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

This project is co-funded by the European Union's Rights, Equality and Citizenship Programme (2014-2020)

Literature review on the effects of pension information on individuals' economic outcomes

Turin, September 2019

Presidenza del Consiglio dei Ministri
Dipartimento per le pari opportunità

Collegio Carlo Alberto
UNIVERSITÀ DEGLI STUDI DI TORINO

CENSIS

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

REPORT PREPARED BY

Stefania Basiglio & Noemi Oggero | Collegio Carlo Alberto

SCIENTIFIC SUPERVISION

Daniela Del Boca | University of Torino & Collegio Carlo Alberto

Paola Profeta | Bocconi University

Mariacristina Rossi | University of Torino & Collegio Carlo Alberto

ABSTRACT

This paper provides an overview of a wide array of research investigating the effects of pension information on different individuals' economic outcomes. While many studies show that information provision increases knowledge, the evidence is mixed regarding its effects on behavior. Nevertheless, we draw some conclusions about the impact of pension information on three major economic outcomes, namely, retirement planning, choices pertaining individuals' labor supply, and savings decisions. We also highlight that the lack of knowledge prevalently hits the most vulnerable individuals in the society, such as women. As a consequence, not providing a sufficient level of information could contribute to a widening gender gap in pensions.

The project is co-funded by the REC – Rights, Equality and Citizenship Programme of the European Union (Grant Agreement number: 820763 — CL.E.A.R. — REC-AG-2017/REC-RGEN-PENS-AG-2017)

1 | Introduction

In recent decades, many countries have shifted from defined benefit to defined contribution pension schemes, where pension information becomes crucial in order to make sound retirement decisions. As pointed out by Mitchell in 1988, lack of knowledge of pension incentives is troubling as workers may save or consume suboptimally, or retire earlier than they would have if equipped with better pension information. Moreover, pension knowledge is found to be related to information, and also depends on the costs and benefits of gathering information (Gustman and Steinmeier, 2005).

As public pensions constitute a substantial share of the whole retirement income for many workers, it is important also for governments to provide individuals with information about their public retirement benefits, and public pension statements are one way to do it (Fornero, Oggero, and Puglisi, 2019). Looking at the USA, a 2001 Gallup survey found that respondents who reported receiving the Social Security statement were more knowledgeable about the program than those who did not. For instance, the study highlighted a significant increase in the number of respondents who knew the relationship between benefits and earnings, and that retirement age was increasing (Kritzer and Smith, 2016). Also, workers who received the statement were much more likely to be able to provide an estimate of their future benefits (Mastrobuoni, 2011).

While it has been found that pension information is effective in increasing retirement knowledge, the evidence is mixed regarding its effects on economic behaviors. Nevertheless, we propose a comprehensive review about the impact of pension information on three major economic outcomes, namely, retirement decisions, choices pertaining individuals' labor supply, and life cycle trajectories. The remainder of the paper is as follows: in Section 2, we first proceed providing an overview on the structure of the pensions systems in Europe pointing out also how the pension communication in these countries works. We then focus on pension knowledge and retirement planning in Section 3, labor supply decisions in Section 4, and savings choices in Section 5. Section 6 elaborates on the pension gender gap, and Section 7 concludes.

2 | Pension systems and pension communication in Europe

2.1 Pension systems in Europe

Pension systems have generally been represented by three pillars. Exploiting the glossary of a briefing provided by the European Parliament[1], the 'first pillar' (public) pensions are identified by "*public statutory pensions administered by the state and usually financed from social insurance contributions and/or general tax revenues on a PAYG basis*"; in some countries, , a statutory mandatory funded individual plans (pillar Ibis pensions) have been introduced alongside the first pillar. 'Second pillar' (occupational) pensions are "*private supplementary plans linked to an employment relationship*". In conclusion, 'third pillar' (personal) pensions are represented by "*personal pensions, i.e., pre-funded private voluntary supplementary plans in which contributions are invested in an individual account managed by a pension fund or financial institution*". Occupational pension schemes are not present in all member states; indeed, these pensions schemes, when present, can be voluntary or mandatory while some countries have both (Eichhorst et al., 2011). Along this line, differences in the structure and various reforms of pension systems led to diverse pension arrangements in the EU Member States. A vast majority of pension systems is represented by public pension systems; although, occupational pension schemes and/or private mandatory and voluntary schemes have been introduced in several member states (European Commission, 2009b). Table 1 provides a more detailed overview of the pension schemes in the EU Member States.

It appears that earnings-related, old-age, public pension schemes represent the main type of coverage in most countries, except for example for Denmark, Greece, Ireland, and the Netherlands (European Commission, 2009a). A large majority of member states also provides a minimum guarantee pension which is usually means-tested so to ensure a minimum of adequacy for all retired people (Eichorst et al., 2011). On the contrary, in some other countries like Denmark, Ireland, the Netherlands and the United Kingdom, the minimum guarantee pension is provided by a flat-rate pension that pays the same amount to every retiree (European Commission, 2009a; European Commission, 2009b; Eichorst et al., 2011).

[1] Briefing of the European Parliament available at http://www.europarl.europa.eu/EPRS/EPRS-Briefing-568328-Prospects-for-occupational-pensions-EU-FINAL.pdf

Table 1 – Pension Schemes in EU Member States

	COVERAGE							
	Public pensions					Occupational pension scheme	Private pension scheme	
	Minimum pension / social allowance	Old-age pensions	Early retirement pensions	Disability pensions	Survivors' pensions		Mandatory private scheme	Voluntary Pension scheme
BE	MT - SA	ER	ER	ER (wage earner); FR (self-employed)	ER	V*	X	V*
BG	MT - SA	ER / FR	ER (before end 2010 pensions)	ER / FR	ER / FR	V*	M young (1960) M* (prof)	V*
CZ	FR	ER	ER	ER	ER	X	X	V*
DK	FR & MT	FR & MT	V	FR	FR*	V	X	V
DE	MT - SA*	ER	ER	ER	ER	V*	X	V*
EE	FR	FR (before 1999); ER (after)	X	FR (before 1999); ER (after)	FR (before 1999); ER (after)	X	M - young (1983)	V - old*
EL	MT	ER	ER	ER	ER	X	X	V*
ES	MT - SA*	ER - priv; FRw - pub.	ER - priv; FRw - pub.	ER - priv; FRw - pub.	ER - priv; FRw - pub.	V - priv; M - pub.	-	V
FR	MT	ER	ER	ER - HC	ER	V	-	V*
IE	MT - FR & SA	FR	MT – FR & SA	SA: MT – FR; Contributory: FR	SA: MT – FR; Contributory: FR	M - pub; V* - priv	X	V*
IT	MT & SA	ER	ER	ER	ER	V*	X	V*
CY	SA*	ER	ER	ER	ER	M - pub; V* - priv	X	X
LV	SA	ER	ER	ER	ER	X	M - young (1971); V - old	V*
LT	SA	ER	ER	ER	FR or ER	X	V	V*
LU	FR - SA*	ER	ER	ER	ER	V*	X	V*
HU	MT - SA	ER	ER	ER	ER	X	M - new (1998)	V*
MT	MT - FR*	ER	-	FR	ER	Exists only to a minor extent*	X	V*
NL	SA*	FR	-	ER	FR	M	X	V*
AT	MT - SA*	ER	ER	ER	ER	M*	X	V*
PL	MT*	ER	ER	ER	ER	V*	M/V	V*
PT	MT - SA	ER	ER	ER	ER	M - prof; V - others	X	V*
RO	SA	ER	ER	ER	ER	-	M	-
SI	MT*	ER	ER	ER	ER	M * - prof; V* - others	X	V
SK	MT - SA	ER	ER	ER	ER	X	M/V	V*
FI	MT	ER	ER	ER	ER	V*	X	V*
SE	MT	ER	ER	ER	ER	V	M	V
UK	FR & MT - SA	ER	X	ER HC*	-	V*	X	V*
NO	FR	ER	X*	ER	ER	M*	X*	V*

Source: 2009 Ageing Report (European Commission, 2009a).

Notes: MT=Means tested, FR =Flat rate, FRw=Flat rate by wage categories, ER=Earnings related, HC=Partly covered by health care expenditure, SA=Social allowance/assistance, X=Does not exist, V=Voluntary participation in the scheme, M=Mandatory participation in the scheme, *=Is not covered by the projection, public=Public sector employees, private=Private sector employees, new=New labour market entrants, prof=Only for selected professions, other=Other than selected professions, young(X)=Only for people born in year X and after, old=Only for people other than young.

2.2 Pension communication and initiatives in Europe

As pointed out in the previous paragraph, it appears that most pensions schemes in Europe count on a public pension (earnings-related) system. Another fundamental indicator of the pension system is identifiable in the replacement rate, i.e., the percentage of a worker's pre-retirement monthly income that she monthly receives after retiring. The replacement rate for median earners shows the highest levels in Denmark (95%), Spain (85%) and Italy (76%) (Better Finance, 2016). So, it becomes fundamental to understand whether enough information is provided to people so to understand if individuals are aware of how the pension system of their own country work.

Generally, countries with high replacement rates (approximately 70%) did not perform high investments in pension communication compared to countries with low replacement rates (around 50% or lower) (Debets et al., 2018). Recently, some countries have improved the measures of transparency concerning for example costs and performance of pension funds. Indeed, in the Netherlands, pensions funds have to report and provide detailed information on administration and investment costs [2] . Similarly, in Denmark, the government site (www.pensionsinfo.dk) made transparent for the members all direct and indirect administration and investment costs, including past returns, of individual accounts (OECD, 2018). The information in a pension statement can be classified into two categories: the first one provides a basic accounting information, i.e., all basic information about pension plans, while the second one consists in a forward-looking information, i.e., something useful for individuals to understand potential returns, and relative risks, of the plans (Antolin and Harrison, 2012). Pension projections represent indeed an important tool which might help individuals in better understanding of what to expect after retirement.

[2] In 2011, the Dutch Authority for Financial Markets (AFM) published a report on pension fund costs emphasizing for example, the influence of costs on retirement incomes, potential for economies of scale, etc. (OECD, 2018)

Table 2 - Examples of Projection Assumptions for Statements and Calculators

Country	Range and Assumptions
Australia	Projections range from 5% (cash) to 8% (growth), with an inflation assumption of 2.5% + 1% rise in living standards. The projected income is based on a payment period to age 90 Austria Parameters reflect Pensionkasse annual investment income, technical surplus and assumed interest rate, among other factors.
Bulgaria	Projections are based on fees, the interest rate, the year of retirement, and the number of years during which the member will be receiving pension.
Denmark	Projections (web calculator) are based on the member's choice of assumptions.
Estonia	The calculator on the supervisor's website is generic and allows the user to input the expected rates of return, contributions, and investment period, based on a pre-set range.
Hungary	The Supervisory Authority's pension calculator is under construction.
Macedonia	Projections are based on the contribution level, the contribution period, the return, and the fees.
Netherlands	Funds are required to use an interest rate of 4%. They are free to choose their own mortality table.
Poland	A web-based pension calculator is available on an affiliated financial education website http://www.manymany.info. This enables members to estimate future pension and replacement rates from private pension funds and the social security pension, based on different assumption about wages, the rate of return and the labour market.
Slovak Republic	There are no specific rules on the calculation method.
Sweden	Projections assume two wage growth scenarios: 0% and 2%. The rate of return on the funded individual account is assumed to be 3.5% higher than earnings growth.
United Kingdom	Projections are based on a maximum assumed growth rate (7% on annual statements, 9% on illustrations on joining). The rate should be reasonable in relation to the underlying assets, for example a lower rate should be used for cash than for equities. The scheme's charges should be taken into account, with an allowance for anticipated increases.

Source: own elaboration for European countries from the 2013 OECD issue "*Improving pension information and communication: OECD survey and lessons learnt*".

Table 2 reports some examples of the projection assumptions for pension statements[3]. As so far, it is clear that differences in the pension systems lead toward differences in communication strategies. In the remainder of this paragraph, we provide an overview of how pension communication is effective in European countries.

[3] Starting from the information provided in a special OECD issue of 2013 "Improving pension information and communication: OECD survey and lessons learnt" (Available at https://www.oecd.org/daf/fin/financial-education/TrustFund2013_OECD_%20Improving_Pension_Information_and_Communication.pdf), we elaborate a table for European countries.

PENSION COMMUNICATION STRATEGIES

Austria

The pension system is based on the 80/45/65 rule: an 80% gross replacement rate for people with 45 years of social security contributions and retire at an age of 65 years old (Knell, 2013). In 2013, there has been a pension information campaign in which the Pension Insurance Agency provided insured individuals born between 1958 and 1990 with information about the future pension.

Italy

The pension system is structured as a compulsory statutory pension system integrated by voluntary private and fully funded pension plans at individual and collective levels (Better Finance, 2016). The Italian Social Security Institute INPS annually informs the workers of the evolution of their pension; starting from 2016, through the INPS website, private sector employees and the self-employed can control various information such as for example the day of retirement, the predicted replacement rate, etc. and they can also simulate different scenarios dependent on different career patterns (Debets et al., 2018).

Sweden

After the change from Defined Benefit to Defined Contribution pension system in 1999, the government introduced the Orange Envelope with the aim of improving information on pension contribution. The envelope, which is sent annually, included an account statement, a fund report for the funded part and a prevision for the future pension (Debets et al., 2018).

The Netherlands

The pension system can be categorized in three levels: the first one is a state income independent of the past of the individual; the second one is a mandatory fully funded occupational pension plan; eventually, the third one is composed of individual voluntary pension saving. In 2007, a law on pension communication establishes that the pension industry had to provide a yearly Uniform Pension Overview (UPO); in addition to that, pension funds were obliged to send the UPO to the participants. Moreover, the pension industry was required to build up an online pension register in which people have complete information on first and second pillar pension rights (Debets et al., 2018). In 2015, a new Act on Pension Communication passed aiming at let plan members know the expected amount and the relative risks of the pension plan.

The United Kingdom

The pension system can be categorized in three levels: the basic state retirement pension, the State Second Pension (S2P), and the Pensions Credit. No specific legislation on state pension is provided except for the supplementary pensions whose information are supplied by the Pension Schemes Act 1993. Forecasts of the state pension age and the amount of basic state pension are available online through the government website; in addition to that, free advices are offered through the webpage of state Pension Institutions and the Financial Conduct Authority (Debets et al., 2018).

3 | Pension knowledge and retirement planning

Research has found that many people lack fundamental economic concepts and 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 arrive close to retirement with very little wealth (Lusardi, Michaud, and Mitchell, 2017). Nevertheless, the role played by pension information is less clear.

An evaluation of a low-cost online financial and demographic literacy program was provided by Billari, Favero, and Saita (2018), who implemented it with the largest industrial pension fund in Italy. The program was found not only to increase participants' knowledge, but it also made individuals 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.

A few studies directly evaluated the effect of providing public retirement benefits information through public pension statements. In the USA, where the Social Security Administration fielded many surveys to evaluate its outreach effort, a considerable percentage of respondents reported using the statement for retirement planning, even though they did not believe they would receive Social Security benefits at the time they retire (Kritzer and Smith, 2016). Even though there is widespread awareness of the unsustainability of pension systems, people seem to ignore or under-estimate the cost of a public pay-as-you-go system (Boeri, Boersch-Supan, and Tabellini, 2002). These results might also be a consequence of low levels of financial literacy and understanding of retirement programs. Allen et al. (2016), examining 85 pre-retirement planning seminars conducted by five companies in 2008 and 2009, showed that the exposure to them lead to a considerable improvement in the knowledge of retirement programs and in the making of retirement choices, in addition to a reduction in transaction costs of managing pension plans.

In Sweden, where a notional defined contribution scheme provides a large share of retirement income, a lot of financial information - including forecasts of the expected future value of pension benefits - has been distributed through the so-called Orange Envelope to everybody eligible for a pension. The widespread dissemination of information is likely to have raised basic financial knowledge and to have lowered the barriers to planning for retirement

(Almenberg and Säve-Söderbergh, 2011). However, fewer than half recipients reported having a good understanding of the pension system (Sundén, 2009). In Canada, public statement recipients said they had a better understanding of their pension plan and were more likely to plan for their retirement (Kritzer and Smith, 2016). As a spillover effect, knowledge on the pension system and the personal pension situation decreases individuals' concerns about retirement, especially for women (Spruit, 2018).

In line with these studies, Debets et al. (2018) exploited the introduction of an annual pension overview for all Dutch employees to estimate the effect of providing information on pension knowledge and active planning, by identifying with this expression individuals that are not procrastinating in making retirement decisions. The research suggested that providing an annual pension statement might have a positive impact on pension knowledge, which in turn has a positive causal effect on active pension decision making, meaning that people will adjust their behavior if pensions are cut (or will not adjust it if they can easily make ends meet).

The evidence presented so far clearly shows that pension information has a positive impact on workers' knowledge about their benefits and their self-declared retirement planning, but whether workers actually change their retirement behavior after receiving pension information is more controversial. In particular, Mastrobuoni (2011) focused on the introduction of the annual Social Security Statement in 1995, and using the Health and Retirement Study data he found that workers did not update their expectations after receiving the public statement, nor Social Security claiming patterns changed. The study concluded that "*either workers were already behaving optimally or the additional information provided by the statement isn't sufficient to improve uninformed workers' retirement choices*" (Mastrobuoni, 2011).

4 | Labor supply decisions

The shift to defined contribution pension plans that link the benefit to the contributions paid is altering the incentives to work longer, since postponing retirement leads to higher pension levels. However, these incentives only work if workers are provided with information about the pension system (Chlon-Dominczak, 2009). Indeed, using self-reported, employer-reported, and administrative data, Chan and Stevens (2008) showed that only those who

correctly perceive the incentive to delay retirement are responsive to pension incentives, while misinformed individuals respond to their perceived, but incorrect, pension information. In particular, among individuals who can increase their pension wealth by postponing retirement, those that are aware of this are less likely to retire. This is partly in contrast with successive research finding that workers do not become more sensitive to Social Security incentives after receiving information through the public statement. A possible explanation is that additional information is valuable only for workers who do not face health problems or liquidity constraints: indeed, wealthier and healthier individuals are more likely to get informed (Mastrobuoni, 2011).

Since many countries besides the USA have started providing workers with information about their public retirement benefits through public pension statements, the economic research investigating the effects of pension information is exploiting a related event-study strategy. In this regard, Dolls et al. (2018) used an event study coupled with administrative tax returns and survey data to investigate the consequences of the first receipt of a public statement. In particular, they studied the effect of the German pension administration decision to send out annual letters providing information about both the pension system and individual expected public pension benefits. Focusing on labor supply decisions, the authors found that receiving the letter caused an increase in gross labor earnings, which is the most direct way to increase public pension benefits through higher contributions.

In order to measure the impact of the information provision on labor supply, Liebman and Luttmer (2015) designed a field experiment in which a treatment group of older workers was given information about Social Security provisions trough a brochure and a short online tutorial. A follow-up survey conducted the subsequent year revealed that the intervention raised the fraction of individuals remaining in the labor force, and increased the perceived return to working longer especially among women, by changing knowledge of incentives. Along this line, women exposed to a financial education seminar are found to be more likely to change retirement objectives being willing to increase contributions (Clark et al., 2006).

Furthermore, exploiting surveys conducted before and after financial education programs, Allen et al. (2016) found out that individuals, in addition to having their own knowledge in retirement programs and plans increased, were more willing to revise the planned retirement age and the age for demanding Social Security benefits.

5 | Savings trajectories

While the research on the effects of pension information provision on labor supply is scant, more has been done to study the effects on savings and wealth accumulation. A research cited in the previous section also provides causal evidence of the positive effect of information letters on private retirement savings, and shows that the increase in private retirement savings did not crowd-out other forms of savings (Dolls et al., 2017). The information effect on both savings and labor supply is explained by the fact that individuals tend to overestimate their pension benefits, implying that the letter represents a negative shock.

Using a randomized field experiment and administrative data on employees at the University of Minnesota, Goda, Manchester, and Sojourner (2014) found that a low-cost provision of retirement planning materials and retirement income projections increased workers' contributions – but differently than Dolls et al. (2017) they could not rule out a crowding-out of other forms of savings. This experiment also showed the importance of the assumptions used to generate the projections: higher assumed retirement age and contributions led to a larger increase in contributions. In line with this research, Smyrnis et al. (2019) investigated the relevance of presenting retirement wealth in different ways to plan-participants. More specifically, using an online experimental survey they showed that just inviting respondents to consider their retirement wealth increases voluntary saving, and that the provision of lump-sum together with income stream projections has the largest impact on savings.

Following the line of randomized experiments, Duflo and Saez (2003) conducted a field experiment in which a random sample of university employees was provided a monetary reward to attend seminars on retirement benefits. They found that enrollment in the retirement plan increased significantly in university departments where some workers were treated with respect to departments where nobody was treated, highlighting the role played by social interactions too. However, social interactions could also have the opposite effect when information about the high savings rates of peers discourages individuals, leading low-saving people to decrease their savings (Beshears et al., 2015).

Offering financial education seminars in the workplace assumes a crucial role in shaping saving behavior (both in general and for retirement) and participation in retirement plans

(Bernheim and Garrett, 2003). Indeed, the authors found out that when an employer offers some financial education programs, retirement accumulation and rates of participation in retirement plans are significantly higher both at individual and household level.

Furthermore, as pointed out also in previously cited works, financial literacy could represent an important driver for participation in retirement plans. Brown and Graf (2013), using survey data representative of the Swiss population, showed that high levels of financial literacy are strongly correlated with voluntary retirement savings. Indeed, Fornero and Monticone (2011) found out that financial literacy increases the chances of investing in a private pension plan. Going beyond changes in saving behaviors, a last aspect that needs attention is related to the capability of modifying investment choices in retirement accounts. Indeed, Clark et al. (2006) claimed that, after participating in financial education seminars, individuals are more likely to change investment allocations and to start new tax deferred saving accounts. Along this line, Boyer, D'Astous and Michaud (2019) pointed out the importance of filling the knowledge gap about tax-sheltered retirement instruments in Canada. Through a randomized experiment, the authors proposed a survey through which they showed a significant improvement both in the knowledge about tax-favored saving vehicles and in the quality of the decisions made.

6 | The pension gender gap

The research reviewed so far does not focus on the gender dimension, with only few studies touching upon it. However, a natural and straightforward conclusion of the different aspects considered so far is that the lack of information and knowledge could mostly affect more vulnerable individuals in the society, such as *women*. Along this line, pension benefits are first of all a consequence of the position that individuals had in the labor market; and the latter depends on various features such as stability, labor market segregation, and wage gaps (Frericks, Knijn, and Maier, 2009). Of course, such disadvantageous conditions in the labor market cause lower pensions for women even when working hours or occupational positions are the same as those of men.

Indeed, as pointed out by Bettio, Tinios, and Betti (2013) and by Tinios et al. (2015), people often associate the concept of economic independence to the gender pay gap. Going one

step further, the authors examine the pension gender gap, defined as the difference between the gross pensions of men and women over age 65.

The different spread out of women's emancipation in the labor market is one of the factors responsible for pension wealth accumulation. Older cohorts are indeed more influenced by past gender disproportions. As reported in Lis and Bonthuis (2019), "*pensions of women are substantially lower than those of men, by 27 percent on average across the EU but by more than 40 percent in a few European countries. This average gap is higher than the one for hourly earnings at 14 percent*".

From a US perspective, Even and Macpherson (2004) analyzed the gender gap in Social Security and pension income between 1980 and 2000, and highlighted the (disappointing but not surprising) fact that, despite increases in female labor force participation and earnings, women tend to accumulate less pension wealth compared to men. Similar conclusions were drawn by Gough (2001), where the author aims at understanding and examining the different drivers of women's labor earnings that contribute to the earnings in retirement. Using the Labor Force Survey, it arises that part-time working, types of occupation, and employment represent the main reasons why women's incomes are lower when compared to men, and, as a consequence, after retirement, women appear to have reduced entitlement to benefits from pension schemes (Gough, 2001). Therefore, focusing on the gender gap in pensions is fundamental to understand the well-functioning of a pension system; it is indeed an indicator of gender equality at older ages and might be useful in pointing out labor market inequalities (Lis and Bonthuis, 2019).

Enhancing programs aimed at the improvement of financial literacy could represent a first step toward the closing of the gender gap. Along this line, a recent OECD report points out how in many countries the levels of financial literacy are very low, especially for women. Cross-comparable data from 30 countries and economies show that *overall levels of financial literacy are relatively low, with an average score of 13.2 out of a maximum of 21* (OECD, 2016). It continues underlining that "*on average, only 56% of adults achieve the minimum target score on financial knowledge, with significant differences by gender, as 61% of men achieve the minimum target score, compared to 51% of women*" (OECD, 2018).

7 | Conclusions

The pension wealth accumulation depends on different factors; among those, information as well as the ability of using it sagely (Fornero, Oggero and Puglisi, 2019). In fact, given all changes which occurred during the last decades, pension information assumed a crucial role in order to make sound retirement decisions.

This paper aims at shedding light on the role of pension information on various individuals' economic outcomes. Examining different studies, we elicit some conclusions about the effects of pension information on retirement planning, labor supply, and savings decisions. Specifically, the provision of pension information not only increases workers' knowledge about their benefits, but it also fosters individuals' retirement planning and decision making. Looking at individuals' labor supply, our review of the literature showed that only correctly informed workers are responsive to the incentives to work longer. Finally, information letters and other educational interventions such as seminars are found to increase both enrollment in retirement plans and contributions.

When analyzing how people's decision making might change through public policies, workplace initiatives, and other types of intervention, it is impossible not to direct our attention toward more vulnerable individuals, such as women. Pensions systems, being in some way a natural reflection of other policy choices (labor market, schooling, etc.), might enhance or lessen social imbalances (Bettio, Tinios and Betti, 2013). The gender pension gap can indeed be conceived as a consequence of women's low and intermittent involvement in the labor market (Tinios et al., 2015). Women, considering different life patterns and societies where they live, generally face many difficulties in the labor market: this is why gendered pension entitlements could be consequence of structural disadvantages (Frericks, Knijn, and Maier, 2009). Therefore, governments should take into account the findings summarized here when designing public policies, as more transparent information about retirement systems can have important effects on various behaviors (Dolls et al., 2017 and Goda, Manchester, and Sojourner, 2014) and, as also pointed out by Lis and Bonthius (2019), future policy choices should shift and pose more attention in understanding the drivers of the gender gap in pensions so to reduce gender inequality. The lack of appropriate policies aimed at reducing not only wage but also pension gap

could indeed represent a threaten for the future. Along this line, as suggested by Barr (2019), policy makers, when designing pension reforms, should take into account how these changes affect men and women since women are often involved in activities that take women far from the labour market such as caring for children, parents, etc.

It is clear that, after having designed an appropriate policy, it becomes fundamental to build an adequate channel of information so to ensure that individuals correctly understand it. However, it is important to notice that it is also very important the way of communicating; indeed, in US, individuals face difficulties in understanding complicated aspects of retirement planning (Samek, Kapteyn and Gray, 2019). Along this line, Samek, Kapteyn and Gray (2019) conduct a randomized experiment in which, after having created some vignettes about the consequences of different annuitization and decision-making in retirement, they show that people exposed to vignettes, compared to those of the control group, were more able to give better advice.

References

Allen, S. G., Clark, R. L., Maki, J., and Morrill, M. S. (2016). Golden years or financial fears? How plans change after retirement seminars. *Journal of Retirement*, 3(3), 96-115.

Almenberg, J., and Säve-Söderbergh, J. (2011). Financial Literacy and Retirement Planning in Sweden. *Journal of Pension Economics and Finance*, 10(4), pp. 585-598.

Antolín, P., and Harrison, D. (2012). Annual DC Pension Statements and the Communications Challenge. *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 19, OECD Publishing, Paris, https://doi.org/10.1787/5k97gkd06kth-en.

Barr, N. (2019). Gender and Family: Conceptual Overview. Social Protection and Jobs Discussion Paper; No. 1916. World Bank, Washington, DC.

Bernheim, B. D., and Garrett, D. M. (2003). The effects of financial education in the workplace: Evidence from a survey of households. *Journal of Public Economics*, 87(7-8), 1487-1519.

Beshears, J., Choi, J. J., Laibson, D., Madrian, B. C., and Milkman, K. L. (2015). The effect of providing peer information on retirement savings decisions. *The Journal of Finance*, 70(3), 1161-1201.

Better Finance (2016). Pension Savings: the Real Return, Research Report.

http://betterfinance.eu/fileadmin/user_upload/documents/Research_Reports/en/Pension_report_2016_For_Web_-_Final.pdf

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, Milano, Italy.

Boeri, T., Börsch-Supan, A., and Tabellini, G. (2002). Pension reforms and the opinions of European citizens. *American Economic Review Papers and Proceedings*, 92(2), 396-401.

Boyer, M.M., D'Astous, P., and Michaud, P.C. (2019). Tax-sheltered retirement accounts: Can financial education improve decisions?, Cahiers de recherche 1902, Chaire de recherche Industrielle Alliance sur les enjeux économiques des changements démographiques.

Brown, M., and Graf, R. (2013). Financial literacy and retirement planning in Switzerland. *Numeracy*, 6(2), 6.

Chan, S., and Stevens, A.H. (2008). What you don't know can't help you: Pension knowledge and retirement decision-making, *The Review of Economics and Statistics*, 90(2): 253–266

Chlon-Dominczak, A. (2009). Retirement behaviour in Poland and the potential impact of pension system changes. ENEPRI Research Report No. 61.

Clark, R. L., D'Ambrosio, M. B., McDermed, A.A., and Sawant, K. (2006). Retirement plans and saving decisions: The role of information and education. *Journal of Pension Economics & Finance*, 5(1), 45-67.

Debets, S., Prast, H., Rossi, M., and van Soest, A.H.O. (2018). Pension communication in the Netherlands and other countries. CentER Discussion Paper Series No. 2018-047.

Dolls, M., Doerrenberg, P., Peichl, A., and Stichnoth, H. (2018). Do retirement savings increase in response to information about retirement and expected pensions?. *Journal of Public Economics*, 158, 168-179.

Duflo, E. and Saez, E. (2003). The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *Quarterly Journal of Economics*, 118 (3), 815–842.

Eichhorst, W., Gerard, M., Kendzia, M.J., Mayrhuber, C., Nielsen, C., and Rünstler, G. (2011). Pension Systems in the EU - Contingent Liabilities and Assets in the Public and Private Sector. IZA Research Report No. 42.

European Commission (2009a) (DG Economic and Financial Affairs) and the Economic Policy Committee (AWG). The 2009 Ageing Report, Economic and budgetary projections for the EU-27 Member States (2008-2060). European Economy, No. 2/2009.

http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf

European Commission (2009b) Directorate-General for Economic. Pension Schemes and Pension Projections in the EU-27 Member States-2008-2060. European Economy, No. 56. Office for Official Publications of the European Communities.

https://ec.europa.eu/economy_finance/publications/pages/publication16034_en.pdf

Even, W.E., and Macpherson, D.A. (2004). When will the gender gap in retirement income narrow?.

Southern Economic Journal, 71, 182-200.

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., Puglisi, R. (2019). Information and financial literacy for socially sustainable NDC pension schemes. Social Protection and Jobs Discussion Paper; No. 1924. World Bank, Washington, DC.

Frericks, P., Knijn, T., and Maier, R. (2009). Pension reforms, working patterns and gender pension gaps in Europe. *Gender, Work & Organization*, 16(6), 710-730.

Goda, G.S., Manchester, C.F., and Sojourner, A. (2014). What will my account really be worth? Experimental evidence on how retirement income projections affect saving. *Journal of Public Economics*, 119, 80-92.

Gough, O. (2001). The impact of the gender pay gap on post-retirement earnings. *Critical Social Policy*, 21(3), 311-334.

Gustman, A.L., and Steinmeier, T.L. (2005). Imperfect knowledge of Social Security and pensions. *Industrial Relations*, 44(2): 373-397.

Knell, M. (2013). The Austrian system of individual pension accounts – An unfinished symphony. *Monetary Policy & the Economy*, 13(4), 47–62.

Kritzer, B.E., and Smith, B.A. (2016). Public pension statements in selected countries: A comparison. *Social Security Bulletin*, 76, No. 1.

Liebman, J.B., and Luttmer, E.F. (2015). Would people behave differently if they better understood social security? Evidence from a field experiment. *American Economic Journal: Economic Policy*, 7(1), 275-99.

Lis, M., & 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.

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.

Mitchell, O.S. (1988). Worker knowledge of pension provisions. *Journal of Labor Economics*, 6(1), 21-39.

OECD (2016), *OECD/INFE International Survey of Adult Financial Literacy Competencies*.

OECD (2018), OECD Pensions Outlook 2018, OECD Pensions Outlook, OECD Publishing, Paris. *https://doi.org/10.1787/pens_outlook-2018-en*

Samek, A., Kapteyn, A., and Gray, A. (2019). Using Vignettes to Improve Understanding of Social Security and Annuities. National Bureau of Economic Research, Working Paper No. 26176.

Smyrnis, G., Bateman, H., Dobrescu, I., Newell, B. and Thorp, S. (2019). Motivated saving: The impact of projections on retirement saving intentions. Netspar DP 01/2019-012.

Spruit, J. (2018). Does pension awareness reduce pension concerns? Causal evidence from The Netherlands. Netspar academic series MSc 06/2018-04.

Sundén, A. (2009). Learning from the experience of Sweden: The role of information and education in pension reform. In Overcoming the Saving Slump, ed. Annamaria Lusardi, pp. 324–344. University of Chicago Press.

Tinios, P., Bettio, F., Betti, G., and Georgiadis, T. (2015). Men, women and pensions. Luxembourg, UK: Publications Office of the European Union.