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Gender gap in pension literacy: Evidence from Italy

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ABSTRACT

This paper examines gender differences in pension literacy in Italy, distinguishing between knowledge of the public pension pillar and knowledge of supplementary pensions. Using a cross-sectional survey of 2436 working-age adults, we document a substantial raw gender gap in pension literacy. Once observable differences between men and women are taken into account, these characteristics explain roughly half of the gap, while the remaining half persists even after conditioning on observables. Our findings further show that the gender gap is not uniform across pension domains. Women remain significantly less informed about the public pension system, whereas the gap disappears in the case of supplementary pensions. These results suggest that women's lower pension literacy reflects not only broader differences in financial literacy, but also a specific disadvantage in understanding the public pension system.

1. Introduction

Over the last few decades, pension reforms have progressively increased the role of individual decision-making in shaping economic security in old age. Population ageing, rising longevity, and mounting pressures on fiscal sustainability require individuals not only to save more, but also to understand the rules, incentives, and constraints of the pension system with a much higher degree of awareness than in the past. In Italy, as shown by Fornero and Monticone (2011), pension reforms have increased — especially for younger generations — individual responsibility in the accumulation of retirement income and have strengthened the role of pension funds in ensuring the adequacy of future benefits.

The evolution of the pension system calls for a corresponding adjustment in individuals' pension-related knowledge, especially among women, for whom general financial literacy alone is no longer sufficient. Understanding compound interest, inflation, and diversification is certainly useful, but it does not coincide with understanding how the pension system works, how entitlement is accrued, what relationship exists between contributions and benefits, or how retirement age and employment history affect expected pension income. Dvorak and Hanley (2010) show that participants in a retirement plan may understand the general mechanics of the plan reasonably well while being far less capable of distinguishing among the available investment options. Similarly, Gallery et al. (2011) highlight that the literacy relevant for pension investment decisions does not simply overlap with the ability to manage everyday financial issues, but rather requires more specific and context-dependent competencies.

Pension literacy is therefore inherently context-specific, as what matters is not financial reasoning in the abstract, but familiarity with the rules of a particular system. This aspect is particularly relevant in the Italian case, where the public pillar continues to represent the dominant component of retirement income, while at the same time becoming more complex because of the shift to a contribution-based formula, the role of demographic trends, and the succession of reforms that have altered retirement ages, eligibility requirements, and benefit formulas. Angelici et al. (2022) indeed emphasize that, in the Italian system, pension benefits depend not only on individuals' contribution histories, but also on macroeconomic and demographic factors, and that precisely this complexity makes accurate pension information crucial.

The aim of this paper is to assess the existence of a gender gap in pension literacy in Italy using a sample of 2436 working-age adults. The results show that, once observable differences between men and women are taken into account — most notably in general financial literacy, which emerges as the most important channel — these differences explain about half of the gap, while the other half remains even after conditioning on observables. Moreover, the gap differs across the two

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pension pillars, with women remain less informed about the public system, whereas the difference with men disappears in the case of supplementary pensions.

Comparative literature has already shown that the gender gap in financial literacy may contribute to the gender gap in pension savings. For the Australian case, Preston and Wright (2023) attribute a non-negligible share of this gap to differences in financial literacy. However, that study is set in a context characterized by a high degree of individual discretion and primarily concerns defined-contribution retirement accounts. A related strand of the literature also questions whether individual literacy gaps fully translate into household outcomes when financial decisions reflect intra-household specialization (Fonseca et al., 2012). By contrast, the present contribution indicates that, in the Italian case, the critical issue lies less in the management of individual retirement products than in the understanding of the public pension system and its rules.

2. Data and measures

The data come from a CAWI survey conducted by Ipsos Doxa in Italy in 2025 on a sample stratified by age, macro-geographical area, and size of municipality of residence. The analytical sample consists of 2436 working-age adults (18–65 years old, excluding retirees and individuals unable to work), including 1137 men and 1299 women.

The questionnaire includes twelve objective literacy items. Seven items measure general financial literacy. The "Big Three" questions of Lusardi and Mitchell (2014) on inflation, compound interest, and diversification, the relationship between return and risk and three basic insurance concepts (deductible, coverage limit, and policy cost). These items are aggregated into a Financial Literacy index ranging from 0 to 7.

Two items capture knowledge of the public pension pillar. In the main analysis, however, we rely on a strict measure of public-pillar pension literacy, L_i^{pub}, defined as a binary indicator equal to one if the respondent recognizes the distinction between the earnings-related and contribution-based pension formulas. In additional analyses, we also consider a broader public-pillar measure combining this indicator with a second item on knowledge of the pension formula applicable to the respondent's cohort.

Four items measure supplementary pension literacy, L_i^{com}, defined as the normalized average of four objective questions, rescaled to the $[0, 1]$ interval, covering the tax advantage associated with deductibility, advance withdrawals for health reasons, the categories of eligible participants, and the treatment of contributions in the event of interrupted participation.

The overall pension literacy index used in the main specification is defined as the simple average of the strict public-pillar component and the supplementary-pension component:

$$L_i = \frac{L_i^{\text{pub}} + L_i^{\text{com}}}{2} \tag{1}$$

Table 1 reports gender-specific means and equality-of-means tests for the main variables used in the analysis. Panel A shows the differences between men and women in literacy measures, Panel B reports behavioural differences and Panel C presents socioeconomic and sociodemographic characteristics.

3. Empirical strategy

The econometric strategy is based on a linear regression model with heteroskedasticity-robust standard errors:

$$L_i = \alpha + \beta\,\text{Female}_i + \mathbf{X}_i'\boldsymbol{\gamma} + \varepsilon_i, \tag{2}$$

where L_i is the pension literacy index of respondent i, Female_i is a dummy variable equal to one for women and zero for men, and $\mathbf{X}_i$ is the vector of controls. The parameter of interest, β, captures the conditional difference in pension literacy between women and men with identical observable characteristics.

We estimate Eq. (2) using six nested specifications, progressively adding blocks of controls, and we do so on a common sample of 2436 observations defined by the most saturated model, so that variation in the coefficient β across columns reflects only the effect of the additional controls.

To assess whether the gender gap differs across pension pillars, we replicate Eq. (2) using L_i^{pub} and L_i^{com} as dependent variables and formally test the equality of the gender coefficients through a Seemingly Unrelated Regressions (SUR) system (Zellner, 1962):

$$L_i^{\text{pub}} = \alpha^{\text{pub}} + \beta^{\text{pub}}\,\text{Female}_i + \mathbf{X}_i'\boldsymbol{\gamma}^{\text{pub}} + \varepsilon_i^{\text{pub}}, \tag{3}$$

$$L_i^{\text{com}} = \alpha^{\text{com}} + \beta^{\text{com}}\,\text{Female}_i + \mathbf{X}_i'\boldsymbol{\gamma}^{\text{com}} + \varepsilon_i^{\text{com}}. \tag{4}$$

We then test the null hypothesis $H_0 : \beta^{\text{pub}} = \beta^{\text{com}}$ by means of a Wald test.

To assess the extent to which the reduction in the coefficient on Female_i between the baseline and the fully controlled specification is accounted for by different sets of covariates, we report two complementary exercises. First, we document the sequential reduction in the gender coefficient as blocks of controls are progressively added across specifications. Second, we implement a manual Gelbach-style decomposition, based on the $\delta_k\,\gamma_k$ logic of Gelbach (2016), on a simplified specification that groups covariates into broad blocks.

Formally, the reduction in the coefficient on Female_i between the short and long regression can be expressed as:

$$\hat{\beta}^S - \hat{\beta}^L = \sum_{k=1}^{K} \hat{\delta}_k\,\hat{\gamma}_k, \tag{5}$$

where $\hat{\delta}_k$ is the coefficient on Female_i in the auxiliary regression of covariate x_k on gender, and $\hat{\gamma}_k$ is the coefficient on x_k in the long specification. In the empirical application, this decomposition is implemented manually on a reduced set of covariates and is therefore intended as an approximate block-level accounting exercise rather than as an exact decomposition of the fully saturated model.

4. Results

4.1. The conditional gender gap in pension literacy

Table 2 presents the stepwise estimates of Eq. (2) for the overall pension literacy index. The coefficient associated with the variable *Female* is negative and statistically significant at the 1% level in all six specifications, attesting to the robustness of the gap to the progressive inclusion of controls.

The inclusion of demographic controls in column (2) leads to only a marginal reduction in the coefficient, indicating that the gap is not driven by differences in age composition or macro-area of residence. Socioeconomic controls in column (3) produce the first substantial decline, consistent with the gender income differentials documented in Table 1. The blocks relating to labour-market and family characteristics in column (4), and to financial wealth in column (5), contribute to a further absorption of the gap, while the inclusion of general financial literacy in column (6) generates the largest remaining reduction.

Observable covariates explain about half of the raw gap, yet the residual coefficient remains negative and highly significant, suggesting the role of unobserved factors. General financial literacy enters with a positive and significant coefficient at the 1% level, confirming that it is an important determinant of pension literacy, although it does not fully account for the gender differential.

Table 1
Descriptive statistics by gender.

	Men (N = 1137)	Women (N = 1299)	Diff. (M–F)	t
Panel A. Literacy indices				
Financial literacy (0–7)	5.259	4.451	0.808***	1.47
Public pension literacy (0–1)	0.817	0.600	0.217***	12.04
Supplementary pension literacy (0–1)	0.512	0.428	0.084***	6.52
Total pension literacy (0–1)	0.664	0.514	0.150***	12.09
Panel B. Behaviour and confidence				
Enrolled in a pension fund (0/1)	0.451	0.319	0.132***	6.74
Number of "Don't know" responses (0–11)	1.611	2.778	−1.167***	−11.20
Panel C. Characteristics				
Age (years)	43.64	42.17	1.47***	2.81
University degree or higher	0.442	0.432	0.011	0.52
Income (bracket 1–5)	3.00	2.76	0.24***	5.39
Employed (self-employed or employee)	0.858	0.669	0.189***	11.09
In a couple	0.621	0.644	−0.023	−1.20
Owns financial investments	0.567	0.472	0.095***	4.72

Notes. Sample of 2436 non-retired adults aged 18–65. The t-test is a two-sample equality-of-means test with equal variances. Pension literacy indices are constructed from objective questions on the Italian pension system. Income bracket excludes non-responses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2
Gender gap in pension literacy: stepwise OLS regressions.

Dep. var.: L (0–1)	(1) Base	(2) +Demo	(3) +SES	(4) +Work/ Family	(5) +Wealth	(6) +FinLit
Female	−0.150***	−0.143***	−0.121***	−0.105***	−0.098***	−0.074***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Financial literacy (0–7)	–	–	–	–	–	0.041***
						(0.003)
Demographics	No	Yes	Yes	Yes	Yes	Yes
Education & income	No	No	Yes	Yes	Yes	Yes
Work and family	No	No	No	Yes	Yes	Yes
Financial wealth	No	No	No	No	Yes	Yes
Observations	2436	2436	2436	2436	2436	2436
R^2	0.057	0.072	0.148	0.181	0.213	0.265
% gap absorbed (vs col. 1)	–	4%	19%	30%	35%	51%

Note. Dependent variable: overall pension literacy index (scale 0–1). Heteroskedasticity-robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4.2. Public and supplementary pensions: An asymmetric gap

Table 3 reports the central result of the paper. In the baseline specifications, columns (1) and (3), the coefficient on *Female* is highly significant for both pillars, with a larger magnitude in absolute value for the public pillar. However, the inclusion of the full set of controls reveals a marked asymmetry between the two pension regimes.

For the public pillar, column (2), the coefficient declines substantially but remains strongly significant ($p < 0.01$). For the supplementary pillar, by contrast, the saturated specification in column (4) shows a sharp contraction and the complete loss of statistical significance, such that the hypothesis of no conditional gender gap between women and men with identical observable characteristics cannot be rejected. The SUR test for the equality of the gender coefficients across the two pillars rejects the null hypothesis ($p < 0.001$), ruling out the possibility that this asymmetry is merely due to statistical noise.

This pattern suggests that the gap in supplementary pension literacy is largely compositional and reflects observable differences in education, income, employment status, financial wealth, and general financial literacy—factors that affect both genders symmetrically. By contrast, the gap in the public pillar persists even after controlling for the same characteristics,suggesting that knowledge of the public pension system does not simply follow from financial sophistication or labour-market position, but reflects something more specific about how individuals engage with institutional complexity.

Table 3
Gender gap by pension pillar: separate regressions.

	Public		Supplementary	
	(1) Base	(2) Full	(3) Base	(4) Full
Female	−0.217***	−0.131***	−0.084***	−0.017
	(0.018)	(0.018)	(0.013)	(0.012)
Financial literacy (0–7)	–	0.030***	–	0.052***
		(0.005)		(0.003)
Full controls	No	Yes	No	Yes
Observations	2436	2436	2436	2436
R^2	0.056	0.192	0.017	0.199

Note. Dependent variables: public-pillar pension literacy index [columns (1)–(2)] and supplementary-pension literacy index [columns (3)–(4)], both normalized to the $[0, 1]$ interval. Heteroskedasticity-robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 4 reports a manual Gelbach-style decomposition of the overall gap, designed to quantify the extent to which broad sets of observables account for the reduction in the estimated gender differential between the baseline and the fully controlled specification. The transition from the baseline model to the full model explains 51% of the raw gap, while

Table 4
Manual Gelbach-style decomposition of the gender gap.

Component	Contribution	% of raw gap
Raw gap ($\hat{\beta}^{\text{baseline}}$)	−0.150	100.0%
Residual gap ($\hat{\beta}^{\text{full}}$)	−0.074	49.0%
Explained closure	−0.076	51.0%
Contributions by block ($\hat{\delta}_k\,\hat{\gamma}_k$)		
General financial literacy	−0.034	22.9%
Employment status	−0.024	16.2%
Financial wealth	−0.012	8.3%
Family (couple, dependants)	−0.003	1.7%
Education	−0.0002	0.1%
Age	0.004	−2.4%

Note. Manual Gelbach-style decomposition of the coefficient on *Female* between the short and long regressions on the same common sample ($N = 2436$). The exercise is implemented on a simplified specification and should therefore be interpreted as an approximate block-level decomposition rather than as an exact decomposition of the fully saturated model.

the remaining 49% represents the residual conditional gap. The block-level decomposition indicates that the largest share of the explained reduction is associated with general financial literacy (22.9% of the raw gap), followed by employment status (16.2%) and financial wealth (8.3%). The contribution of family-related variables is modest, that of education is negligible, and that of age is slightly opposite in sign, since women in the sample are on average younger than men, while age is positively correlated with pension literacy.

The decomposition also points to two features of the data that are worth pausing on. First, general financial literacy contributes more than income, employment status, or wealth taken individually, consistent with the hypothesis that it constitutes a foundational competence whose gender differential spills over into the pension domain. Second, about half of the original gap remains unexplained, indicating that observable characteristics account for only part of the phenomenon.

5. Conclusions

This paper documents the existence of a gender gap in pension literacy in Italy and shows that this gap is not uniform across different dimensions of pension-related knowledge. The results indicate that women exhibit, on average, lower levels of pension literacy than men, with a sizeable raw differential that narrows — but does not disappear — after controlling for demographic, socioeconomic, labour-market, and family characteristics, as well as for general financial literacy. The most relevant evidence is that the residual gap remains statistically significant primarily in the component relating to the public pillar, whereas it diminishes to the point of losing significance in knowledge of supplementary pensions.

Beyond the Italian case, the results speak to a broader question in the literature on financial knowledge. First, they confirm earlier evidence linking financial literacy to pension choices and participation in pension funds, showing that knowledge matters in Italy as well and that women are on average more disadvantaged in this respect (Fornero and Monticone, 2011). Second, they broaden this perspective by shifting the focus from general financial literacy to pension literacy as an autonomous outcome, in line with contributions emphasizing the growing importance of specific knowledge about the pension system (Angelici et al., 2022; Oggero et al., 2023).

The distinction between the public and supplementary pillars further suggests that pension knowledge is not a unitary block. The fact that the gender differential is concentrated mainly in the public pillar is consistent with the idea that areas characterized by greater institutional complexity are also those in which cognitive inequalities are more persistent. In this sense, the paper suggests that women's pension vulnerability depends not only on lower wages, more discontinuous careers, or reduced contribution accumulation, but also on a lower capacity to understand how the system transforms such employment trajectories into future retirement income.

This individual-level reading must, however, be qualified: when financial decisions are delegated within couples, individual literacy may matter less for realized outcomes (Fonseca et al., 2012). Yet, such delegation merely postpones the problem, since women acquire financial knowledge mostly as widowhood approaches (Hsu, 2016), so the residual public-pillar gap remains a relevant indicator of exposure to retirement-income risk.

The evidence suggests that generic financial education programmes are unlikely to reach the part of the gap that matters most. Interventions based solely on general financial literacy may be effective in reducing the gap in supplementary pension knowledge, but they are unlikely to be sufficient to close the gap in the public pillar, which instead requires targeted informational tools aimed at improving understanding of the institutional features of the pension system.

Data availability

The authors do not have permission to share data.

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