CL_E_A.R. CLosing the gEnder pension gAp by increasing women's awaReness

Pension information and women's economic outcomes

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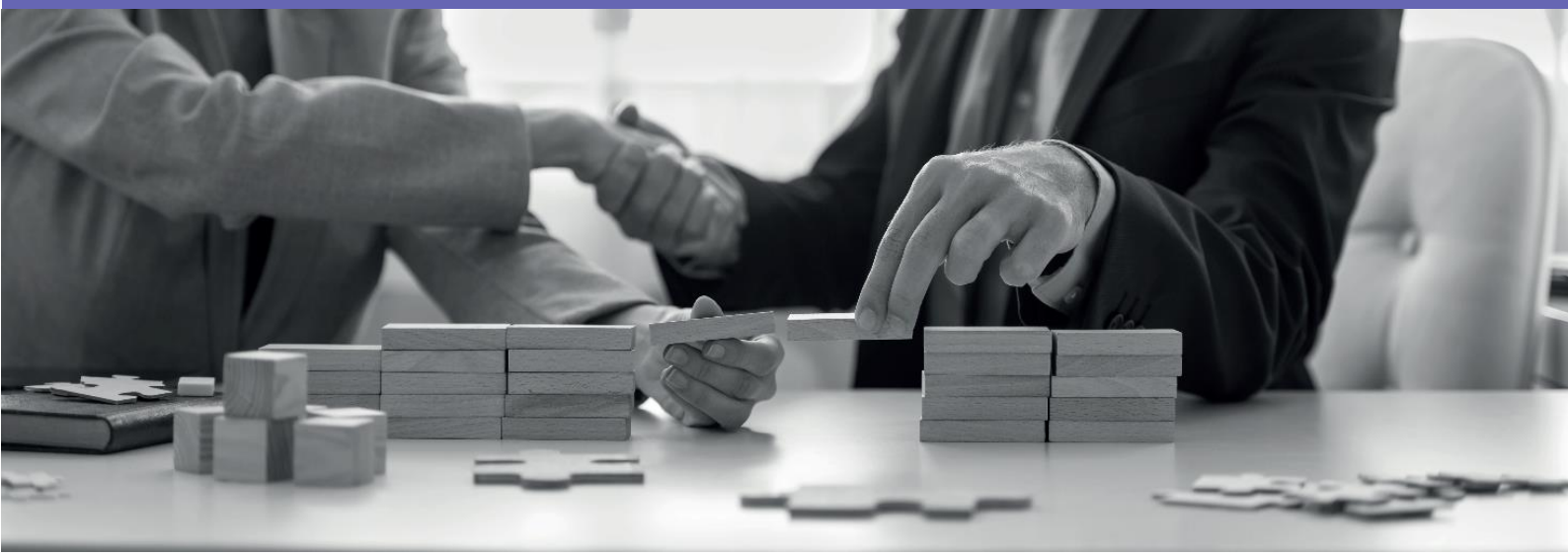

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CENSIS

CL_E_A.R. CLosing the gEnder pension gAp by increasing women's awaReness

CLEAR

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Abstract

In the last few years, Italy, underwent a deep pension system change, introducing, within a Pay-As-You-Go system, a Notional Defined Contribution scheme where pension entitlements are tightly related to pension contributions. The understanding of finance basic elements has thus become very important, as a basis for improving choices both in terms of labor supply and savings and timing of retirement.

In this context, women's economic situation after retirement is potentially more at risk than men's because women are less financially educated than men, tend to live longer, and to have lower pension contributions because of relatively lower earnings over the life cycle and of long interruptions of working careers due to childbearing.

In our research we explore, through a randomized experiment, the role of pension information on women's awareness and knowledge as well as labor market and savings intentions.

Our data confirm previous results that women have a relatively low level of knowledge of the Italian pension system and of basic finance. However, after the treatment with our on-line tutorial they appear to be more aware of their limited knowledge on the subject, more prone to acquire further information on their future pension and more convinced of the importance of information regarding the pension system.

JEL codes: h31 G51 J22

Keywords: women, pension, labor market, savings, financial education

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1. Introduction

1.1 Background and rationale for the study

As many countries in recent decades have shifted from defined-benefit to defined-contribution pension schemes, pension information has become crucial for workers to support rational retirement decisions. In the new institutional situations, workers' possibilities to work, save or consume optimally may be limited by a lack of knowledge and may lead them to retire earlier and with smaller pensions than they would have, had they received better pension information. Since public pensions constitute a substantial share of the entire retirement income for many workers, it is important for governments to also provide individuals with information about their public retirement benefits. While pension information has proved to be effective in increasing retirement knowledge and awareness, mixed evidence emerges regarding its effects on economic behaviors: retirement decisions, choices pertaining individuals' labor supply, and life-cycle trajectories.

In Italy, the pension system changed significantly in the last decades because of several reforms. Italy underwent a deep change, introducing, within a PAYG system, a Notional Defined Contribution (NDC) scheme where pension entitlements are tightly related to pension contributions. Such reforms have increased both individual responsibility and the complexity of the formulae that determine benefits. In this increasingly complex environment, the understanding of finance basic elements has become very important, as a basis 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 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. Accordingly, the European Commission has encouraged governments to develop a clear communication system to assist the individuals with their planning.

The Italian Social Security Institute (INPS) annually informs workers of the evolution of their pension. Through the INPS website, since 2016, private-sector employees and the self-employed can monitor a variety of information such as the date of retirement and the predicted replacement rate, and they can also simulate different scenarios for different career patterns. The 2011 reform increased the retirement age to 67 bringing a significant change for women whose retirement age used to be five years lower than that of men.

Empirical evidence shows that a significant difference emerges between men's and women's pensions in many countries. On one hand women tend to live longer than men, thus their savings needs are more important,[1]and they are likely to spend a larger part of their retirement in widowhood. Moreover, women

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

tend to have less attachment to the labor market, with interrupted careers because of childbearing and potentially relatively lower earnings over the life cycle. With fewer available resources and higher life expectancies, women's financial security after retirement is potentially more at risk than men's. At the same time, women appear to have less information than men (Lusardi and Mitchell, 2008).

In our empirical analysis, we explore the determinants of the gender pension gap investigating the role of information. We first run a randomized experiment to evaluate the impact of increasing the amount of information regarding pensions on women's awareness and knowledge as well as labor market and savings intentions.

Treated women were given information through a short online tutorial. A follow-up survey conducted immediately afterward shows that the tutorial did not contribute to significant changes in their intentions regarding labor supply, but did increase their interest in pension information. Treated women are indeed more likely to have tried to gather information on their future pension. The tutorial made women more aware, thus they are more likely to report that they are not informed enough about the pension system. Moreover, they are more likely to have better knowledge of the pension system and to be interested in obtaining further information about pensions.

1.2 Literature

Empirical studies in several countries have reported that many people fail to plan for retirement even when they are close to it. This result has important consequences since being able to develop retirement plans is crucial for retirement security and can explain why some people come close to retirement with very little wealth (Lusardi, Michaud, and Mitchell, 2017). Nevertheless, the role played by pension information is less 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 decision-making. 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 to be 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 lead individuals to look for more information on financial markets and choices related to financial planning. Moreover, the authors showed that the positive effect lasted 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. 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.

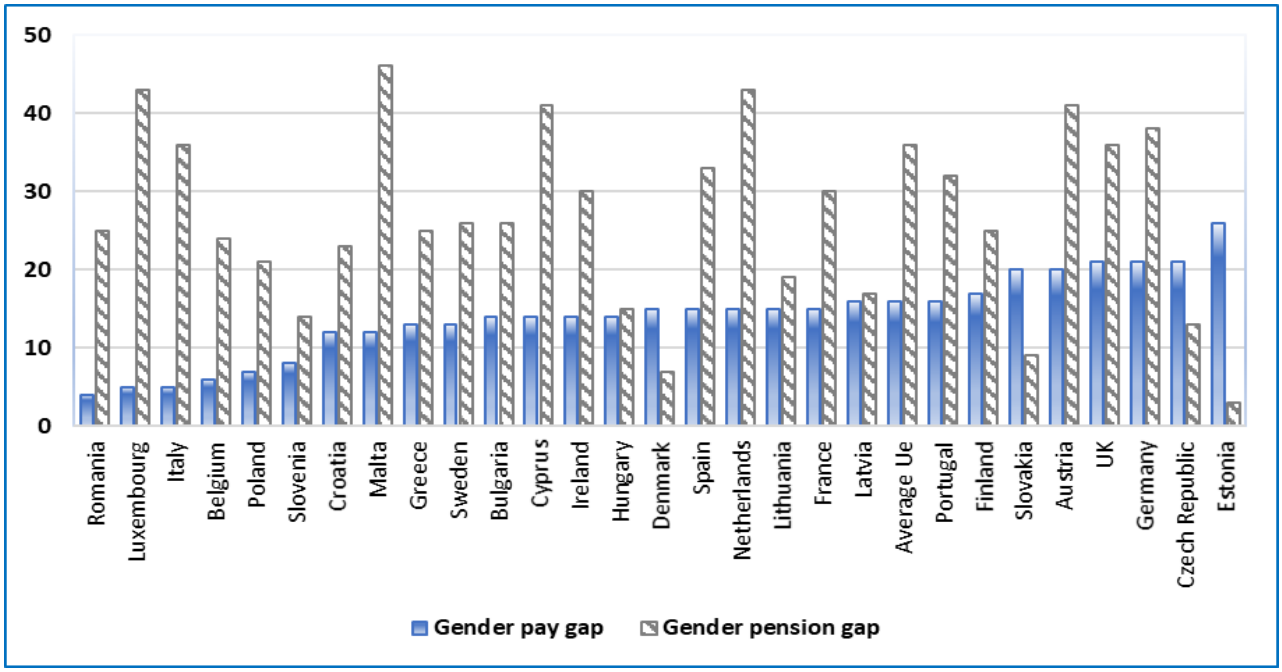
In order to measure more specifically the impact of the pension information provision on labor supply of women and men, Liebman and Luttmer (2015) designed a field experiment in which a treatment group of older workers was given information about Social Security provisions through a brochure and a short online tutorial. A follow-up survey conducted the subsequent year revealed that the intervention increased by 4 percentage points the fraction of individuals who remained in the labor force. More interestingly, the authors revealed that the impact was driven by female sample members, a particularly relevant result given their shorter work histories and lower financial knowledge.

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 distant from financial decisions in the household and are hence more exposed to the risk of bad wealth management and of having an inadequate pension at older ages. 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. Similar results emerge from data from the Survey of Household Income and Wealth of the Bank of Italy: Fornero and Monticone (2011) explore the importance of financial literacy on men's and women's pension plan decisions and found that women are less informed than men. Finally, analyzing the case of Italy using Bank of Italy data, Baldini, Mazzaferro, and Onofri (2016) explored the discrepancy between individuals' subjective expectation and the correct objective expectation of the pension eligibility age (the retirement age) and the (pension) 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.

1.3 The pension gender gap

As pointed out by the comparative studies of Bettio, Tinios, and Betti (2013) and Tinios et al. (2015), a significant gender pension gap exists in most advanced countries. As reported in 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%." In Italy the pension gap is about 35%.

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



Source: Eurostat

The pension gender gap is partly a consequence of the labor-market gender gap. Participation rates of women in Italy are among the lowest in the EU and are notably lower than those of men.

Long periods away from work may result in significant depreciation of human capital and thus make it difficult to return to work later, so that temporary choices may permanently affect potential labor-market outcomes of new mothers (Shapiro and Mott, 1994). This negatively affects both pension rights and unemployment benefits, all of which contribute to increasing the gender gap in pensions from a life-course perspective.

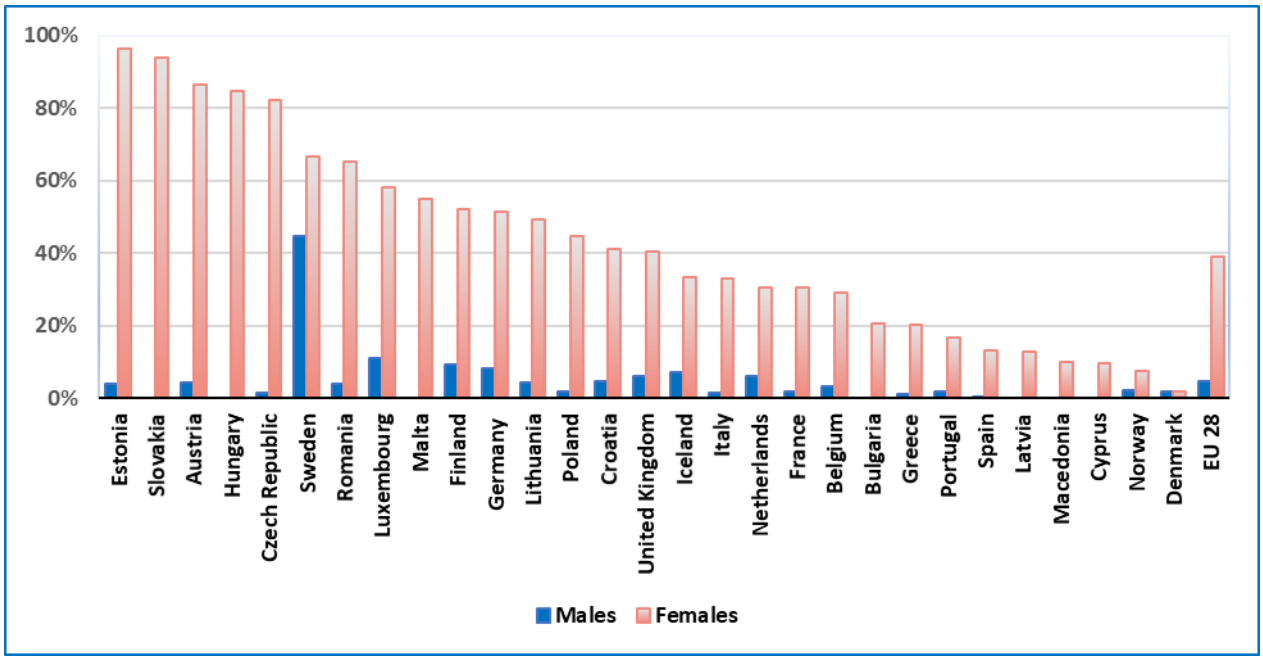
In the new context, where pensions are tightly linked to the contributions paid during the entire work history, women are more vulnerable to the consequences of unwise choices during their working age, as any career interruption (which characterizes women's choices more than men's choices) is going to be reflected in their pension benefit. Therefore, to ensure adequate pensions and to reduce the pension gap, it is crucial to make people, and women in particular, aware of the consequences of different choices and to intervene with pension planning at the early stages of a career and throughout the entire career. In the EU women work on average 4.9 years less than men in full-time jobs and, in contrast, they work 3.3 years more in part-time employment.

Women work less because they spend 5.1 years more on care activities between ages 15 and 70. Moreover, women more often work in lower-paid jobs, and even when working in similar positions as men, they face lower wages and fewer promotion opportunities. As a result, they earn on average 14% less per hour than

men, across the EU. Furthermore, women work fewer hours – since a larger number of women work part time – and fewer years during their life cycle, as they frequently interrupt their working life at the birth of their first child.

According to the Italian National Institute of Statistics (ISTAT), in Italy one woman out of three leaves the labor market at the birth of their children and in some cases never return. The number of women and men who interrupt their work in order to care for their children is similar only in Sweden, while in most countries only women do so.

Figure 2. Percentage of women and men who interrupt their job to care for children less than 8 years of age in 2010 (% of employed persons with youngest child aged less than eight years)



Source: **Eurostat – LFS data**.

2.The sample

2.1 Descriptive statistics

Within the framework of the REC project "CLEAR – Closing the gender pension gap by increasing women awareness," we conduct a survey on a sample of 1249 working women in Italy.[2] Table A1 in the appendix describes the sample. Most respondents live in the Northern regions of Italy and have a high school diploma or a degree. More than 70% of our female sample live with a partner/husband and half of them live with children. Two-thirds (66%) work full time and less than 20% have a net income lower than 1000 euros per month. Surprisingly, 5% of working women still do not own any bank account.

Is our sample representative of working women in Italy? In order to answer this question, we look at the characteristics of the population of working women in Italy in 2018, as provided by ISTAT. 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 respondents have a degree or more and 52% have a high school diploma, our sample is biased toward more educated women, being composed of women who can access to a survey on-line. With regard to the geographical areas, ISTAT reports that 54% of working women are in the Northern regions of Italy, the same percentage as in our sample.

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 are in the private sector and only 22% work in the public sector. A large majority – 66% – of women in the sample work full time and only 30% work part time. Again, this percentage is consistent with that of the whole population of working women in Italy, as ISTAT reports that 68% of working women age 15+ are full timers. Our sample also includes 240 self-employed women, who represent 19% of the sample. This percentage is also in line with that provided by ISTAT, which reports that 16% of working woman aged 15–64 are independent workers. Table A2 in the appendix provides some socio-demographic characteristics for this group. We notice that in our sample the self-employed are on average less educated and have fewer children than the employees. Moreover, they report a lower net monthly income, although one-fifth of them did not answer this question. Regarding the working hours in a typical week, the majority of female employees work from 21 to 40 hours per week, while the self-employed are more likely to work either more than 40 hours or less than 20.

2.2 Labor-market behavior

To investigate individuals' labor-market behavior, in the questionnaire we ask detailed questions concerning hours of work and intention to change them. The majority of women work full-time: 66% work full-time and 31% work part-time. The full-time workers were then asked whether they have intention to reduce their

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

working hours and work part-time in the next 10 years: 31.4% answered yes (or probably yes) while 69% answered no (or probably no).

The part-time workers were then asked whether they intended to increase their working hours and work full-time in the next 10 years: 47 % answered yes (or probably yes), while 52% answered no (or probably no).

Basically it appears that, relatively, most full-timers prefer to maintain their hours of work while nearly half part-timers would prefer to work more hours. This is consistent with the fact that two-thirds of women believe that weekly working hour reductions or interruptions during the life cycle negatively affect the amount of future pensions. They also believe that parental leave will negatively affect future pensions and 78% of them have never interrupted their working activities for reasons other than parental leave.

More than half of the women interviewed have children. Among 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; among children 4–5, 96% attend pre-school. As showed in Table 3, women without any children work more hours in a typical week than women who are not mothers. Indeed, about two-thirds of women with children (67%) work over 31 hours per week, compared to 56% of women with at least one child aged 0–3. Although almost all children age 4–5 attend pre-school, only 53% of their mothers work more than 31 hours per week.

Table 3. Hours worked in a typical week and children (%)

	Have children age 0-3 (N=164)	Have children age 4-5 (N=103)	Have children age 5+ (N=571)	Do not have children (N=519)
Below 10 hours	6.1	3.9	5.9	6.7
Between 11 and 20 hours	14.0	13.6	15.6	9.6
Between 21 and 30 hours	23.8	29.1	25.0	16.2
Between 31 and 40 hours	39.0	41.7	41.0	43.7
Between 41 and 50 hours	17.1	11.6	11.4	20.2
Over 50 hours	0	0	1.0	3.5
Total	**100**	**100**	**100**	**100**

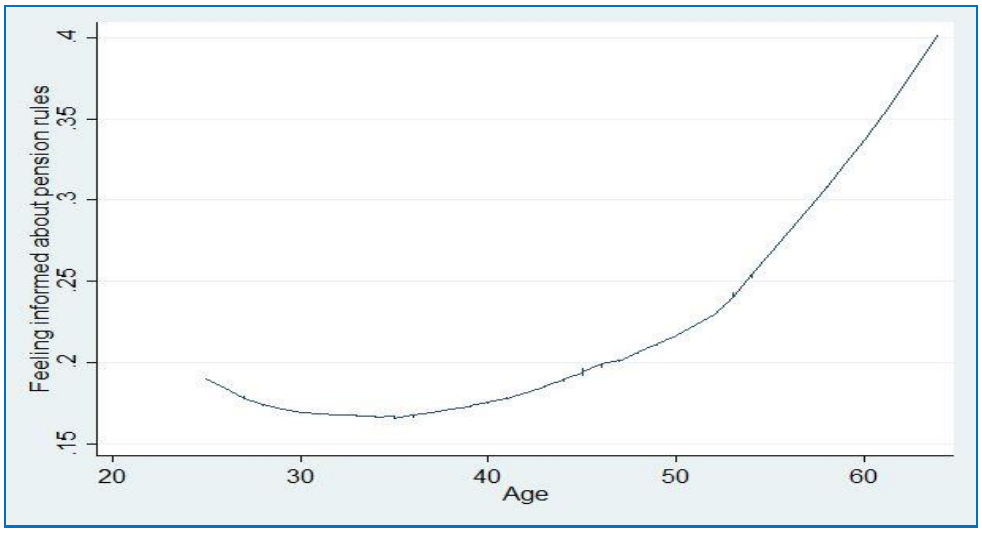
Among mothers, more than half (52%) would like to have another child, but a large proportion (65%) do not intend to leave their job to take care of their children, and more than half have not used parental leave when they had children. In fact, only 7% of women who would like to have children think that they will leave their job to take care of them.

The fact that women do not intend to leave their job to take care of their children is potentially related to the fact that most women in our sample appear to be aware that work interruptions or reductions of working hours do affect negatively the amount of pension to be received.

2.3 Pension knowledge

The information regarding individual future pensions is provided on the INPS website (www.lamiapensione.it) and from labor consultants and unions. Our survey shows that less than half (43%) of the sample have already 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 four (22%) reply that they will take care of it at the appropriate time. Therefore, only 20% of women consider themselves informed. Figure 3 shows that as women age grows, they feel progressively more informed about pensions, reaching a peak at age 64.

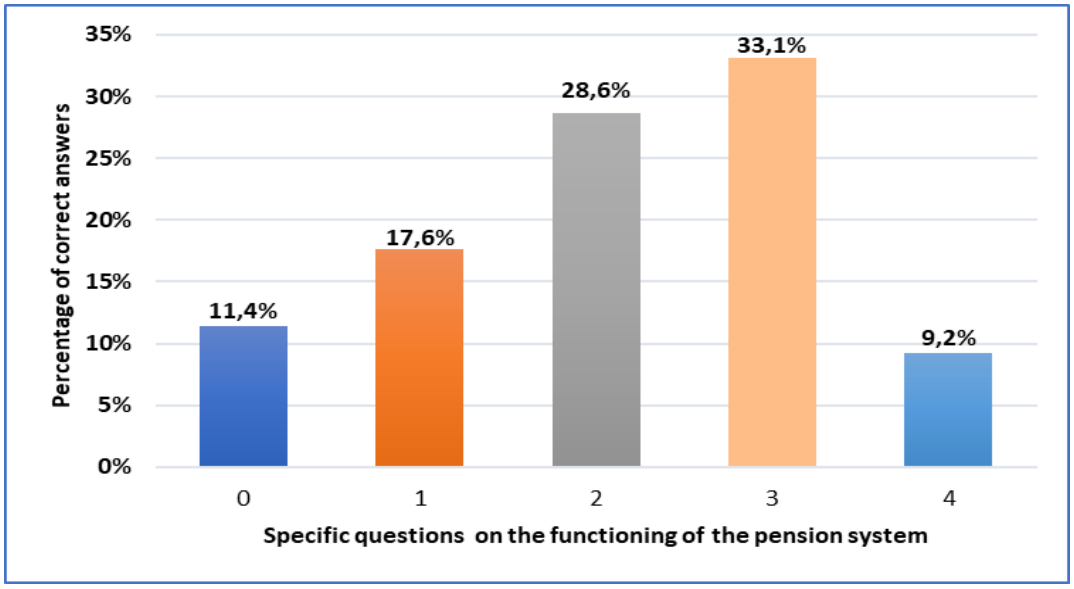
Figure 3. Information about pensions and women's age



Almost one in three women is unaware of the age at which she will retire (30%) and what the amount of the pension will be (29%), although three out of four respondents (74%) expect that their pension will be lower than the salary they currently receive. Women were also asked specific questions[3] on the functioning of the pension system in order to test their actual knowledge. The number of correct answers is reported in Figure 4. We note that only 9% of the sample correctly answered all of the questions on pension knowledge and more than 11% were wrong on all questions.

[3]- *The pensions of current retirees are financed with contributions paid today by active workers and employers, true or false?*
-The future pensions will be financed by future workers. In your opinion, true or false?
-What is the basis for calculating the future pensions? (multiple choice)
-Link between life expectancy and monthly pensions. (multiple choice)

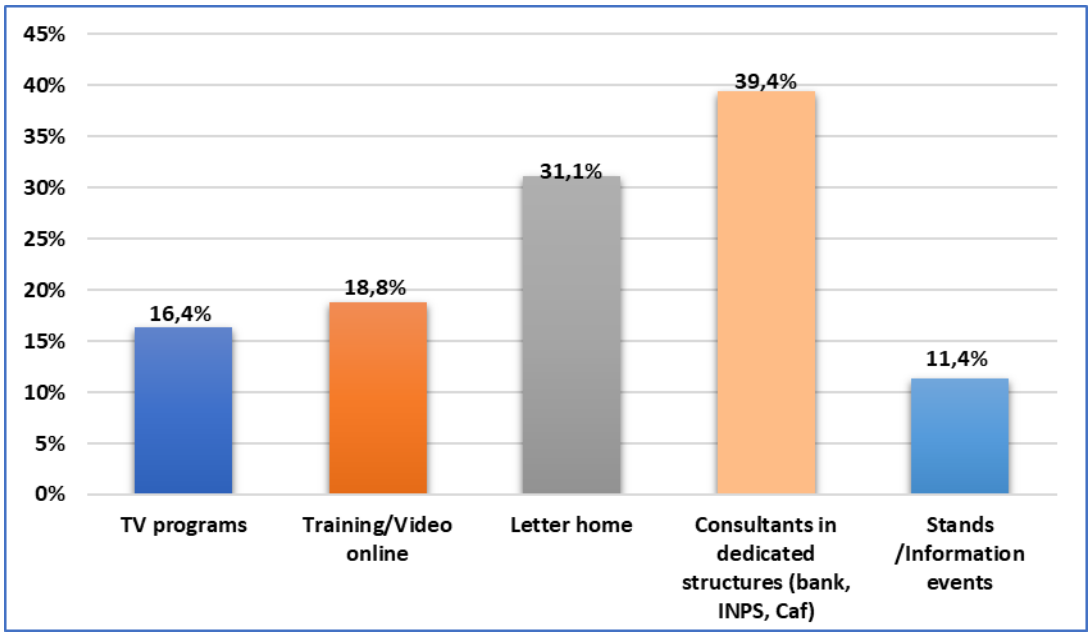
Figure 4. Knowledge of the Italian pension system: Proportion of correct answers



Specific questions:
- The pensions of current retirees are financed with contributions paid today by active workers and employers, true or false?
- The future pensions will be financed by future workers. In your opinion, true or false?
- What is the basis for calculating the future pensions? (multiple choice)
- Link between life expectancy and monthly pensions. (multiple choice)

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-fifth 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 on pensions, through different channels, as shown in Figure 5. It appears that most women would like to receive information from dedicated consultants. A letter sent by the national pension agency would be appreciated, too.

Figure 5. Request for pension communication: preferred channels



The topics of greatest interest for increased knowledge (for women who would like to receive more information) are:

- retirement age (39% as the first topic, 20% as second)
- amount calculation (36% as the first topic, 39% as second)
- supplementary pension funds (11% as first topic, 16% as second)

Moreover, 61% of women think that their standard of living in retirement will be lower than desired and almost the same percentage (62%) reported that they could make different life and work choices if they received more information.

Finally, our data show that self-employed women differ from their employee counterparts to some extent. Most of the women who tried to obtain information about their future pension are dependent workers rather than self-employed, mainly because it is easier for them to acquire information. As showed in Table 4, the self-employed have been less likely to consult the INPS (*The National Social Welfare Institution*) webpage or a CAF (*government office for tax assistance and information*), an accountant, or a labor consultant in order to get information about their future pension. The self-employed feel they are little informed on pension rules and they do not know that pension benefits decrease as life expectancy increases, for example. Compared to the employees, they would like to receive more information on how pension benefits are computed and on supplementary pension funds.

Table 4. Pensions and related information (%)

	Self-employed (N=240)	Not self-employed (N=1,009)
Pensions		
Consulted the INPS webpage or a professional	35.4	44.8
Feel informed on pension rules	18.3	20.4
Knowledge of the life expectancy-pension link	22.1	25.6
More information on:		
Retirement age	33.7	40.5
Pension benefit calculation	38.7	35.8
Supplementary pension funds	13.7	10.0
Early retirement option	5.0	5.8
Instruments to reconcile work and family	6.9	6.3
None of the above	1.9	1.5

2.4 Pension and wealth planning

According to the life-cycle theory, people should accumulate wealth while working and start decumulating after retirement. Recent cohorts face more financial insecurity as they near retirement, compared to their predecessors (Lusardi, Mitchell, and Oggero, 2018). Wealth holding can be considered a source to counteract financial vulnerability: wealth, indeed, can be transformed into annuities and generate a flow of income. At retirement, the availability of resources to withdraw represents the first instrument to offset financial distress.

We start this analysis by focusing on a first measure of financial inclusion, which is holding a checking account. As we noticed in the previous section, 5% of working women still do not own any 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 lower than €1,500, while their age distribution is almost uniform.

Since a key factor reducing financial vulnerability on the verge of retirement is financial literacy (Lusardi, Mitchell, and Oggero, 2019), we included a set of questions on financial knowledge in our survey, that allow us to assess respondents' basic financial literacy. As showed in Table 5, almost half (46%) of the sample cannot correctly answer a simple question about inflation and accrued interests. Over two-third (64%) cannot correctly answer a slightly more complicated question about interest compounding. Moreover, half of the sample do not know (33% do not know, 17% are wrong) which investment strategy involves a greater risk of losing money: investing in bonds from a single company or investing in bonds from more companies. Hence, many women do not know basic economic concepts that would make them "financially literate." This can be problematic as an increasing strand of the literature shows that basic financial knowledge has an impact on

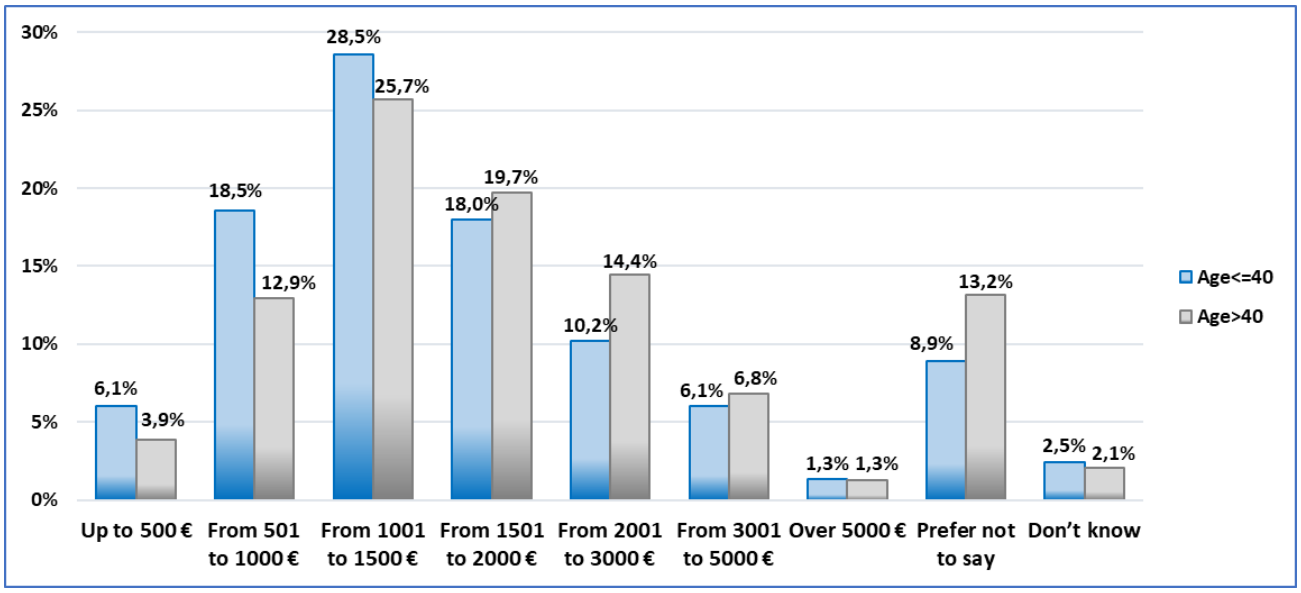
many economic behaviors, such as retirement planning and wealth accumulation. We also know that, on average, women are much less financially literate than men (Lusardi and Mitchell, 2008).

Table 5. Financial literacy questions

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?		
Answers	Frequency	Percent
Yes	84	6.7
No, I will be able to buy less than today	669	53.6
No, I will be able to buy more than today	60	4.8
Don't know	436	34.9
Total	**1249**	**100.0**
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?		
Answers	Frequency	Percent
More than €110	454	36.3
€110	441	35.3
Less than €110	256	20.5
Don't know	98	7.8
Total	**1249**	**100.0**
In your opinion, which of the following investment strategies entails a greater risk of losing money?		
Answers	Frequency	Percent
Investing in bonds of a single company	618	49.5
Investing in bonds of more companies	219	17.5
Don't know	412	33.0
Total	**1249**	**100.0**

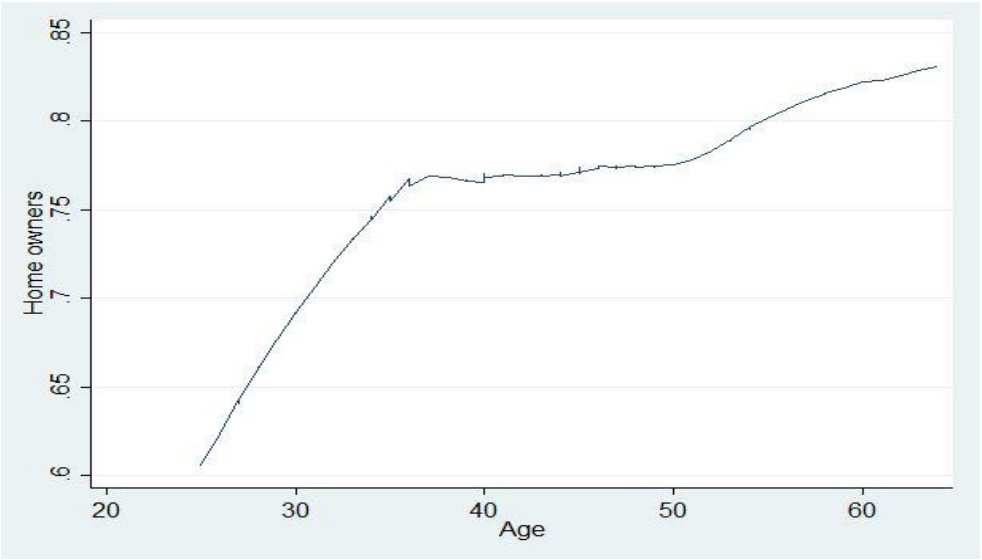
The distribution of women's net monthly income shows that the median income is between €1500 and €2000. We also note that 11% of the sample prefer not to answer the income range question, and 2% of the sample state that they do not know their income amount. The income mode is between €1000 and €1,500. Income distribution is inevitably related to age, showing an increasing pattern with age. For younger women, the distribution shows higher frequencies toward lower values, as shown in Figure 6: compared to their older counterparts, respondents below age 40 report lower income levels. More than half (53%) of younger women say their monthly income level is below €1,500. This is consistent with individuals' wage patterns, which usually increase with age and work experience. Interestingly, younger women are less reluctant to answer than their older peers (9% of the younger sample prefer not to answer versus 13% of the older sample).

Figure 6. **Income and age groups**



While personal wealth is a source to counteract financial vulnerability at older ages, a problem may arise in the event that wealth is not liquid. In that case, it is more difficult, if not impossible, to transform wealth into a stream of income flows which could top up income. One of the most important components of wealth for Italian households is certainly their home: The value of real estate in Italy is one of the highest among the European countries. Although individuals' perception of the value of their estate is different from the real price, a house is the precautionary saving instrument that makes Italian households solid in terms of wealth. In fact, more than three-fourths (76%) of the women in our sample own the house where they live, while 18% of respondents pay rent. Figure 7 shows that the share of women owning their own home increases with age and the correlation seems to be linear especially at younger ages.

Figure 7. **Home-owning and age groups**



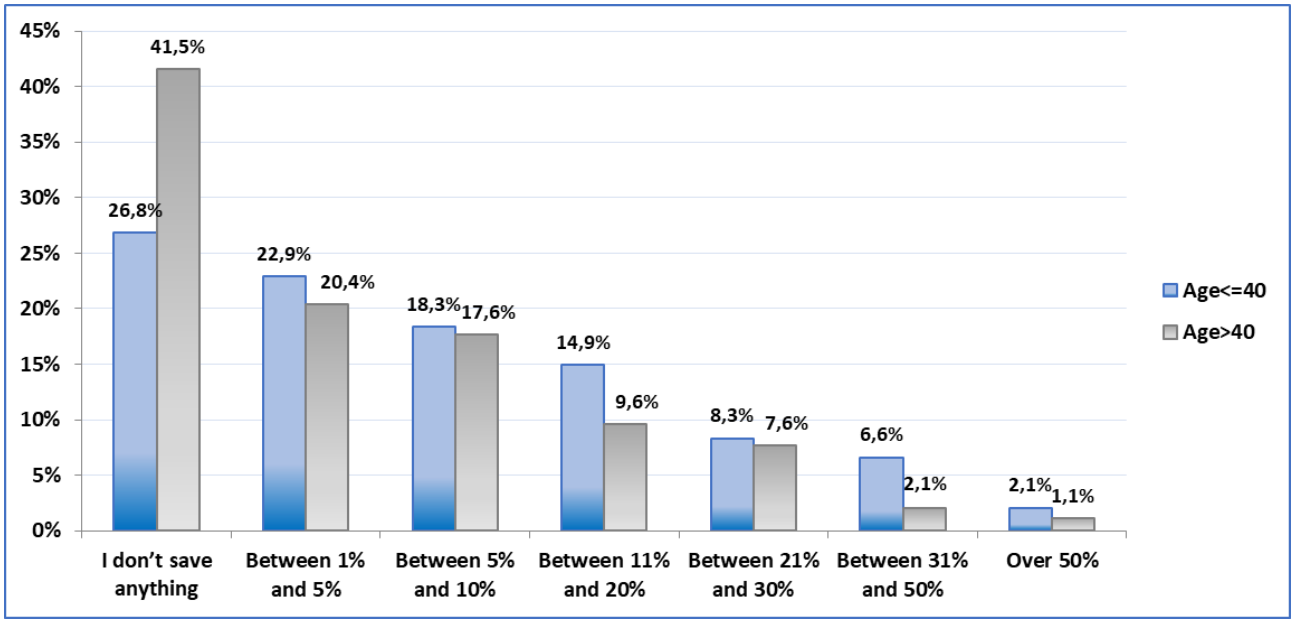
Now we will turn to saving strategy. Since illiquid wealth in the form of houses is prevalent in Italy, will income flows deriving from the public pension be enough to support older people (women in particular)? What we actually see in our sample is that a majority of women (61%) think that their future pension resources will not suffice to keep their standards of living aligned to their desired level (Table 6). Also, more than one-fourth (27%) state that they do not know the answer, and the percentage is higher among younger women (32% of women age 25-40 answer "Don't know" versus 23% of women older than 40).

Table 6. 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**

What actions can be undertaken to counterbalance the reduction in the perceived standards of living? A strategy to increase 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 8 shows the breakdown by age. The percentage of non-savers is much higher among respondents over 40 years old. On average, their younger counterparts save more.

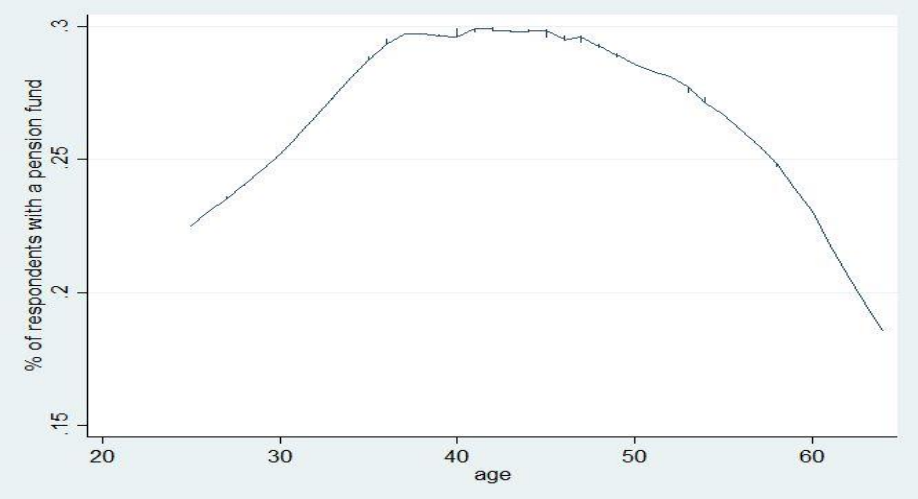
Figure 8. Saving behavior by age



Compared to today, one third of the women expect to save much more or a bit more in the future. In particular, younger people expect to save more than their older counterparts: 43% of respondents younger than 40 expect to save more in the future, while this percentage stops at 33% for the whole sample.

A large majority of the sample (72%) do not own a pension fund. This evidence shows that the majority of working women rely entirely on the public pension as a flow of future income after retirement. Moreover, many pension fund owners do not know its amount, indicating that pension-fund planning is not part of their conscious 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 being more likely to have subscribed a fund (Figure 9). Low percentages among older people could be as a result of a cohort effect, as those people used to be under a more generous defined-benefit public pension system.

Figure 9. Pension funds and age



Since personal wealth, together with the public pension provision, can provide financial security in retirement, we ask women whether they think they will use their wealth once retired. While half of them affirm they will, more than one-fourth (26%) still do not know. Interestingly, the self-employed expect to use their personal wealth accumulated over the years less than the employees (Table 7). This may be driven by the fact that more than one-fifth of them (23%) report they do not have any savings. We also notice that 45% of the self-employed state they do not save anything on a yearly basis, compared to 33% of employees, but they expect to save more in the future compared to their employee counterparts.

Table 7. **Savings by employment type (%)**

	Self-employed (N=240)	Not self-employed (N=1,009)
Use personal wealth once retired		
Answers		
Yes	42.9	50.9
No	5.0	6.4
Don't know	29.2	26.0
I don't have savings	22.9	16.6
Percentage of annual income saved yearly		
Answers		
I don't save anything	44.6	33.1
Expectation to save in the following years, compared to today		
Answers		
Much more	7.5	4.6
A bit more	35.0	26.5
As now	42.5	47.1
A bit less	7.1	12.1
Much less	7.9	9.8

3.The experiment

We run an experiment to evaluate the impact of increasing the amount of information on the women's perception about the link between the labor market and pensions. The experiment includes 800 women from 25 to 64 years old out of our initial sample of 1249 women. The entire sample receive a first questionnaire containing questions regarding family characteristics working conditions, savings, and retirement.

They were randomized into two sub-groups. The first (control) never receives any treatment and the second one (treated) attends a short tutorial which provides information on three main contents: i) the link between labor market and pension, ii) the functioning of the pension system, and iii) the link between pensions and wealth and savings.

The information is provided through brochures and videos.[4] After the tutorial, the entire sample received a new questionnaire to fill out. The comparison between the answers of treated and non-treated women potentially allows us to evaluate the impact of the tutorial and to explore the determinants of gender pension gaps along the three dimensions of the information provided. Table A8 in the appendix provides descriptive statistics of the sample of women who participated in the experiment and shows that the treated and the control group are balanced according to the observable characteristics, proving that the randomization is correct.

3.1 Results from the experiment

The online tutorial was widely appreciated by treated women: more than 80% of them rated the choice of contents and the clarity of the tutorials as excellent or good for each of the three topics. Furthermore about 80.0% of them declared that they had increased knowledge and interest in the topics covered.

However, not surprisingly, the effect of the tutorials was limited with respect to their ability to modify women's intentions related to labor-market or retirement decisions. In fact only 40% answered that the tutorials would have an impact on their future labor-market decisions, while 45% of them do not know, and 15% think that the tutorials will be irrelevant in that respect.

This is confirmed when comparing treated and control groups: we do not find significant differences between the two groups with respect to the labor market or retirement decisions. We have to keep in mind, however, that the women in our sample are already aware of the cost of work interruptions, as highlighted in section 2.2, and therefore the tutorials have a limited impact given the personal experience and that family and

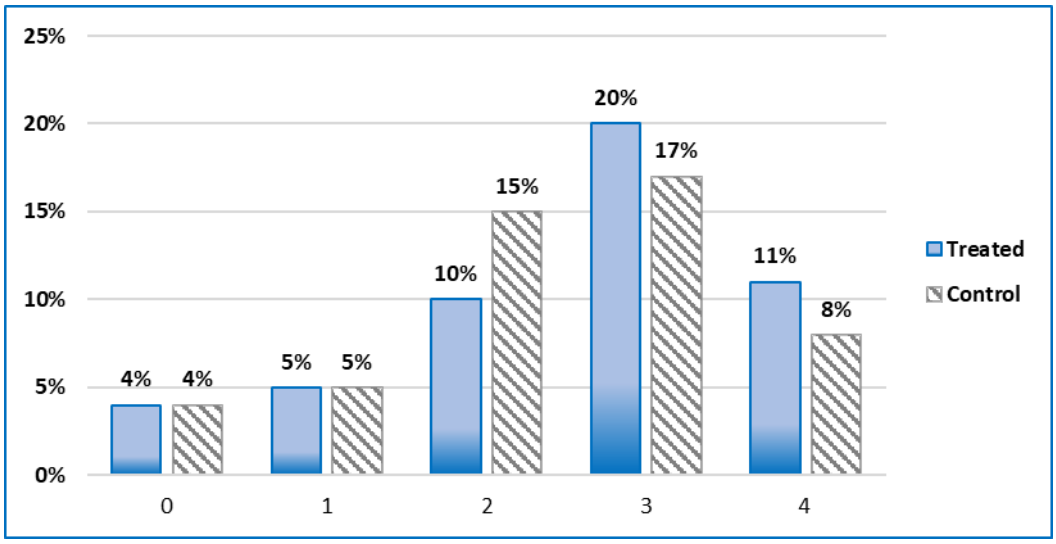
[4] The experiment was conducted in the period 2-15 July 2019.

colleagues they have already acquired. This holds in particular for older women who have more years in the labor market, longer work experience, and more earnings.

However, 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 delivery of the tutorials, treated and control women show different knowledge on the pension system and they have a different perception of the importance of information itself.

Starting with the knowledge on pensions, Figure 10 reports the share of women in the treated and control groups by 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 answer all four questions), treated women are more able to give a higher number of correct answers than women in the control group.

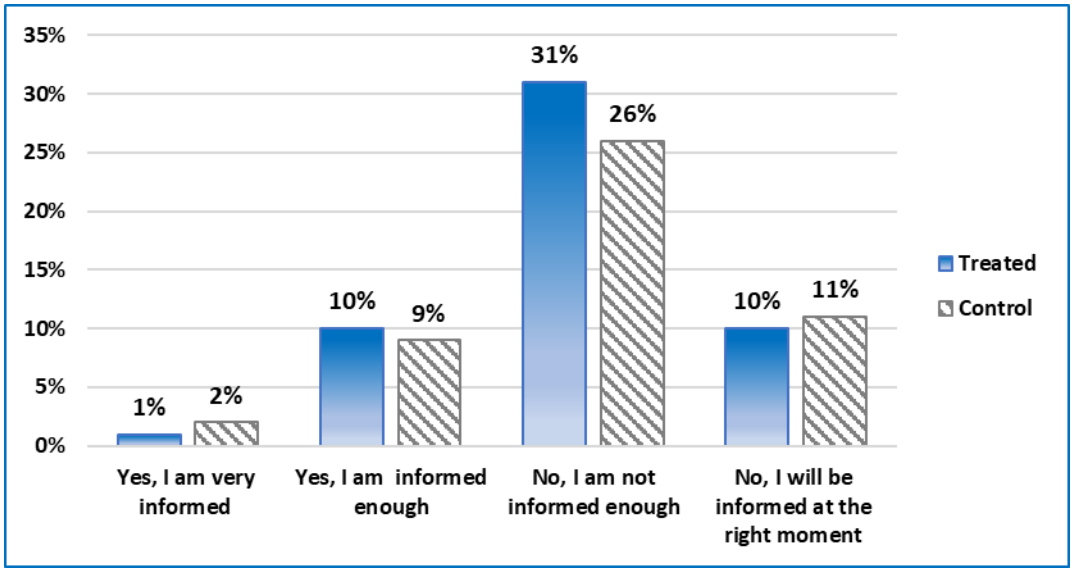
Figure 10. Share of correct answers on pension knowledge



Does the treatment induce women to be more informed about their own pension? We ask women whether they have tried to get information on their own future pension. This information can be obtained by consulting the INPS website, or by asking a professional tax preparer or the unions. Treated and control women show slightly different behavior: 26% of the treated women answered that they tried to get information, and 23% of the control group did. In other words, by receiving information on the functioning of the pension systems, treated women realize that they need to know more about their own situation. When women are asked whether they think they are well-enough informed about the pension system, interestingly, the share of women who answered that they are not is higher among the treated group, highlighting that

more information increases women's awareness of their lack of knowledge about the pension system and the importance of information itself. Figure 11 shows the results.

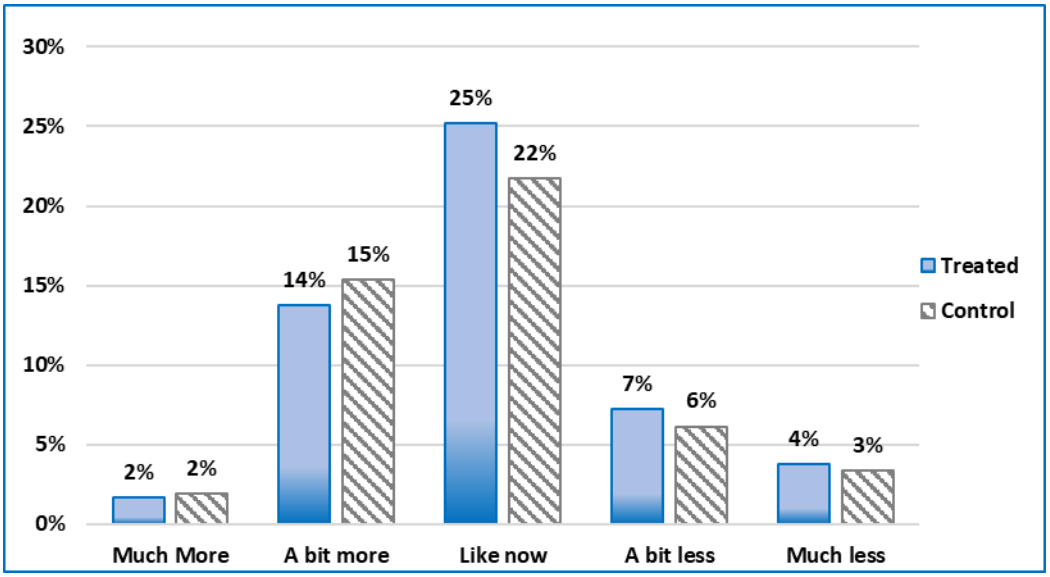
Figure 11. Do you think you are well-enough informed about the pension rules?



However, when we go deeper in the details of the functioning of the pension system, we find that the real knowledge of women on both their retirement age and their opportunity to exchange 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, answer that they do not know at what age they expect to retire. Moreover, when we ask women whether they are willing to give up to a certain percentage of their pension benefit (5%, 10%, 20%, 30% respectively) in order to move up their retirement by three years, treated women show higher percentages of answers accepting this exchange with respect to control women, however differences are not statistically significant. In other words, the information treatment does not change the real knowledge of women on a crucial aspect of their pension (the age of retirement and the trade-off between early retirement and pension amount), thus making the role of information more salient and thus their need to be more informed.

Moving to saving decisions, the treatment group shows a higher confidence than the control group about the appropriateness of their actual level of savings. The share of treated women who plan to save less slightly increases. More generally, the treatment seems not to have scared women about their plans for savings.

Figure 12. **Plans for savings in the coming years compared to today**



Conclusions

Our results suggest that although the women interviewed belong to a generally more educated population segment, with a more steady employment and a high capacity of utilization of information technology and networks, their level of knowledge of the Italian pension system and their familiarity with the notions of basic finance are very limited.

However, they are aware of their limited knowledge on the subject and most of them would like to improve it, in the belief that this would lead them to make choices that are different from their current ones.
Through these results we have learned that we should never take anything for granted, although the study and prior knowledge of the subject can provide important operating instructions. It is always necessary to test our hypotheses empirically, as we started doing with our experiment, which, at its very beginning, already showed a level of knowledge of women even lower than expected and their preference for information channels that we had not initially considered.
Information policy is important not only because it is likely to improve women's knowledge about their pension and financial situation, but also to improve women's economic decisions regarding their future.

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Table A1. Sample descriptive statistics

AGE		**Sample (N=1249)**	
Mean		42.79	
GEOGRAPHIC AREA		**Sample**	
North-West		387	31%
North-East		289	23.1%
Center		273	21.9%
South and Islands		300	24%
	Total	**1249**	**100%**
EDUCATION		**Sample**	
Tertiary education		540	43.2%
High school degree		649	52%
Lower secondary education		60	4.8%
	Total	**1249**	**100%**
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%**
OCCUPATION		**Sample**	
Full-time		829	66.4%
Part-time		382	30.6%
Occasional		38	3%
	Total	**1249**	**100%**
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%**
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 A2. Descriptive statistics: self-employed versus not self-employed (%)

	Self-employed (N=240)	Not Self-employed (N=1,009)
Education		
Tertiary education	12.1	15.3
High school diploma	48.7	47.5
Lower secondary education	27.5	29.1
Elementary school	11.7	8.1
Household composition		
Having children	54.2	59.5
Average net monthly income		
Up to 500 €	8.3	4.0
From 501 to 1000 €	20.0	14.2
From 1001 to 1500 €	17.9	29.0
From 1501 to 2000 €	15.4	19.8
From 2001 to 3000 €	8.7	13.6
From 3001 to 5000 €	7.1	6.3
Over 5000 €	0.4	1.5
Don’t know/Prefer not to say	22.1	11.6
Worked hours in a typical week		
Below 10 hours	12.5	4.7
Between 11 and 20 hours	15.0	12.5
Between 21 and 30 hours	18.7	21.8
Between 31 and 40 hours	26.2	46.3
Between 41 and 50 hours	21.7	13.8
Over 50 hours	5.8	1.0

Table A8. Descriptive characteristics of treated and control groups

AGE	**Sample**		**Treated**		**Controls**	
N	801		413		388	
Mean	42.94		42.92		42.96	
GEOGRAPHIC AREA	**Sample**		**Treated**		**Controls**	
North-West	251	31%	129	31%	122	31%
North-East	192	24%	102	25%	90	23%
Center	165	21%	84	20%	81	21%
South and Islands	193	24%	98	24%	95	24%
Total	**801**	**100%**	**413**	**100%**	**388**	**100%**
EDUCATION	**Sample**		**Treated**		**Controls**	
Tertiary education	369	46%	198	48%	171	44%
High school degree	393	49%	192	46%	201	52%
Lower secondary education	39	5%	23	6%	16	4%
Total	**801**	**100%**	**413**	**100%**	**388**	**100%**
HOUSEHOLD COMPOSITION	**Sample**		**Treated**		**Controls**	
Live alone	93	12%	48	12%	45	12%
Couple without children	193	24%	100	24%	93	24%
Couple with 1 child	176	22%	90	22%	86	22%
Couple with 2 children	162	20%	82	20%	80	21%
Couple with 3 or more children	42	5%	20	5%	22	6%
Single-parent	62	8%	37	9%	25	6%
Other typologies	73	9%	36	9%	37	10%
Total	**801**	**100%**	**413**	**100%**	**388**	**100%**
OCCUPATION	**Sample**		**Treated**		**Controls**	
Full-time	543	68%	284	69%	259	67%
Part-time	235	29%	117	28%	118	30%
Occasional	23	3%	12	3%	11	3%
Total	**801**	**100%**	**413**	**100%**	**388**	**100%**
INCOME	**Sample**		**Treated**		**Controls**	
Up to 500 €	37	5%	23	6%	14	4%
From 501 to 1000 €	104	13%	49	12%	55	14%
From 1001 to 1500 €	213	27%	106	26%	107	28%
From 1501 to 2000 €	155	19%	82	20%	73	19%
From 2001 to 3000 €	119	15%	65	16%	54	14%
From 3001 to 5000 €	56	7%	31	8%	25	6%
Over 5000 €	12	1%	6	1%	6	2%
Prefer to not answer	87	11%	41	10%	46	12%
I do not know	18	2%	10	2%	8	2%
Total	**801**	**100%**	**413**	**100%**	**388**	**100%**