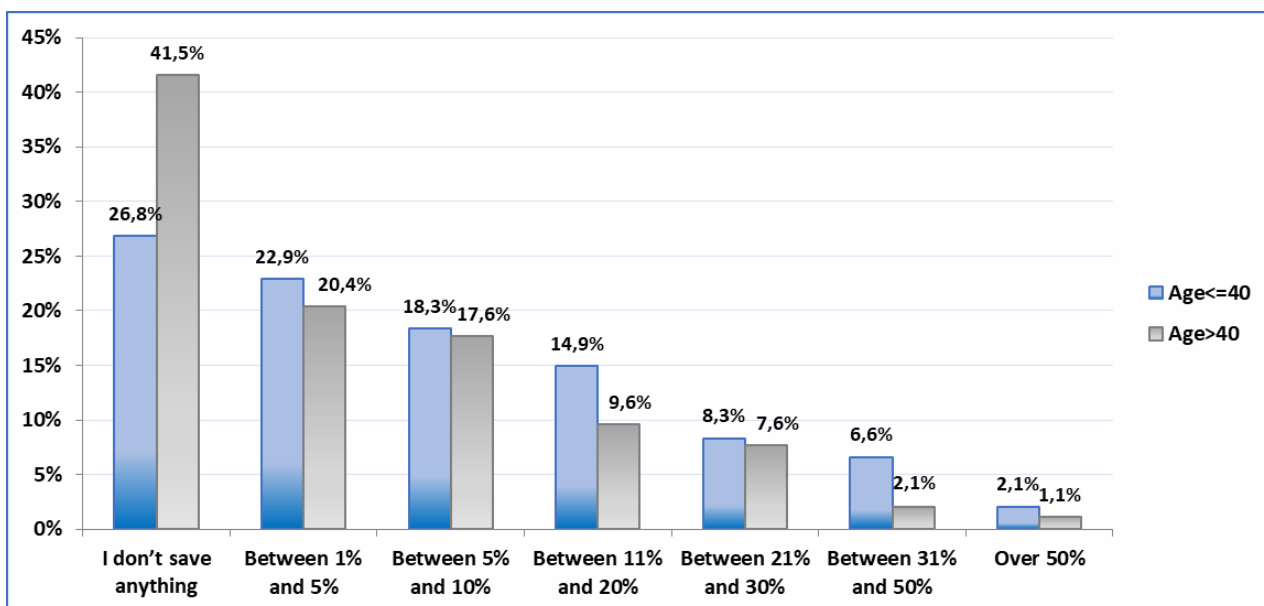


Figure 5. Pension funds and age

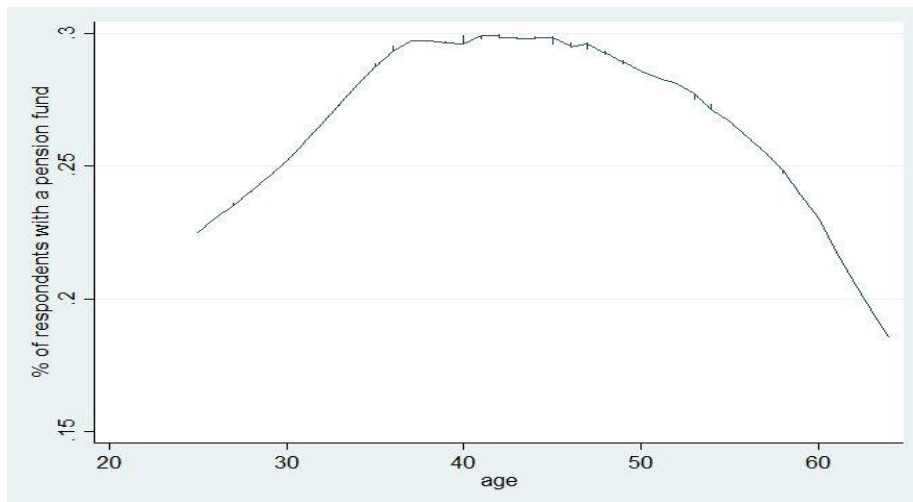
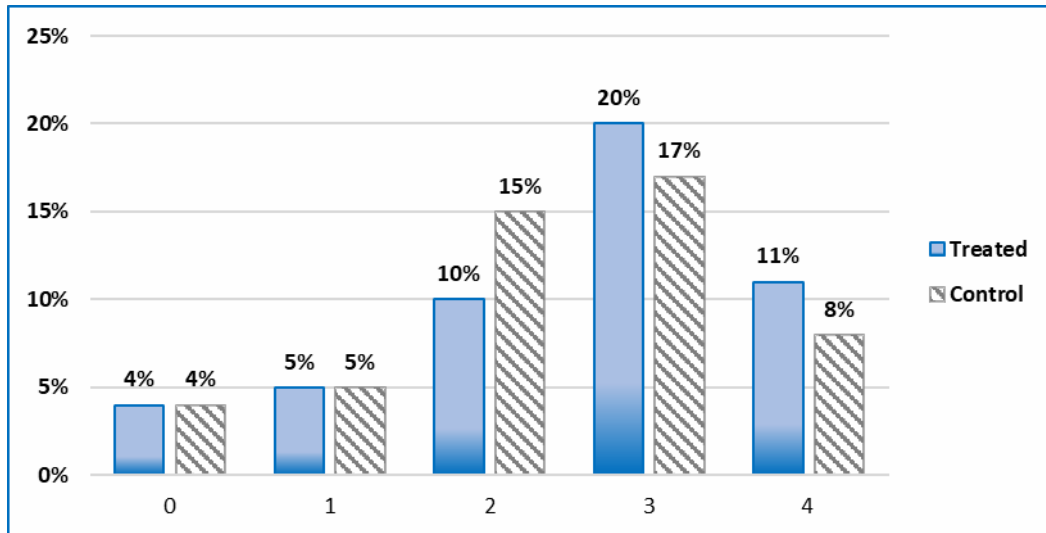


Figure 6. Share of correct answers on pension knowledge



Tables

Table 1. Sample descriptive statistics

AGE	Sample (N=1249)	
Mean	42.79	
<hr/>		
GEOGRAPHIC AREA	Sample	
North-West	387	31%
North-East	289	23.1%
Center	273	21.9%
South and Islands	300	24%
Total	1249	100%
<hr/>		
EDUCATION	Sample	
Tertiary education	540	43.2%
High school degree	649	52%
Lower secondary education	60	4.8%
Total	1249	100%
<hr/>		
HOUSEHOLD COMPOSITION	Sample	
Live alone	160	12.8%
Couple without children	281	22.5%
Couple with 1 child	276	22.1%
Couple with 2 children	265	21.2%
Couple with 3 or more children	64	5.1%
Single parent	99	7.9%
Other typologies	104	8.3%
Total	1249	100%
<hr/>		
OCCUPATION	Sample	
Full-time	829	66.4%
Part-time	382	30.6%
Occasional	38	3%
Total	1249	100%
<hr/>		
NET MONTHLY INCOME	Sample	
Up to 500 €	60	4.8%
From 501 to 1000 €	191	15.3%
From 1001 to 1500 €	336	26.9%
From 1501 to 2000 €	237	19.0%
From 2001 to 3000 €	158	12.7%
From 3001 to 5000 €	81	6.5%
Over 5000 €	16	1.3%
Prefer not to answer	142	11.4%
I do not know	28	2.2%
Total	1249	100%
<hr/>		
CHECKING ACCOUNT		
Sole owner of the checking account	843	67.5%
Co-owner of the checking account	343	27.5%
Does not have a checking account	63	5%
Total	1249	100%

Table 2. Pension and standard of living**Do you think your pension will enable you to have the desired standard of living?**

Answers	Frequency	Percent
Yes	147	11.8
No	765	61.2
Don't know	337	27.0
Total	1249	100.0

Table 3. Descriptive characteristics and balance test of treated and control groups

Variables	Treated		Controls		T-stat	p-value
	N	Mean	N	Mean		
AGE	413	42.92	388	42.96	-0.05031	0.959
GEOGRAPHIC AREA						
North-West	129	0.314	122	0.312	-0.063	0.949
North-East	102	0.247	90	0.232	0.497	0.619
Center	84	0.203	81	0.209	-0.188	0.851
South and Islands	98	0.237	95	0.245	-0.249	0.803
EDUCATION						
Tertiary education	198	0.479	171	0.441	1.098	0.273
High school degree	192	0.518	201	0.465	-1.504	0.133
Lower secondary Education	23	0.056	16	0.041	0.949	0.343
HOUSEHOLD COMPOSITION						
Live alone	48	0.116	45	0.116	0.0107	0.991
Couple without children	100	0.242	93	0.240	0.0806	0.936
Couple with 1 child	90	0.218	86	0.222	-0.127	0.899
Couple with 2 children	82	0.199	80	0.206	-0.269	0.788
Couple with 3 or more Children	20	0.048	22	0.057	-0.525	0.600
Single-parent	37	0.09	25	0.064	1.331	0.184
Other typologies	36	0.087	37	0.095	-0.402	0.688
OCCUPATION						
Full-time	284	0.688	259	0.668	0.609	0.543
Part-time	117	0.283	118	0.304	-0.647	0.518
Occasional	12	0.029	11	0.028	0.0597	0.952
INCOME						
Up to 500 €	23	0.056	14	0.036	1.321	0.187
From 501 to 1000 €	49	0.119	55	0.142	-0.972	0.332
From 1001 to 1500 €	106	0.257	107	0.276	-0.611	0.541
From 1501 to 2000 €	82	0.199	73	0.188	0.372	0.71
From 2001 to 3000 €	65	0.157	54	0.139	0.724	0.469
From 3001 to 5000 €	31	0.075	25	0.064	0.589	0.556
Over 5000 €	6	0.015	6	0.015	-0.109	0.913
Prefer to not answer	41	0.099	46	0.119	-0.876	0.381
I do not know	10	0.024	8	0.021	0.343	0.732

Table 4. Balance test of age groups

Variables	Age≤44		Age>44		T-stat	p-value
	N	Mean	N	Mean		
GEOGRAPHIC AREA						
North-West	146	0.321	105	0.303	-0.526	0.599
North-East	101	0.222	91	0.263	1.347	0.178
Center	97	0.213	68	0.197	-0.577	0.564
South and Islands	111	0.244	82	0.237	-0.228	0.819
EDUCATION						
Tertiary education	242	0.532	127	0.367	-4.603	0.00***
High school degree	195	0.429	198	0.572	4.066	0.00***
Lower secondary Education	18	0.040	21	0.061	1.377	0.169
HOUSEHOLD COMPOSITION						
Live alone	56	0.123	37	0.107	-0.706	0.481
Couple without children	124	0.273	69	0.199	-2.402	0.0165*
Couple with 1 child	105	0.231	71	0.205	-0.865	0.387
Couple with 2 children	85	0.187	77	0.223	1.247	0.213
Couple with 3 or more Children	19	0.042	23	0.066	1.555	0.124
Single-parent	14	0.031	48	0.139	5.773	0.00***
Other typologies	52	0.114	21	0.061	-2.618	0.009**
OCCUPATION						
Full-time	308	0.677	235	0.679	0.0679	0.946
Part-time	132	0.290	103	0.298	0.233	0.816
Occasional	15	0.033	8	0.023	-0.826	0.409
INCOME						
Up to 500 €	20	0.044	17	0.049	0.345	0.729
From 501 to 1000 €	66	0.145	38	0.110	-1.469	0.142
From 1001 to 1500 €	131	0.288	82	0.237	-1.616	0.106
From 1501 to 2000 €	90	0.198	65	0.188	-0.352	0.725
From 2001 to 3000 €	67	0.147	52	0.150	0.119	0.905
From 3001 to 5000 €	26	0.057	30	0.087	1.626	0.104
Over 5000 €	7	0.015	5	0.014	-0.108	0.914
Prefer to not answer	35	0.077	52	0.150	3.324	0.00***
I do not know	13	0.029	5	0.014	-1.335	0.182

Table 5. Regression on pension knowledge by age groups

	Whole sample Pension knowledge	Age≤44 Pension knowledge	Age>44 Pension knowledge
Treated	0.112*** (0.034)	0.096** (0.046)	0.139*** (0.051)
Age	0.017 (0.016)	-0.060 (0.063)	0.096 (0.105)
Age squared	-0.000 (0.000)	0.001 (0.001)	-0.001 (0.001)
Degree	0.151*** (0.035)	0.163*** (0.047)	0.145*** (0.053)
Having children	0.012 (0.036)	-0.013 (0.048)	0.052 (0.056)
Constant	-0.017 (0.339)	1.286 (1.104)	-2.190 (2.785)
Observations	801	455	346
R-squared	0.045	0.038	0.050

Note: *Pension knowledge* is a dummy variable equal to 1 if the respondent answered correctly to the question: “Which of the following statement is true? If life expectancy increases, the monthly pension benefit will increase; *If life expectancy increases, the monthly pension benefit will decrease*; Monthly pension benefit does not depend on life expectancy.” Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 6. Regression on financial literacy by age groups

	Whole sample Financial literacy	Age≤44 Financial literacy	Age>44 Financial literacy
Treated	0.052 (0.032)	0.013 (0.042)	0.105** (0.050)
Age	0.006 (0.015)	-0.068 (0.057)	0.041 (0.103)
Age squared	-0.000 (0.000)	0.001 (0.001)	-0.000 (0.001)
Degree	0.124*** (0.033)	0.115*** (0.042)	0.150*** (0.052)
Having children	0.005 (0.034)	-0.011 (0.043)	0.038 (0.055)
Constant	-0.005 (0.318)	1.325 (0.999)	-0.927 (2.735)
Observations	801	455	346
R-squared	0.025	0.020	0.038

Note: *Financial literacy* is a dummy variable equal to 1 if the respondent answered correctly to the three following questions. 1) “Suppose you had \$1000 in a savings account, the interest rate was 1% and you have no fees. Imagine that inflation was 2%. After 1 year, do you think you could buy the same goods as today with the money in this account? Yes; No, I will be able to buy less than today; No, I will be able to buy more than today; I don’t know.” 2) “Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? More than €110; €110; Less than €110; I don’t know.” 3) “In your opinion, which of the following investment strategies entails a greater risk of losing money? Investing in bonds of a single company; Investing in bonds of more companies; I don’t know.” Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 7. Regression on pension information by age groups

	Whole sample More information	Age≤44 More information	Age>44 More information
Treated	0.061** (0.031)	0.032 (0.040)	0.101** (0.049)
Age	-0.021 (0.014)	-0.033 (0.055)	0.148 (0.101)
Age squared	0.000 (0.000)	0.000 (0.001)	-0.001 (0.001)
Degree	0.086*** (0.032)	0.070* (0.041)	0.103** (0.051)
Having children	0.033 (0.033)	0.074* (0.042)	-0.022 (0.054)
Constant	1.126*** (0.311)	1.316 (0.966)	-3.517 (2.686)
Observations	801	455	346
R-squared	0.020	0.016	0.039

Note: *More information* is a dummy variable equal to 1 if the respondent answered yes to the question: “Would you like to have more information on your future pension situation?” Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 8. Regression on different work-life decisions by age groups

	Whole sample Different decisions	Age≤44 Different decisions	Age>44 Different decisions
Treated	0.059* (0.033)	0.005 (0.043)	0.129** (0.052)
Age	-0.024 (0.015)	-0.078 (0.059)	0.153 (0.108)
Age squared	0.000 (0.000)	0.001 (0.001)	-0.001 (0.001)
Degree	0.049 (0.034)	0.067 (0.043)	0.024 (0.055)
Having children	0.056 (0.035)	0.104** (0.045)	-0.008 (0.058)
Constant	1.199*** (0.331)	2.127** (1.027)	-3.549 (2.867)
Observations	801	455	346
R-squared	0.020	0.025	0.024

Note: *Different decisions* is a dummy variable equal to 1 if the respondent answered certainly yes or probably yes to the question: “Do you think if you had more information on you future pension you would make different work and life decisions?” Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 9. Balance test of “worried” and “not worried” (subsample of age over 44)

Variables	Age>44 & Not worried		Age>44 & Worried		T-stat	p-value
	N	Mean	N	Mean		
GEOGRAPHIC AREA						
North-West	49	0.358	56	0.268	-1.778	0.076
North-East	33	0.241	58	0.278	0.755	0.451
Center	28	0.204	40	0.191	-0.297	0.767
South and Islands	27	0.197	55	0.263	1.414	0.158
EDUCATION						
Tertiary education	56	0.409	71	0.340	-1.303	0.194
High school degree	75	0.547	123	0.589	0.754	0.452
Lower secondary Education	6	0.044	15	0.072	1.064	0.288
HOUSEHOLD COMPOSITION						
Live alone	17	0.124	20	0.096	-0.834	0.405
Couple without children	38	0.277	31	0.148	-2.967	0.00322 **
Couple with 1 child	25	0.182	46	0.220	0.846	0.398
Couple with 2 children	27	0.197	50	0.239	0.920	0.358
Couple with 3 or more Children	8	0.058	15	0.072	0.487	0.626
Single-parent	17	0.124	31	0.148	0.636	0.525
Other typologies	5	0.036	16	0.077	1.527	0.128
OCCUPATION						
Full-time	104	0.759	131	0.627	-2.597	0.0982**
Part-time	31	0.226	72	0.344	2.364	0.0186*
Occasional	2	0.015	6	0.029	0.852	0.395
INCOME						
Up to 500 €	5	0.036	12	0.057	0.879	0.380
From 501 to 1000 €	10	0.073	28	0.134	1.777	0.076
From 1001 to 1500 €	23	0.168	59	0.282	2.462	0.014*
From 1501 to 2000 €	24	0.175	41	0.196	0.488	0.626
From 2001 to 3000 €	23	0.168	29	0.139	-0.739	0.459
From 3001 to 5000 €	21	0.153	9	0.043	-3.62	0.00034***
Over 5000 €	4	0.029	1	0.005	-1.865	0.063
Prefer to not answer	26	0.190	26	0.124	-1.666	0.097
I do not know	1	0.007	4	0.019	0.901	0.368

Table 10. Regression on pension funds by age groups

	Whole sample Pension fund	Age>44 & not worried Pension fund	Age>44 & worried Pension fund
Treated	-0.040 (0.033)	-0.017 (0.084)	0.102* (0.059)
Age	0.011 (0.015)	0.166 (0.171)	0.265** (0.123)
Age squared	-0.000 (0.000)	-0.002 (0.002)	-0.003** (0.001)
Degree	0.054 (0.033)	0.149* (0.086)	0.074 (0.062)
Having children	0.091*** (0.035)	0.039 (0.088)	0.067 (0.067)
Constant	0.065 (0.326)	-4.227 (4.560)	-6.750** (3.249)
Observations	801	137	209
R-squared	0.015	0.030	0.050

Note: *Pension fund* is a dummy variable equal to 1 if the respondent reports she has a supplementary pension fund. *Worried* is a dummy variable equal to 1 if the respondent answered no to the question: “Do you think your pension will enable you to have the desired standard of living?” Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1