Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

More Educated, Less Financially Knowledgeable: Gender, Financial Fragility and Consumer Policy in Ireland

Dr Marie Ryan

marieryan@ucc.ie

University College Cork

Prof Olive McCarthy

University College Cork

Research Article

Keywords: financial knowledge, gender, financial fragility, consumer vulnerability, consumer policy, financial literacy strategy

Posted Date: November 23rd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11650861/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Consumer policy increasingly asks households to make long-term financial decisions, through auto-enrolment pensions, investment accounts and national financial literacy strategies. These policies work only if consumers understand the concepts they rely on. We test this using a 2023 national survey of 1,505 Irish adults, part of an international survey of adult financial literacy. Ireland is a demanding test, since women are now more likely than men to hold a third-level qualification. Even so, women score 0.65 points lower than men on a seven-item knowledge score after controls, a gap similar to the advantage of a university degree. The gap sits in the concepts these policies depend on, namely simple interest, compound interest, inflation and diversification. 'Don't know' answers explain only a fifth to a quarter of the gap, so content may matter more than confidence. The gap appears wider among the youngest and oldest women than in middle age. Women with the same age and education as men are more financially fragile. Financial knowledge accounts for about 30 per cent of this gap, and work status and income a further 32 per cent, so literacy policy alone can reach only part of it. Women report more scam losses than men, although this gap is not robust, and the youngest adults, not the oldest, are the most fragile group. The findings point to literacy content built around four concepts, protective defaults in auto-enrolment and investment schemes, scam prevention, and income supports that literacy cannot replace.

1. Introduction

Consumer policy needs to know which consumers are most exposed to financial harm, and why. Identifying the causes of vulnerability allows law and policy to target a response to each cause (Cartwright, 2015). Financial knowledge is one such cause, and gender is one of its most consistent markers. A gender gap in financial literacy is one of the most robust findings in personal finance (Agnew & Cameron-Agnew, 2015; French & McKillop, 2016; Haag & Brahm, 2025; Hasler & Lusardi, 2017; Klapper et al., 2015; Okamoto & Komamura, 2021; Yao et al., 2023). The standard explanation rests on structural factors. Women have lower educational attainment in many settings, participate less in the labour market and engage less with formal financial products (Fonseca et al., 2012; Hung et al., 2012; Keerthikumara & Kumari, 2023), including payments (van der Cruijsen et al., 2025) and fintech products (Chen et al., 2023). What is less clear is what happens when these structural disadvantages are reduced or reversed.

The gap matters for consumer protection because women are also more likely than men to be financially fragile (Demertzis et al., 2020; Hasler et al., 2018), meaning they have a limited capacity to absorb financial shocks and meet basic financial obligations (Klapper & Lusardi, 2020). We measure financial fragility through four warning signs, namely struggling to cover everyday costs, having little or no savings, doubting there will be enough to live on in retirement and having recently lost money to a scam. People with more financial knowledge are less financially fragile, and the benefit is greater for women (Aristei et al., 2025).

Ireland is a demanding test case. It ranks among the highest-scoring countries on overall financial literacy in the Organisation for Economic Co-operation and Development (OECD) survey (OECD, 2023). Irish women are now more likely than men to hold a third-level qualification, and internet access is near universal. Yet on the seven-item knowledge score of the OECD International Network on Financial Education (OECD-INFE), women score 0.61 points lower than men before any controls. The usual structural explanations fit Ireland less well, which makes it a useful setting to ask why the gap persists.

The question is pressing for Irish consumer policy. Ireland's first National Financial Literacy Strategy (Department of Finance, 2025) acknowledges lower financial literacy among women and commits to targeted supports. Pension auto-enrolment was legislated for in 2024, with contributions starting in 2026, and new saving and investment accounts are due in 2027. Both schemes ask households to make long-term decisions that depend on the concepts where women score lower. Policy makers therefore face a design choice. They can try to close the knowledge gap through education, or they can design products, defaults and protections that work for consumers who lack that knowledge. The evidence on whether financial education changes behaviour is mixed (Fernandes et al., 2014; Kaiser et al., 2022), which makes this choice harder.

This paper asks why Irish women, who are now more educated than men, still know less about money, and whether this leaves them more financially fragile. We break this into three questions. First, where in the knowledge test does the gap sit, and does it narrow at older ages? Second, does the gap reflect what women know, or what they are willing to say they know? Third, is there a gender gap in financial fragility, and how much of it is explained by financial knowledge, income and work status?

The gender gap in financial literacy is well documented, so our contribution lies in what the Irish evidence means for consumer policy rather than in documenting the gap itself. The paper contributes to consumer policy in three ways. First, it applies Cartwright's (2015) approach of matching each cause of vulnerability to the response that can reach it. We estimate how much of the gender gap in financial fragility runs through financial knowledge, which education can address, and how much runs through income and work status, which it cannot. Knowledge accounts for about 30 per cent of the gap, and income and work status for a further 32 per cent. This sets a measurable limit on what a literacy strategy can achieve on its own. Second, it locates the knowledge gap in four concepts, namely simple interest, compound interest, inflation and diversification. These are the concepts that auto-enrolment and investment accounts ask consumers to apply, so the finding speaks to product design and disclosure as well as to education content. Third, it separates what women know from what they are willing to say they know. This matters for how regulators measure literacy gaps and for whether interventions should target content or confidence. The knowledge items are standardised across the 39 countries and economies in the OECD-INFE survey, so the approach can be replicated wherever similar policies are introduced. Section 5.4 compares the Irish results with evidence from other countries. Two further results matter for consumer protection. The gender gap in digital financial knowledge is small and not significant at the 5 per cent level, and women report more scam losses than men, although this gap is not robust.

2. Conceptual background

2.1 The gender gap in financial knowledge

Lusardi and Mitchell (2008, 2011, 2014) first documented the gender gap in financial knowledge using three questions on compound interest, inflation and risk diversification. The gap held after controls for education, income, age and labour force status. Bucher-Koenen et al. (2017) find large gender differences in the United States, Germany and the Netherlands, and review similar evidence from other countries. Using OECD/INFE data, Cupák et al. (2018) find that the gap is highest in more developed countries and that personal characteristics explain only part of it.

The standard explanation rests on unequal opportunities to learn about money. Women are less likely to be the main financial decision maker in the household (Fonseca et al., 2012; Hsu, 2016; Kim et al., 2017; Meier et al., 1999; Skogrand et al., 2011). They participate less in equity and credit markets, where learning by doing often happens (Almenberg & Dreber, 2015; van Rooij et al., 2011). Fonseca et al. (2012) argue that household specialisation produces the gap. In couples, one partner usually leads on financial matters and builds knowledge through repeated exposure, and in most settings that partner is a man.

A second strand links the gap to numeracy. Maths-related gender stereotypes (Schmitz & Bova, 2013) and lower confidence in mathematical ability (Mottola, 2013) may leave women at a disadvantage on calculation-based questions, and maths anxiety predicts lower financial literacy (Skagerlund et al., 2018). Women are less likely than men to answer numeracy questions correctly (Lusardi, 2012b), and numeracy is weaker among those with low education (Christelis et al., 2010; Lusardi & Mitchell, 2007). Iwatsubo et al. (2025) find that men score higher on financial concepts and numerical questions, while women score higher on prudent behaviours and attitudes. Gender gaps appear on both basic and advanced measures (Bucher-Koenen et al., 2017), but less is known about whether the gap is spread evenly across concepts. The OECD-INFE score mixes basic and calculation-based items, which allows us to test where the gap sits. This leads to H1.

2.2 Age and financial knowledge across the life course

Lusardi and Mitchell (2008), Lusardi (2012a) and Kim et al. (2022) find lower financial knowledge among older women than older men. Financial knowledge usually follows an inverted U with age, rising through early adulthood, peaking between the late forties and early sixties and then declining (Finke et al., 2017; Lusardi et al., 2010). Cognitive decline explains part of the fall (Kim et al., 2022), while accumulated experience raises knowledge earlier in life (Finke et al., 2017; Xiao et al., 2015).

Financial socialisation theory offers a further account. Financial knowledge is acquired through family relationships (Aguiar-Díaz & Zagalaz-Jiménez, 2022; Danes, 1994; Gudmunson & Danes, 2011; LeBaron & Kelley, 2021), and parents may discuss money with sons earlier than with daughters (Agnew & Cameron-Agnew, 2015), although parental financial education does not always differ by gender (LeBaron et al., 2020).

Strategic learning offers a third account. Hsu (2016) shows that older women acquire financial knowledge rapidly in the years before widowhood, in anticipation of taking over household finances, and couples socialise each other financially in preparation for retirement (Payne et al., 2014). If strategic learning holds, the gap should narrow at older ages. This leads to H2.

2.3 Gender and the confidence gap

A growing literature asks whether the gap reflects knowledge or confidence. Men are more likely than women to be overconfident in mathematical and financial matters (Barber & Odean, 2001; Dahlbom et al., 2011), and women are more likely than men to answer 'do not know' (Blaschke, 2022; Bucher-Koenen et al., 2017, 2025; Hasler & Lusardi, 2017; Lind et al., 2020; Mottola, 2013; Tinghög et al., 2021). Tinghög et al. (2021) attribute part of the gap to stereotype threat and financial anxiety rather than confidence. Bucher-Koenen et al. (2025) replace the 'do not know' option with a confidence rating and find that about 70 per cent of the gap reflects lower knowledge and 30 per cent lower confidence. They also show that both knowledge and confidence are linked to stock market participation. Blaschke (2022) finds that the confidence effect disappears where students receive long-term economic education. The distinction matters for policy. A confidence gap calls for self-efficacy interventions, while a knowledge gap calls for content. This leads to H3.

2.4 Consumer financial vulnerability

Consumer vulnerability arises from the interaction of personal characteristics, external conditions and the marketplace (Baker et al., 2005). Hill and Sharma (2020) define it as a state in which restricted access to and control over resources limits the consumer's ability to function in the marketplace. Financial vulnerability has attracted growing policy attention since the 2007–2008 financial crisis (Azzopardi et al., 2019; Fernández-López et al., 2024). Consumer policy research treats vulnerability as something policy can act on once its causes are known. Cartwright (2015) separates what makes financial consumers vulnerable from how consumer protection law and policy can respond to each cause. Lim and Letkiewicz (2023) find that mistreatment and fraud in financial services are not confined to consumers usually labelled disadvantaged, and fraud falls unevenly across the population (Raval, 2021). The useful policy question is therefore which cause of vulnerability a given intervention can reach. Financial knowledge is a cause that education can address. Low income and weak attachment to paid work are causes that education alone cannot address.

We use financial fragility as a narrower, operational concept, meaning a limited capacity to absorb financial shocks and meet basic financial obligations (Hasler et al., 2018; Klapper & Lusardi, 2020). Each of our four warning signs is an observable sign of little slack to absorb a setback. In Hill and Sharma's (2020) terms, the measure captures restricted resources rather than restricted control. Women are more likely than men to be financially fragile (Demertzis et al., 2020; Hasler et al., 2018; Wiersma et al., 2020; Zhou et al., 2024). Financial literacy is associated with greater financial resilience across countries (Klapper & Lusardi, 2020), and financial knowledge reduces fragility, particularly for women (Aristei et al., 2025; Hasler et al., 2018). Income and work also matter. Women's greater exposure to adverse income

shocks widens the gender gap in financial distress (Zhou et al., 2024), women's labour market participation supports household financial stability (Pepur et al., 2022), and loss of employment raises fragility (Kleimeier et al., 2023). It is not yet clear how much each channel contributes to the gender gap. This leads to H4.

2.5 Hypotheses

From the literature and the Irish context, we test four hypotheses.

H1. The gender gap in financial knowledge persists after controls for education, income, work status, and internet access, and is concentrated in the calculation-based items and diversification.

H2. The gender gap in financial knowledge narrows at older ages.

H3. Part of the gender gap in financial knowledge reflects women's greater tendency to answer "do not know".

H4a. The gender gap in financial fragility is no longer statistically significant after controlling for income, work status and financial knowledge.

H4b. Financial knowledge itself explains part of the gender gap in financial fragility.

We also explore whether the gender gap in financial fragility varies with age. The literature offers no clear prediction on this, so we do not state a formal hypothesis.

3. Data and Method

3.1 The survey

The data come from the Irish contribution to the OECD-INFE 2023 international survey of adult financial literacy (Competition and Consumer Protection Commission [CCPC], 2023; OECD, 2023). The CCPC commissioned Ipsos MRBI to run the survey by computer assisted telephone interview (CATI) between December 2022 and March 2023. The questionnaire follows the OECD-INFE 2022 Toolkit (OECD, 2022), the standardised instrument used across thirty-nine countries and economies. Online Resource 1 lists the survey questions and their codes. Ireland took part for the first time during this wave. The achieved sample is 1,505 adults aged 18 and over. Of these, 605 are women (40 per cent) and 898 are men (60 per cent), with two cases of missing gender. Survey weights provided by Ipsos MRBI correct for non-response on age, gender and region. All estimates that follow use these weights unless we indicate otherwise.

3.2 Variables

Financial Knowledge Scores

We use three measures of financial knowledge. The main measure is the OECD-INFE Financial Knowledge Score, the sum of correct answers to seven questions on inflation and purchasing power, interest on a one-day loan, simple interest, compound interest over five years, risk and return, diversification, and inflation defined as a price rise. Each item is coded one for a correct answer and zero for a wrong answer, 'don't know' or refusal, so the score ranges from 0 to 7. The OECD minimum target is a score of 5 or higher. A three-item digital financial knowledge score covers digital contracts, online data privacy and the legal status of cryptocurrencies, which are new to the 2022 instrument. Self-rated knowledge comes from a five-point question, reversed so that higher means more knowledgeable.

The seven knowledge items cover distinct domains, and the OECD-INFE treats the score as a count rather than a scale measuring one trait. We therefore report Cronbach's alpha (0.40) for completeness only, and Section 4.3 examines the gap item by item.

Financial Fragility Index

We initially built a six-item index following OECD-INFE convention, but two items fail on the Irish data. The distress-coping question is asked only of respondents who could not cover their costs, so it overlaps completely with cost difficulty. A major unexpected expense affects 74 per cent of adults and correlates negatively with every other item, so it measures exposure to shocks rather than fragility. We therefore use a four-item Financial Fragility Index (FFI).

The FFI is the sum of four binary indicators, namely could not cover everyday costs at least once in the past 12 months, could survive less than one month without the main source of income, rated retirement confidence 4 or 5 on the five-point scale, and lost money to scams or hackers in the past two years.

The FFI ranges from 0 to 4, and a one-point difference means one additional warning sign. Cronbach's alpha is 0.41, which is typical of short scales of binary items covering distinct domains. A factor analysis on the tetrachoric correlation matrix shows that the four items load on a single common factor (Appendix Table A1). The high-fragility dummy equals one for a score of 2 or more. Its weighted prevalence is 27 per cent (24.4 per cent of men and 29.2 per cent of women).

Age

Exact age is available for 1,471 respondents. For 29 more we use the midpoint of the age band they reported, with 85 years for the open 80-plus band, giving usable age for 1,500 of 1,505 respondents.

Demographic controls

Education has four categories, namely lower secondary or less, upper secondary, degree, and postgraduate. Household monthly income has three bands (under €2,750, €2,750 to €4,500, and €4,500 or more). Work status is grouped into working, unemployed, retired, student and inactive. Internet access is binary. Two cases with missing gender are excluded from gender-based analyses.

3.3 Method

The analysis has five steps. First, we compare women and men on each outcome using survey-weighted means, t tests and chi-squared tests. Second, we compare the share of women and men answering each knowledge item correctly. Third, we estimate four nested ordinary least squares (OLS) models for each outcome. Model 1 includes only a female dummy, Model 2 adds age centred at 50 and its square, Model 3 adds the socio-economic controls, and Model 4 adds gender by age interactions. Fourth, we test whether the knowledge gap reflects 'don't know' (DK) answers, by recoding DK responses and by regressing self-rated on actual knowledge. Fifth, we decompose the gender gap in fragility into the parts explained by financial knowledge, household income and work status, using the decomposition of Gelbach (2016), which does not depend on the order in which the channels enter. A Karlson-Holm-Breen (KHB) decomposition (Karlson et al., 2012) provides a check.

All estimates use the Ipsos MRBI weights, which correct for non-response by age, gender and region, and standard errors account for the survey design. The Appendix reports the factor analysis, full regression tables and robustness checks.

4. Results

4.1 Sample composition

Table 1 describes the sample. Mean age is 50.5 years (standard deviation 16.3), and age groups are balanced across genders (chi squared = 1.6, p = 0.81). Sixty-two per cent hold a degree or postgraduate qualification, above the national figure of 56 per cent for those aged 25 to 64 (Central Statistics Office (CSO), 2024). Internet access is 95 per cent.

Table 1
Sample composition by gender

N	All	Male	Female
	1,505	**898 (60%)**	**605 (40%)**
Mean age (years)	50.5	50.4	50.6
Age 18 to 29 (%)	12.5	12.8	12.0
Age 30 to 44 (%)	23.6	23.6	23.6
Age 45 to 59 (%)	32.0	31.3	33.2
Age 60 to 74 (%)	25.4	26.2	24.3
Age 75+ (%)	6.5	6.1	7.0
Degree or postgrad (%)	62.1	56.4	70.6
Working (%)	67.1	73.5	57.7
Retired (%)	20.1	17.4	24.1
Internet access (%)	95.0	95.4	94.4

Note. The All column includes two respondents with missing gender, who are excluded from the Male and Female columns. Source: CCPC/OECD-INFE Financial Literacy Survey 2023.

Women in the sample are more educated than men (71 against 56 per cent at degree level or above) but less likely to be working (58 against 74 per cent).

4.2 The gender gap at a glance

Table 2 reports gender differences across every outcome we use in the analysis.

Table 2
Gender differences on key outcomes (survey weighted)

Variable	Female	Male	Gap (F to M)	p
Financial Knowledge Score (0 to 7)	4.67	5.28	−0.61	< 0.001
Reached OECD target 5/7 (%)	55.8	71.2	−15.4	< 0.001
Digital Financial Knowledge (0 to 3)	1.90	2.00	−0.10	0.069
Self-rated knowledge (1 to 5)	3.02	3.13	−0.10	0.123
Financial Fragility Index (0 to 4)	1.06	0.91	+ 0.15	0.048
High Fragility (2 + of 4, %)	29.2	24.4	+ 4.8	0.151
Could not cover costs (%)	32.8	30.4	+ 2.4	0.454
Major expenditure shock (%)	74.5	73.0	+ 1.5	0.638
Used distress coping (%)	9.1	6.2	+ 2.9	0.133
Survive < 1 month if income lost (%)	20.1	18.8	+ 1.3	0.682
Low retirement confidence (%)	41.2	35.1	+ 6.1	0.071
Lost money to scam or hacker (%)	13.2	9.0	+ 4.2	0.045

Note. Weighted means and proportions with linearised standard errors; p-values from design-based Wald tests on the female contrast (equivalently, Rao-Scott design-based Pearson chi² for binary outcomes). Index rows use respondents who answered all four FFI items (N = 1,422). Item rows use all respondents who answered each item. Source: CCPC/OECD-INFE Financial Literacy Survey 2023.

Three patterns stand out. First, the knowledge gap is large (Cohen's d = 0.55, 95 per cent confidence interval [CI] 0.45 to 0.66). Second, the fragility gap is small (Cohen's d = 0.18, 95 per cent CI 0.07 to 0.28) and only just significant (p = 0.048). Third, there is no significant gap in digital financial knowledge (p = 0.069) or self-rated knowledge (p = 0.12). Among the fragility items, scam victimisation (13.2 against 9.0 per cent, p = 0.045) and low retirement confidence (41.2 against 35.1 per cent, p = 0.071) show the largest gaps, but neither is robust to the choice of sample. For consumer policy, the knowledge gap lies in traditional financial concepts rather than in digital skills.

4.3 Where the knowledge gap lives

Table 3 breaks the seven-item Financial Knowledge Score into its components. The items are sorted by the size of the gender gap.

Table 3
Gender gap by knowledge item, sorted by size of gap

Item	% correct (F)	% correct (M)	Gap (pp)	raw p	BH adj p
Simple interest (QK5)	57.2	71.1	−14.0	< 0.001	< 0.001
Compound interest (QK6)	42.6	55.2	−12.6	< 0.001	0.001
Inflation, purchasing power (QK3)	50.5	60.8	−10.3	0.003	0.007
Diversification (QK7_3)	65.6	74.9	−9.3	0.005	0.010
Risk and return (QK7_1)	89.9	92.7	−2.8	0.167	0.233
Inflation rising as definition (QK7_2)	98.5	99.2	−0.6	0.342	0.399
Interest on loan (QK4)	98.2	98.2	0.1	0.951	0.951

Note. Weighted population proportions with linearised standard errors. Item-level p-values from design-based Wald tests. BH adj p is the Benjamini-Hochberg adjusted p-value across the seven tests. The four largest gaps survive the correction at the 5 per cent level. Pp= percentage points. Source: Authors' calculations from CCPC/OECD-INFE Financial Literacy Survey 2023.

The gap is uneven across the seven items. Three items have near-universal pass rates and no gap, namely interest on a loan, inflation as a definition, and risk and return. Four items show gaps of 9 to 14 percentage points, namely simple interest, compound interest, inflation and purchasing power, and diversification. These three calculation-based items and diversification drive the overall gap.

The pattern matters for policy design. Compound interest determines pension growth, inflation determines real returns and diversification determines portfolio risk. These are the concepts that the National Financial Literacy Strategy (Department of Finance, 2025), auto-enrolment and the new investment accounts need households to grasp. A gap concentrated here is also a disclosure issue, since product information that relies on these concepts may reach fewer women than men.

4.4 Multivariate models for financial knowledge

Table 4 reports four nested OLS regressions of the Financial Knowledge Score. The female coefficient in each column is the remaining gap between women and men once the listed factors are held equal.

Table 4
OLS regression of Financial Knowledge Score (0 to 7)

Female	**(1) Gender**	**(2) + Age**	**(3) +Controls**	**(4) + F×Age**
	−0.605* **	**−0.601*** **	**−0.645*** **	**−0.486*** **
Age (centred)		−0.006*	0.008*	0.010**
Age² (centred)		−0.001***	0.000	0.0001
Female × Age				−0.004
Female × Age²				−0.0006**
Education = Upper sec			0.447***	0.448***
Education = Degree			0.731***	0.720***
Education = Postgrad			0.968***	0.956***
Income €2,750 to €4,500			0.387***	0.386***
Income €4,500+			0.530***	0.532***
No internet			−0.691***	−0.691***
Constant	5.278***	5.497***	4.785***	4.715***
N	1,503	1,498	1,386	1,386
R^2	0.045	0.075	0.207	0.212

Note. Appendix Table A2 gives the full results with survey-weighted standard errors. Work status dummies included in Models 3 and 4. Joint Wald test on Female × Age and Female × Age² in Model 4: F = 2.31, p = 0.10. *** p < 0.01, ** p < 0.05, * p < 0.10. Source: CCPC/OECD-INFE Financial Literacy Survey 2023.

The unconditional gap is 0.61 points (Model 1). Adding the controls widens it slightly to 0.65 points (Model 3, p < 0.001). A woman and a man with the same education, income, work status and internet access still differ by 0.65 questions out of seven. This is comparable to the knowledge advantage of a degree over lower secondary education (0.73 points). A postgraduate qualification adds 0.97 points, higher income also matters, and lacking internet access subtracts 0.69 points.

Model 4 adds gender by age interactions. The Female × Age² term is significant on its own (p = 0.046), but the joint test on both interaction terms is not (p = 0.10), so the age pattern should be read as suggestive. Figure 1 shows the pattern.

Note

Predicted values from OLS Model 4 (Table 4) with gender × age interaction, holding edu-cation, income, work status and internet access at sample means. Shaded bands are 95 per cent confidence intervals.

Source: authors' calculations from the CCPC/OECD-INFE Financial Liter-acy Survey 2023 (n = 1,386)

Men score higher than women at every age. The gap appears U-shaped. It is narrowest in middle age, at about 0.49 points between ages 42 and 50, and wider at both ends, at 0.92 points at age 18 and 0.95 points at age 75. Men's predicted scores keep rising with age, while women's level off after about age 58. This is the opposite of the later-life catch-up that strategic learning predicts (Hsu, 2016), although estimates at the extremes are less precise. H1 is supported and H2 is not. For policy, the widest gaps sit among the youngest and oldest women, which bears on whom literacy programmes and scheme communication should target.

4.5 Financial fragility by gender and age

Average fragility declines with age, from 1.28 among those aged 18 to 29 to 0.53 among those aged 75 and over. Younger adults are more likely to struggle with monthly costs, hold thin buffers and have lost money to scams, while older adults are mostly retired and insulated from labour income shocks. Table 5 reports the FFI by age band and gender.

Table 5
Weighted Financial Fragility Index by age band and by gender

Age Band	All	Men	Women	Gap (F-M)
18 to 29	1.28	1.26	1.31	+ 0.05
30 to 44	0.97	0.83	1.13	+ 0.30
45 to 59	1.04	0.97	1.12	+ 0.15
60 to 74	0.78	0.72	0.86	+ 0.15
75 and over	0.53	0.67	0.42	−0.25

Note. Weighted means using Ipsos MRBI sampling weights. The FFI ranges from 0 to 4. Higher values indicate more fragility. Source: Authors' calculations from CCPC/OECD-INFE Financial Literacy Survey 2023.

Women score higher than men in every age band up to 74, with the largest gap (0.30 points) at ages 30 to 44. The pattern reverses among the oldest, although that cell is small and the estimate is noisy. For consumer protection, the young rather than the old are the most fragile group on this measure.

4.6 Multivariate models for financial fragility

The four FFI items share a single common factor (Appendix Table A1). Table 6 reports four nested OLS regressions of the FFI, mirroring Table 4.

Table 6
OLS regression of Financial Fragility Index (0 to 4)

Female	**(1) Gender**	**(2) + Age**	**(3) +Controls + FK**	**(4) + F×Age**
	0.152**	**0.147***	**0.107**	**0.217****
Age (centred)		−0.011***	−0.015***	−0.013***
Age² (centred)		−0.00003	−0.00003	0.0002
Female × Age				−0.004
Female × Age²				−0.0004**
FK score			−0.114***	−0.118***
Education = Upper sec			−0.098	−0.097
Education = Degree			−0.369***	−0.373***
Education = Postgrad			−0.396***	−0.400***
Income €2,750 to €4,500			−0.199**	−0.199**
Income €4,500+			−0.370***	−0.367***
Unemployed			0.634***	0.617***
Inactive/other			0.749***	0.736***
No internet			−0.187	−0.195
Constant	0.912***	0.893***	1.797***	1.766***
N	1,422	1,419	1,323	1,323
R^2	0.005	0.037	0.248	0.253

Note. FK score = Financial Knowledge Score. Appendix Table A3 gives the full results with survey-weighted standard errors. Work status dummies for retired and student included in Models 3 and 4. Joint Wald test on Female × Age and Female × Age² in Model 4: F = 2.81, p = 0.061. *** p < 0.01, ** p < 0.05, * p < 0.10. Source: CCPC/OECD-INFE Financial Literacy Survey 2023.

The unconditional female premium is 0.15 points (p = 0.048). Once income, work status and financial knowledge are held equal (Model 3), it falls to 0.11 points and is no longer significant (p = 0.13). This supports H4a. Moving from the lowest to the highest income band reduces the index by 0.37 points, being unemployed raises it by 0.63 points and being inactive by 0.75 points. Each additional point of financial knowledge reduces fragility by 0.11 points. With age centred at 50, the female coefficient in Model 4 is the gap at age 50, which is 0.22 points (p = 0.022). The joint test on the interaction terms gives p = 0.061, so the age pattern is suggestive. Figure 2 shows women scoring higher than men at working ages, with the gap closing around age 70 and reversing modestly among the oldest.

The female premium is not significant on the high-fragility dummy (odds ratio 1.18, 95 per cent CI 0.78 to 1.79, p = 0.43) or in an ordered probit on the full FFI (p = 0.10). The fragility gap is modest on average. The more important policy message is that income, work status and knowledge each predict fragility for everyone.

Note

Predicted values from OLS Model 4 (Table 6) with gender × age interaction, holding education, income, work status and internet access at sample means. Shaded bands are 95 per cent confidence intervals. Source: authors' calculations from the CCPC/OECD-INFE Financial Literacy Survey 2023 (n = 1,323).

4.7 Is this a knowledge gap or a confidence gap?

Women are more likely than men to answer 'don't know' on knowledge tests, and part of the measured gap may reflect this rather than knowledge (Bucher-Koenen et al., 2017, 2025; Lind et al., 2020). We test this in three ways.

First, women give an average of 0.80 DK responses across the seven items, against 0.48 for men ($p < 0.001$). The difference is largest on the four items with the largest knowledge gaps.

Second, we re-estimate Model 3 of Table 4 with DK responses recoded. The female coefficient is − 0.645 under the standard coding (DK as wrong), − 0.511 when DK is credited as half-correct and − 0.497 when DK is treated as missing. The gap falls by 21 to 23 per cent but remains large and significant in every case ($p < 0.001$). This is broadly in line with Bucher-Koenen et al. (2025), who use two survey modules in the Netherlands and attribute around 30 per cent of the gap to lower confidence.

Third, Table 7 regresses self-rated knowledge (reverse coded so that higher means more knowledgeable) on actual knowledge and gender, with the full set of controls.

Table 7
OLS regression of self-rated knowledge

Female	**(A) Main effect**	**(B) +Interaction**
	−0.080 (0.073)	**+ 0.217 (0.364)**
FK score	+ 0.079** (0.032)	+ 0.109** (0.054)
Female × FK score	(omitted)	−0.058 (0.063)
Age (centred)	Yes	Yes
Age² (centred)	Yes	Yes
Education dummies	Yes	Yes
Income dummies	Yes	Yes
Work status dummies	Yes	Yes
No internet	Yes	Yes
N	1,382	1,382
Adjusted R^2	0.124	0.126

Note. Survey-weighted OLS regression of self-rated knowledge (QK1, reverse coded; 1 = very low, 5 = very high) on actual knowledge, gender, and controls. FK score = Financial Knowledge Score. Standard errors in parentheses. ** p < 0.05. Source: CCPC/OECD-INFE Financial Literacy Survey 2023.

Conditional on actual knowledge, women do not rate themselves significantly lower than men (Model A, β = −0.080, p = 0.28), and the slope of self-rating on actual knowledge does not differ by gender (Model B, p = 0.36). Women's self-ratings are, however, less closely matched to their scores (r = 0.18 against 0.29 for men). Among those scoring 5 or more, 31 per cent of women rate themselves high or very high, against 41 per cent of men.

H3 is partly supported. 'Don't know' answers account for a fifth to a quarter of the gap, but the bulk reflects actual knowledge. For policy, this points to content rather than confidence building, although content that treats uncertainty as part of learning may help. It also matters for measurement. The OECD-INFE score codes 'don't know' as wrong, so regulators who track the gap with it will overstate the knowledge gap to some degree.

4.8 What explains the gender gap in financial fragility?

Table 8 decomposes the gender gap in fragility. Controlling for age, education and internet access, women score 0.28 points higher than men (p < 0.001). This is larger than the raw gap of 0.15 because women in the sample are more educated, and education is associated with lower fragility.

Table 8
Decomposition of the gender gap in financial fragility (Gelbach, 2016)

Gender gap before channels	Contribution	SE	p	Share of gap (%)
	0.276	**0.074**	**< 0.001**	**100**
Financial knowledge	0.082	0.023	< 0.001	30
Work status	0.054	0.028	0.049	20
Household Income	0.032	0.013	0.011	12
Total explained	0.169	0.036	< 0.001	61
Remaining gap	0.107	0.072	0.136	39

Note. Survey-weighted OLS with design-based standard errors. All models control for age, age squared, education and internet access. N = 1,323. Source: Authors' calculations from CCPC/OECD-INFE Financial Literacy Survey 2023.

Financial knowledge accounts for 30 per cent of this gap ($p < 0.001$), work status for 20 per cent ($p = 0.049$) and household income for 12 per cent ($p = 0.011$). Together the three channels explain 61 per cent, and the remaining 0.11 points is not significant ($p = 0.14$). A KHB decomposition gives identical results. H4a and H4b are supported. This is the paper's central consumer-policy result. Knowledge is the largest single channel, but income and work status together account for a similar share (32 per cent). Literacy policy can reach the knowledge share of the gap, while income and labour market measures are needed for a similar share.

Cross-sectional data cannot rule out unobserved confounders, such as occupational segregation or the household division of financial labour, or reverse causality, since financial stress can crowd out learning. The results are best read as consistent with these channels rather than as establishing them.

4.9 Robustness

The main results hold across eleven robustness checks, reported in Appendix A.1. These cover age coding, survey weights, alternative fragility thresholds, dropping the oldest respondents, multiple imputation of missing covariates, household composition and an index without the scam item. The knowledge gap is stable in every check. The small fragility premium is not significant at any high-fragility threshold, is somewhat sensitive to the oldest respondents, and does not rest on the scam item.

5. Discussion

5.1 The education to knowledge disconnect

Irish women in this sample are more educated than Irish men, yet they score 0.65 points lower on financial knowledge after controls, a gap similar to the gain from holding a degree. Formal education does not seem to transmit financial knowledge equally to women and men. Plausible channels include

workplace exposure to financial decisions, the household division of investment management and family financial socialisation (Agnew & Cameron-Agnew, 2015; Fonseca et al., 2012; Hsu, 2016). Our data do not allow us to separate them. For consumer policy, the implication is that rising female education will not close the gap on its own.

5.2 The age pattern and life course exposure

The gender gap in knowledge appears U-shaped across age, although the joint test is suggestive ($p = 0.10$) and the 75-plus cell is small (around 40 women). The predicted gap is 0.95 points at age 75 and 0.92 points at age 18. The pattern runs against the later-life catch-up that strategic learning predicts (Hsu, 2016; Payne et al., 2014).

Cross-sectional data cannot separate age effects from cohort effects. An age effect would mean that women's knowledge erodes faster than men's, which would call for financial education across the life course. A cohort effect would mean that older women never closed the gap, in which case it should narrow over time. The wide gap among the youngest and most educated women suggests that education gains alone will not close it. The next OECD-INFE wave, fielded in 2025 to 2026, will allow a first test.

Fragility, by contrast, declines with age, and the youngest adults are the most fragile group. This cuts against the policy framing that places older consumers at the centre of vulnerability concerns.

5.3 Knowledge, income and work as channels

The decomposition in Section 4.8 shows that knowledge, work status and income together account for most of the gender gap in fragility. Each channel points to a different source of disadvantage. The work-status channel reflects women's higher likelihood of being outside the labour force. In this sample, 58 per cent of women are working, against 74 per cent of men. The income channel reflects women's lower likelihood of being in the top income band. Both fit evidence that women's greater exposure to adverse income shocks widens the gender gap in financial distress (Zhou et al., 2024), and that loss of employment raises financial fragility (Kleimeier et al., 2023). Remaining channels may include occupational segregation, the household division of financial responsibility and the targeting of scams (Anderson, 2016).

5.4 The Irish results in international perspective

Several Irish results match evidence from other countries. The gender gap in financial knowledge appears in countries at very different levels of development (Hasler & Lusardi, 2017; Klapper et al., 2015). Bucher-Koenen et al. (2017) find large gender differences in the United States, Germany and the Netherlands, and review similar evidence from other countries. Using OECD/INFE data, Cupák et al. (2018) find that the gap is highest in more developed countries and that personal characteristics explain only part of it. In Ireland the controls do not reduce the gap at all, and it widens slightly from 0.61 to 0.65 points. Ireland therefore adds a case in which women are more educated than men and the gap remains.

Where the gap sits is also familiar. Iwatsubo et al. (2025) find that men score higher on financial concepts and numerical questions. In Ireland the gap is concentrated in three calculation-based items and diversification. The role of 'don't know' answers is similar too. Bucher-Koenen et al. (2025) attribute about 30 per cent of the Dutch gap to lower confidence. Our estimate of a fifth to a quarter is somewhat smaller, although it uses a different method. Chen et al. (2023) find a gender gap in fintech use across countries. In Ireland the gap in digital financial knowledge is small and not significant at the 5 per cent level, so the Irish gap lies in core concepts rather than in digital financial knowledge.

Other results differ. Hsu (2016) finds that in the United States older married women acquire financial knowledge in the years before widowhood, which should narrow the gap in later life. The Irish gap does not narrow among older women, although this age pattern is suggestive. It is also wide among the youngest women, which matches evidence of a gender gap among college students in the United States (Yao et al., 2023).

On fragility, women are more likely than men to be financially fragile in the United States (Hasler et al., 2018), and single women are more likely than single men to be fragile in almost every EU country (Demertzis et al., 2020). In Ireland the gap is small, and most of it runs through knowledge, income and work status (Section 4.8). This fits cross-country evidence that financial literacy is linked to greater financial resilience and that women are more likely to lack financial knowledge (Klapper & Lusardi, 2020), and Italian evidence that knowledge reduces fragility more for women (Aristei et al., 2025). The finding that younger adults are the most fragile group matches evidence from Norway that younger generations are more financially vulnerable (Seldal & Nyhus, 2022).

These comparisons draw on published studies that use different measures and samples. A direct comparison needs the microdata from other OECD-INFE countries. The standardised items make this possible, and it is the main next step for this work. Until then, the comparison suggests that the Irish findings are broadly in line with evidence elsewhere. What Ireland adds is that the gap persists where women have overtaken men in education and does not appear to narrow in later life.

5.5 Policy implications

The evidence on financial education is mixed. A large meta-analysis finds that financial education explains very little of the variation in financial behaviour and that its effects fade over time (Fernandes et al., 2014). A later meta-analysis of randomised experiments finds positive and economically meaningful effects on both knowledge and behaviour (Kaiser et al., 2022). The implications below take this uncertainty into account. Where our results point to education, they point to specific content. Where they point to other causes of vulnerability, they point to defaults, disclosure, action by firms and regulators, and income supports, which do not depend on education working.

Following Cartwright (2015), we organise the implications by the cause of vulnerability each response can reach. Table 8 gives the scale. Knowledge, which education can address, and income and work status, which require other instruments, account for similar shares of the gender gap in fragility. Scam

losses call for action by firms and regulators. The implications apply to any country that combines a financial literacy strategy with auto-enrolment pensions or investment accounts. We use three Irish policies as examples, namely the National Financial Literacy Strategy (Department of Finance, 2025), the first year of contributions to the My Future Fund auto-enrolment scheme, and the Personal Investment Account due in 2027. Each has counterparts in other high-income economies, including national strategies that use the OECD-INFE framework and auto-enrolment in the United Kingdom and New Zealand.

5.5.1 Programme content for financial literacy strategies

Many countries now have a national financial literacy strategy. Ireland's Strategy sets four pillars, namely awareness and engagement, education and skills, behaviour change, and inclusion. Our results suggest a tighter focus within the education and skills pillar. Programme design, content and evaluation could give greater weight to simple interest, compound interest, inflation and diversification. These items are standardised across the 39 OECD-INFE countries and economies, so the same priority and benchmark may apply wherever the framework is used. Bucher-Koenen et al. (2025) also find a substantial gender gap in knowledge after correcting for confidence, and suggest that programmes targeting women may be better at closing it. Programmes should also expect wide gaps among younger women, not only among older consumers.

5.5.2 Design of new pension and investment schemes

Auto-enrolment routes many first-time investors into products whose returns depend on compounding and diversification, and financial literacy affects retirement planning, saving and investment management (Hauff et al., 2020). In this sample, 57 per cent of women answered the compound interest question wrongly, against 45 per cent of men, and 34 per cent of women answered the diversification question wrongly, against 25 per cent of men. Contributors who cannot fully evaluate the choices on offer may be more likely to leave defaults unchanged, so default design carries much of the consumer protection. Investment accounts raise a related issue. Both financial knowledge and confidence are linked to stock market participation (Bucher-Koenen et al., 2025), so women's lower scores on diversification and compound interest may affect how they use these accounts.

Three priorities follow. Default contribution rates and default funds could protect contributors who do not engage. Disclosure could explain compounding in plain language rather than assume it. Communication could reach women at both ends of the age range, where the gaps are widest. The experience of the United Kingdom and New Zealand, which introduced auto-enrolment in 2012 and 2007, is relevant to Irish scheme design, and the same design questions arise in any country introducing auto-enrolment or investment accounts. Couples build retirement wealth jointly, so a knowledge gap in one partner may affect household pension wealth, although the individual-level data cannot test this.

5.5.3 Scam protection and younger consumers

Women report more scam losses than men (13.2 against 9.0 per cent), although the gap is suggestive ($p = 0.045$ among all respondents who answered the item, $p = 0.075$ among those who answered all four FFI items), and younger adults report more losses than older adults. Financial knowledge alone is unlikely to close this gap. Fraud falls unevenly across the population (Anderson, 2016; Raval, 2021) and affects consumers not usually labelled disadvantaged (Lim & Letkiewicz, 2023).

Scam prevention therefore sits mainly with firms and regulators. Payment warnings, checks that confirm who a payment is going to, clear reimbursement rules and targeted awareness campaigns all sit outside literacy programmes. Recording scam type alongside gender in the next OECD-INFE wave would help regulators target these measures.

Scam losses are part of a wider pattern among younger consumers. Younger adults are the most fragile group on the FFI, in line with the Norwegian evidence discussed in Section 5.4. Young women also show one of the widest knowledge gaps. Vulnerability policy that focuses mainly on older consumers, in Ireland or elsewhere, may miss the group where need is greatest.

5.5.4 Limits of a literacy-only response

Being unemployed raises the FFI by 0.63 points and being inactive by 0.75 points, against a weighted mean of 0.99. Single parenthood raises it by 0.37 points ($p = 0.013$), although the group is small (63 respondents) and the estimate is less precise in other specifications (Appendix A.1). Women in this sample are twice as likely as men to be single parents (6.1 against 2.9 per cent). These risks sit outside the reach of financial education, in any country.

Income support systems, credit access frameworks and tenancy protection carry weight here. Consumer policy could also treat labour market status and single parenthood as markers of vulnerability in their own right, alongside low financial knowledge, when deciding whom to target.

5.6 Limitations

The cross-sectional design prevents causal claims, and household mechanisms are inferred from theory rather than tested, since the survey observes individuals rather than couples. The achieved sample is skewed towards men (60 per cent) and is more educated than the population, and the weights adjust for age, gender and region but not education. Levels may therefore sit above the population, although the gender contrast is estimated conditional on education. The FFI could be constructed differently, and the decomposition shares should be read as indicative, since income and work status may themselves be shaped by knowledge. The 80-plus band was assigned a midpoint of 85 years, and the age results are less precise at the extremes. Finally, the analysis covers one country, although the standardised OECD-INFE items allow replication elsewhere.

6. Conclusion

Irish women are more educated than Irish men, yet they score 0.65 points lower on financial knowledge after controls. The gap sits in simple interest, compound interest, inflation and diversification, the concepts that drive long-run wealth. It is mainly a gap in knowledge rather than confidence, and it appears wider among the youngest and oldest women. Women are also more financially fragile than comparable men. Financial knowledge accounts for about 30 per cent of that gap, and work status and income for a further 32 per cent.

For consumer policy, financial literacy alone will not be enough. Literacy programmes could prioritise the four concepts and reach women at both ends of the age range. Auto-enrolment and investment schemes need protective defaults and plain-language explanation of compounding. Scam prevention needs action by firms and regulators, and income and labour market supports are needed for the share of fragility that knowledge cannot reach. These implications may extend to other high-income economies where women have overtaken men in education but the knowledge gap persists.

Declarations

Author Contribution

MR conceptualised the study, developed the analytical framework, conducted the data analysis, prepared the tables and figures and drafted the manuscript. OMcC developed and wrote the policy component, revised the manuscript critically and contributed to its intellectual content. Both authors read and approved the final manuscript.

Acknowledgement

The authors thank the OECD International Network on Financial Education (OECD-INFE) Secretariat for access to the OECD-INFE 2023 survey data for Ireland, collected for the Competition and Consumer Protection Commission. As directed, these data are provided exclusively for research purposes and should not be shared further. Researchers interested in accessing the data are welcome to contact the OECD Secretariat at SecretariatINFE@oecd.org.

Data Availability

The data were collected by Ipsos MRBI for the Competition and Consumer Protection Commission as part of the OECD-INFE 2023 survey. The data are not publicly available. They are provided exclusively for research purposes, and researchers interested in accessing them can contact the OECD Secretariat at SecretariatINFE@oecd.org.

References

1. Agnew, S., & Cameron-Agnew, T. (2015). The influence of consumer socialisation in the home on gender differences in financial literacy. *International Journal of Consumer Studies*, *39*, 630–638. https://doi.org/10.1111/ijcs.12179
2. Aguiar-Díaz, I., & Zagalaz-Jiménez, J. R. (2022). Women and financial literacy in Spain. Does marital status matter? *Journal of Women & Aging*, *34*(6), 785–799. https://doi.org/10.1080/08952841.2021.1991194
3. Almenberg, J., & Dreber, A. (2015). Gender, stock market participation and financial literacy. *Economics Letters*, *137*, 140–142. https://doi.org/10.1016/j.econlet.2015.10.009
4. Anderson, K. B. (2016). *Mass-market consumer fraud: Who is most susceptible to becoming a victim?* (Working Paper No. 332). Federal Trade Commission. https://www.ftc.gov/system/files/documents/reports/mass-market-consumer-fraud-who-most-susceptible-becoming-victim/working_paper_332.pdf
5. Aristei, D., Gallo, M., & Murro, P. (2025). Financial knowledge and financial fragility: Longitudinal evidence from Italy. *Italian Economic Journal*, *11*, 667–702. https://doi.org/10.1007/s40797-025-00324-7
6. Azzopardi, D., Fareed, F., Lenain, P., & Sutherland, D. (2019). Assessing household financial vulnerability: Empirical evidence from the US using machine learning. In D. Sutherland (Ed.), *OECD economic survey of the United States: Key research findings*(pp. 121–142). OECD Publishing. https://doi.org/10.1787/75c63aa1-en
7. Baker, S. M., Gentry, J. W., & Rittenburg, T. L. (2005). Building understanding of the domain of consumer vulnerability. *Journal of Macromarketing*, *25*(2), 128–139. https://doi.org/10.1177/0276146705280622
8. Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, *116*(1), 261–292. https://doi.org/10.1162/003355301556400
9. Blaschke, J. (2022). Gender differences in financial literacy among teenagers: Can confidence bridge the gap? *Cogent Economics & Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2144328. Article 2144328.
10. Bucher-Koenen, T., Alessie, R., Lusardi, A., & van Rooij, M. (2025). Fearless woman: Financial literacy, confidence, and stock market participation. *Management Science*, *71*, 7414–7430. https://doi.org/10.1287/mnsc.2023.00425
11. Bucher-Koenen, T., Lusardi, A., Alessie, R., & van Rooij, M. (2017). How financially literate are women? An overview and new insights. *Journal of Consumer Affairs*, *51*(2), 255–283. https://doi.org/10.1111/joca.12121
12. Cartwright, P. (2015). Understanding and protecting vulnerable financial consumers. *Journal of Consumer Policy*, *38*(2), 119–138. https://doi.org/10.1007/s10603-014-9278-9
13. Central Statistics Office (2024). *Educational attainment thematic report 2024*. https://www.cso.ie/en/releasesandpublications/ep/p-

eda/educationalattainmentthematicreport2024/

14. Chen, S., Doerr, S., Frost, J., Gambacorta, L., & Shin, H. S. (2023). The fintech gender gap. *Journal of Financial Intermediation*, *54*., Article 101026. https://doi.org/10.1016/j.jfi.2023.101026
15. Christelis, D., Jappelli, T., & Padula, M. (2010). Cognitive abilities and portfolio choice. *European Economic Review*, *54*(1), 18–38. https://doi.org/10.1016/j.euroecorev.2009.04.001
16. Competition and Consumer Protection Commission (2023). *Financial wellbeing in Ireland: Financial literacy and inclusion in 2023*. https://www.ccpc.ie/business/research/market-research/financial-well-being-in-ireland-financial-literacy-and-inclusion-in-2023/
17. Competition and Consumer Protection Commission & Indecon (2024). *Exploring financial wellbeing and literacy disparities across population groups in Ireland*. https://www.ccpc.ie/business/research/market-research/exploring-financial-wellbeing-and-literacy-disparities-across-population-groups-in-ireland/
18. Cupák, A., Fessler, P., Schneebaum, A., & Silgoner, M. (2018). Decomposing gender gaps in financial literacy: New international evidence. *Economics Letters*, *168*, 102–106. https://doi.org/10.1016/j.econlet.2018.04.004
19. Dahlbom, L., Jakobsson, A., Jakobsson, N., & Kotsadam, A. (2011). Gender and overconfidence: Are girls really overconfident? *Applied Economics Letters*, *18*(4), 325–327. https://doi.org/10.1080/13504851003670668
20. Danes, S. M. (1994). Parental perceptions of children's financial socialization. *Financial Counseling and Planning*, *5*, 127–149.
21. Demertzis, M., Domínguez-Jiménez, M., & Lusardi, A. (2020). *The financial fragility of European households in the time of COVID-19*(Policy Contribution No. 2020/15). Bruegel.
22. *National Financial Literacy Strategy*. Government of Department of Finance, & Ireland (2025). https://www.gov.ie/en/department-of-finance/publications/national-financial-literacy-strategy/
23. Fernández-López, S., Álvarez-Espiño, M., Rey-Ares, L., & Castro-González, S. (2024). Consumer financial vulnerability: Review, synthesis, and future research agenda. *Journal of Economic Surveys*, *38*(4), 1045–1084. https://doi.org/10.1111/joes.12573
24. Fernandes, D., Lynch, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, *60*(8), 1861–1883. https://doi.org/10.1287/mnsc.2013.1849
25. Finke, M., Howe, J., & Huston, S. (2017). Old age and the decline in financial literacy. *Management Science*, *63*(1), 213–230. https://doi.org/10.1287/mnsc.2015.2293
26. Fonseca, R., Mullen, K. J., Zamarro, G., & Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs*, *46*(1), 90–106. https://doi.org/10.1111/j.1745-6606.2011.01221.x
27. French, D., & McKillop, D. (2016). Financial literacy and over-indebtedness in low-income households. *International Review of Financial Analysis*, *48*, 1–11. https://doi.org/10.1016/j.irfa.2016.08.004

28. Gelbach, J. B. (2016). When do covariates matter? And which ones, and how much? *Journal of Labor Economics*, *34*(2), 509–543. https://doi.org/10.1086/683668
29. Gudmunson, C. G., & Danes, S. M. (2011). Family financial socialization: Theory and critical review. *Journal of Family and Economic Issues*, *32*(4), 644–667. https://doi.org/10.1007/s10834-011-9275-y
30. Haag, L., & Brahm, T. (2025). The gender gap in economic and financial literacy: A review and research agenda. *International Journal of Consumer Studies*, *49*. https://doi.org/10.1111/ijcs.70031. Article e70031.
31. Hasler, A., & Lusardi, A. (2017). *The gender gap in financial literacy: A global perspective*. Global Financial Literacy Excellence Center, The George Washington University School of Business. https://gflec.org/wp-content/uploads/2017/07/The-Gender-Gap-in-Financial-Literacy-A-Global-Perspective-Report.pdf
32. Hasler, A., Lusardi, A., & Oggero, N. (2018). *Financial fragility in the US: Evidence and implications*(GFLEC Working Paper No. 2018-1). Global Financial Literacy Excellence Center. https://gflec.org/wp-content/uploads/2018/04/Financial-Fragility-in-the-US.pdf
33. Hauff, J. C., Carlander, A., Gärling, T., & Nicolini, G. (2020). Retirement financial behaviour: How important is being financially literate? *Journal of Consumer Policy*, *43*(3), 543–564. https://doi.org/10.1007/s10603-019-09444-x
34. Hill, R. P., & Sharma, E. (2020). Consumer vulnerability. *Journal of Consumer Psychology*, *30*(3), 551–570. https://doi.org/10.1002/jcpy.1161
35. Hsu, J. W. (2016). Aging and strategic learning: The impact of spousal incentives on financial literacy. *Journal of Human Resources*, *51*(4), 1036–1067. https://doi.org/10.3368/jhr.51.4.1014-6712R
36. Hung, A., Parker, A. M., & Yoong, J. (2012). Defining and measuring financial literacy. In O. S. Mitchell, & A. Lusardi (Eds.), *Financial literacy: Implications for retirement security and the financial marketplace* (pp. 3–16). Oxford University Press.
37. Iwatsubo, K., Araki, C., & Yamori, N. (2025). Gender gap in financial literacy: Numeracy, financial concepts and retirement financial planning. *Finance Research Open*, *1*(4). Article 100054. https://doi.org/10.1016/j.finr.2025.100054
38. Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology*, *42*(1), 286–313. https://doi.org/10.1177/0081175012444861
39. Keerthikumara, S. M., & Kumari, D. S. S. (2023). Access and usage of financial products in India: A gender gap analysis. *International Journal of Financial Engineering*, *10*(4). https://doi.org/10.1142/S2424786323500226. Article 2350022.
40. Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2022). Financial education affects financial knowledge and downstream behaviors. *Journal of Financial Economics*, *145*(2), 255–272. https://doi.org/10.1016/j.jfineco.2021.09.022

41. Kim, J., Gutter, M. S., & Spangler, T. (2017). Review of family financial decision making: Suggestions for future research and implications for financial education. *Journal of Financial Counseling and Planning*, *28*(2), 253–267. https://doi.org/10.1891/1052-3073.28.2.253
42. Kim, K. T., Lee, S., & Kim, H. (2022). Gender differences in financial knowledge overconfidence among older adults. *International Journal of Consumer Studies*, *46*, 1223–1240. https://doi.org/10.1111/ijcs.12754
43. Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, *49*(3), 589–614. https://doi.org/10.1111/fima.12283
44. Klapper, L., Lusardi, A., & van Oudheusden, P. (2015). *Financial literacy around the world: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey*. Standard & Poor's Ratings Services and World Bank.
45. Kleimeier, S., Hoffmann, A. O. I., Broihanne, M. H., Plotkina, D., & Göritz, A. S. (2023). Determinants of individuals' objective and subjective financial fragility during the COVID-19 pandemic. *Journal of Banking & Finance*, *153*., Article 106881. https://doi.org/10.1016/j.jbankfin.2023.106881
46. LeBaron, A. B., Holmes, E. K., Jorgensen, B. L., & Bean, R. A. (2020). Parental financial education during childhood and financial behaviors of emerging adults. *Journal of Financial Counseling and Planning*, *31*(1), 42–54. https://doi.org/10.1891/JFCP-18-00021
47. LeBaron, A. B., & Kelley, H. H. (2021). Financial socialization: A decade in review. *Journal of Family and Economic Issues*, *42*(Suppl. 1), 195–206. https://doi.org/10.1007/s10834-020-09736-2
48. Lim, H., & Letkiewicz, J. C. (2023). Consumer experience of mistreatment and fraud in financial services: Implications from an integrative consumer vulnerability framework. *Journal of Consumer Policy*, *46*(2), 109–135. https://doi.org/10.1007/s10603-023-09535-w
49. Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D., & Tinghög, G. (2020). Competence, confidence, and gender: The role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues*, *41*, 626–638. https://doi.org/10.1007/s10834-020-09678-9
50. Lusardi, A. (2012a). Financial literacy and financial decision-making in older adults. *Generations*, *36*(2), 25–32.
51. Lusardi, A. (2012b). *Numeracy, financial literacy, and financial decision-making*(NBER Working Paper No. 17821). National Bureau of Economic Research. https://www.nber.org/papers/w17821
52. Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, *42*, 35–44. https://doi.org/10.2145/20070104
53. Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, *98*(2), 413–417. https://doi.org/10.1257/aer.98.2.413
54. Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, *10*(4), 497–508. https://doi.org/10.1017/S1474747211000448

55. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, *52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

56. Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, *44*(2), 358–380. https://doi.org/10.1111/j.1745-6606.2010.01173.x

57. Meier, K., Kirchler, E., & Hubert, A. C. (1999). Savings and investment decisions within private households: Spouses' dominance in decisions on various forms of investment. *Journal of Economic Psychology*, *20*(5), 499–519. https://doi.org/10.1016/S0167-4870(99)00022-7

58. Mottola, G. R. (2013). In our best interest: Women, financial literacy, and credit card behavior. *Numeracy*, *6*(2). Article 4. https://doi.org/10.5038/1936-4660.6.2.4

59. OECD. (2022). OECD/INFE toolkit for measuring financial literacy and financial inclusion 2022. *OECD Publishing*. https://doi.org/10.1787/cbc4114f-en

60. OECD (2023). *OECD/INFE 2023 international survey of adult financial literacy*(OECD Business and Finance Policy Papers No. 39). OECD Publishing. https://doi.org/10.1787/56003a32-en

61. Okamoto, S., & Komamura, K. (2021). Age, gender, and financial literacy in Japan. *Plos One*, *16*(11). https://doi.org/10.1371/journal.pone.0259393. Article e0259393.

62. Payne, S. H., Yorgason, J. B., & Dew, J. P. (2014). Spending today or saving for tomorrow: The influence of family financial socialization on financial preparation for retirement. *Journal of Family and Economic Issues*, *35*(1), 106–118. https://doi.org/10.1007/s10834-013-9363-2

63. Pepur, S., Bulog, I., & Rimac Smiljanić, A. (2022). Household financial fragility during COVID 19: The power of financially literate women. *Zagreb International Review of Economics & Business*, *25*(SCI), 31–44. https://doi.org/10.2478/zireb-2022-0023

64. Raval, D. (2021). Who is victimized by fraud? Evidence from consumer protection cases. *Journal of Consumer Policy*, *44*(1), 43–72. https://doi.org/10.1007/s10603-020-09466-w

65. Schmitz, A., & Bova, K. (2013). *Women and financial literacy*. ProLiteracy.

66. Seldal, M. M. N., & Nyhus, E. K. (2022). Financial vulnerability, financial literacy, and the use of digital payment technologies. *Journal of Consumer Policy*, *45*, 281–306. https://doi.org/10.1007/s10603-022-09512-9

67. Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G., & Västfjäll, D. (2018). Financial literacy and the role of numeracy: How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioral and Experimental Economics*, *74*, 18–25. https://doi.org/10.1016/j.socec.2018.03.004

68. Skogrand, L., Johnson, A. C., Horrocks, A. M., & DeFrain, J. (2011). Financial management practices of couples with great marriages. *Journal of Family and Economic Issues*, *32*(1), 27–35. https://doi.org/10.1007/s10834-010-9195-2

69. Tinghög, G., Ahmed, A., Barrafrem, K., Lind, T., Skagerlund, K., & Västfjäll, D. (2021). Gender differences in financial literacy: The role of stereotype threat. *Journal of Economic Behavior & Organization*, *192*, 405–416. https://doi.org/10.1016/j.jebo.2021.10.015

70. van der Cruijsen, C., Broekhoff, M. C., & Knoben, J. (2025). Mind the gap: Gender differences in household payment tasks. *De Economist*, *173*, 385–424. https://doi.org/10.1007/s10645-025-09449-7

71. van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, *101*(2), 449–472. https://doi.org/10.1016/j.jfineco.2011.03.006

72. Wiersma, J., Alessie, R. J. M., Kalwij, A., Lusardi, A., & van Rooij, M. (2020). *Skating on thin ice: New evidence on financial fragility*(DNB Working Paper No. 670). De Nederlandsche Bank.

73. Xiao, J. J., Chen, C., & Sun, L. (2015). Age differences in consumer financial capability. *International Journal of Consumer Studies*, *39*, 387–395. https://doi.org/10.1111/ijcs.12205

74. Yao, M., Rehr, T. I., & Regan, E. P. (2023). Gender differences in financial knowledge among college students: Evidence from a recent multi-institutional survey. *Journal of Family and Economic Issues*, *44*, 693–713. https://doi.org/10.1007/s10834-022-09860-1

75. Zhou, Y., Lu, W., Liu, C., & Gan, H. (2024). The gender gap in financial distress. *Applied Economics*, *56*(51), 6375–6390. https://doi.org/10.1080/00036846.2023.2273241

Figures

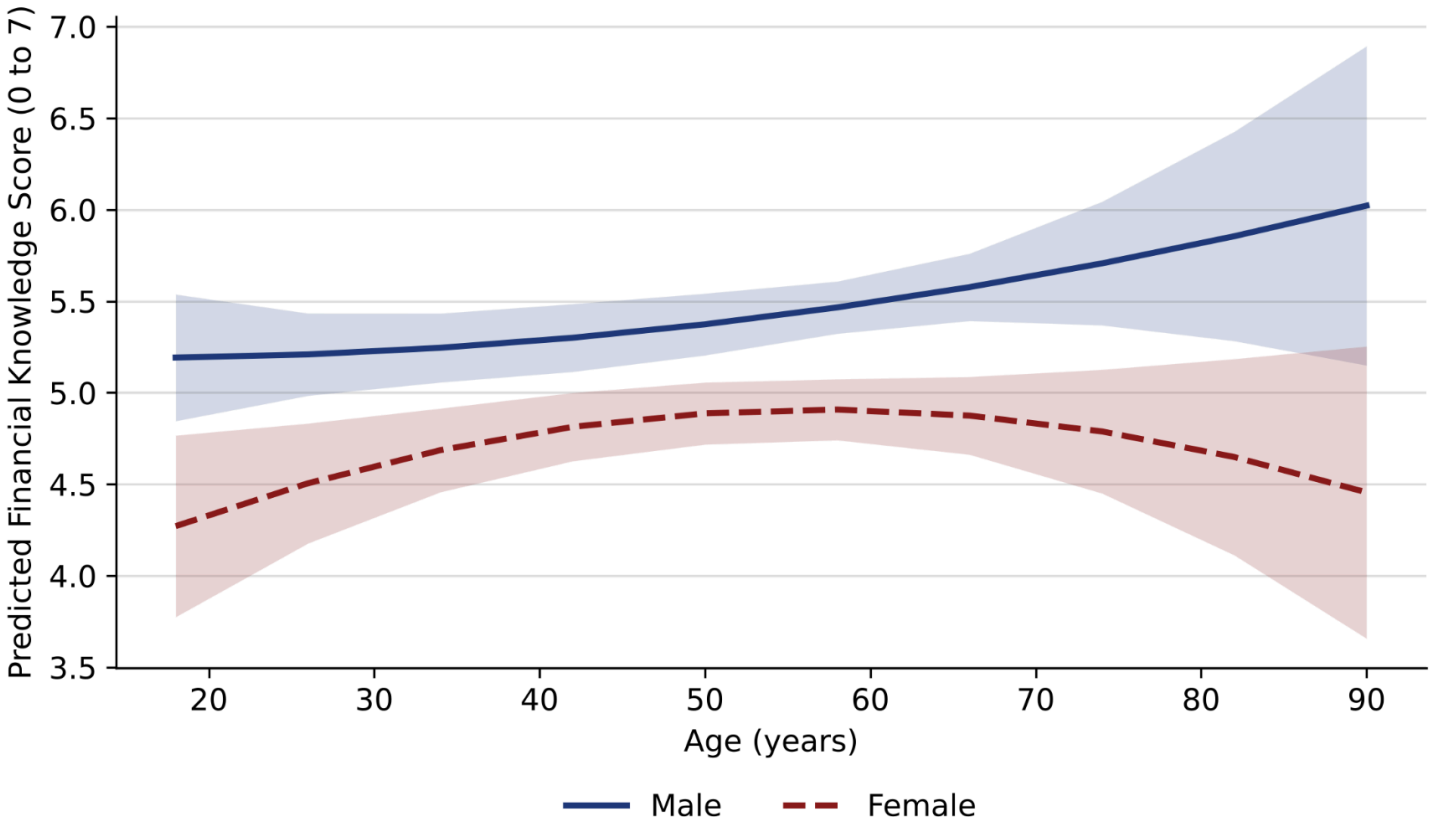

Figure 1

Predicted Financial Knowledge Score by age and gender.

Note: Predicted values from OLS Model 4 (Table 4) with gender × age interaction, holding edu-cation, income, work status and internet access at sample means. Shaded bands are 95 per cent confidence intervals. Source: authors' calculations from the CCPC/OECD-INFE Financial Liter-acy Survey 2023 (n = 1,386)

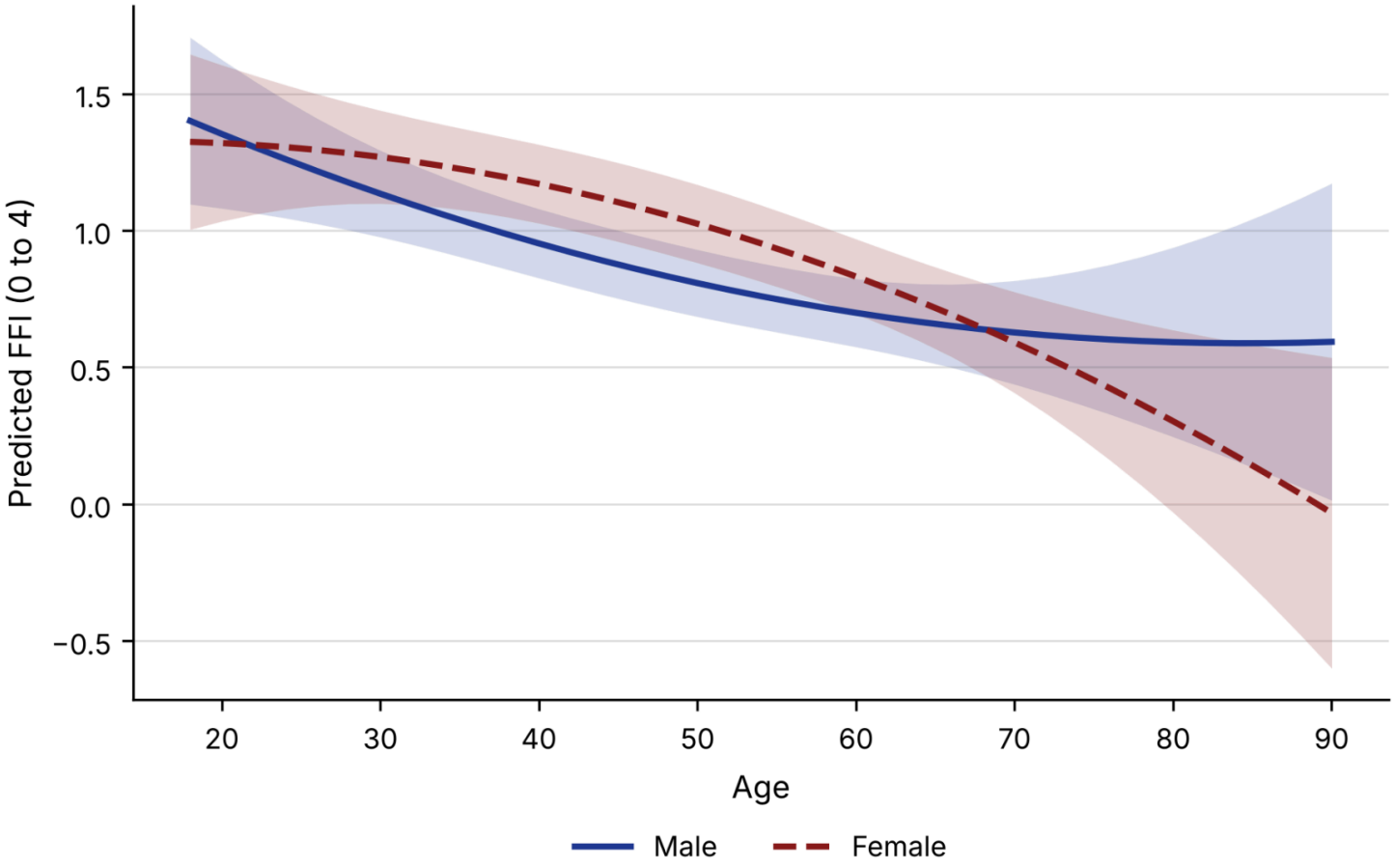

Figure 2

Predicted Financial Fragility Index by age and gender.

Note. Predicted values from OLS Model 4 (Table 6) with gender × age interaction, holding education, income, work status and internet access at sample means. Shaded bands are 95 per cent confidence intervals. Source: authors' calculations from the CCPC/OECD-INFE Financial Literacy Survey 2023 (n = 1,323).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- OnlineResource1.docx
- Appendix.docx