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Gender Differences in Pension Investment: The Role of Biased Advice

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Gender Differences in Pension Investment: The Role of Biased Advice*

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Abstract

We study whether gender-biased financial advice contributes to the gender gap in pension wealth. Using administrative records from four private pension funds in Italy, we document that women are ceteris paribus 8 percentage points less likely than men to choose stock-focused investment lines at the time of enrollment. To assess whether advisory behavior contributes to this gap, we conduct a vignette-based survey experiment among pension advisors affiliated to the four funds, randomly varying the gender of otherwise identical prospective 25-year-old clients. Advisors are 22 percentage points less likely to recommend stock-oriented portfolios to female clients, even after conditioning on advisors' beliefs about relevant client characteristics. We further show that a simple information intervention that makes advisors aware of the documented gender bias eliminates this gap in the experimental setting. Linking advisors to real clients in the administrative data, we demonstrate that the gender gap in actual investment choices shrinks by approximately 60% during the five months following the intervention. This evidence suggests that gender bias in financial advice is largely implicit and that low-cost informational feedback to advisors can meaningfully reduce gender disparities in retirement wealth accumulation.

JEL classifications: J16; G53; J32;
Keywords: biased advice; gender; pension; implicit bias

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1 Introduction

Individuals face a range of financial decisions with long-term implications for their economic well-being. Among these, decisions regarding pension investment play a central role. Pension investment choices are complex, infrequent, and involve unfamiliar trade-offs that often exceed personal financial knowledge, leading many to rely on professional advice.[1] At the same time, a growing literature documents persistent gender differences in financial and other outcomes (OECD, 2025*a*), including sizable differences in pension wealth and retirement income (OECD, 2025*c*). Related works show that gender bias affects outcomes in high-stakes decision environments, such as education (e.g., Carlana, 2019) and labor markets (e.g., Blau and Kahn, 2017). These findings raise a natural question: can biased financial advice contribute to gender differences in retirement investment, and, if so, are there tools to reduce bias in advice? Despite the central role of advice in pension decision-making, evidence on whether and how gender bias shapes pension investment recommendations remains limited.

This paper links gender differences in pension investment choices to gender bias in the investment recommendations provided by pension advisors. We first document systematic gender differences in portfolio allocation at enrollment using administrative data from four Italian pension funds: while choosing contribution rates comparable to those of men, women are 8 percentage points less likely to select stock-oriented investment lines. We then present evidence from an artefactual field experiment in which pension advisors affiliated with these funds evaluate otherwise identical vignettes describing prospective pension fund members, with client gender randomly assigned. The experiment reveals a pronounced gender bias in advisors' recommendations: advisors are 22 percentage points less likely to recommend stock-oriented portfolios to female clients, whereas recommended contribution rates do not differ by gender. These results persist even after conditioning on

[1] According to 2025 EBRI/Greenwald Retirement Confidence Survey, 37% of US workers report working with a professional financial advisor or representative for retirement planning, 47% of those not currently doing so expects to get professional financial advice.

advisors' beliefs about clients' risk-seeking behavior and financial literacy. Using historical return differentials across investment lines, we show in a back-of-the-envelope calculation that the observed differences in portfolio recommendations imply that women advised by consultants in our experiment would, on average, retire with 13.4% lower accumulated capital than their otherwise identical male counterparts. Finally, we demonstrate that a simple information intervention that makes advisors aware of the documented bias eliminates gender differences in their recommendations and, using administrative data on advised clients, we show that the information intervention significantly narrows gender disparities in actual portfolio choices of clients at enrollment.

In the experiment, we also show that advisors do not perceive meaningful differences between male and female prospective clients in terms of financial literacy or risk attitudes—dimensions that could, in principle, justify differences in recommended portfolios. Complementing this evidence with data from a representative population survey, we show that advisors' stated beliefs about their hypothetical clients are broadly consistent with the actual characteristics of the underlying population, making it unlikely that gender differences in these fundamentals are the primary drivers of the observed recommendation gap. In addition, administrative records from the pension funds indicate that women do not have systematically shorter investment horizons than men, ruling out also this structural explanation for the observed gender differences in advice. Importantly, advisors report that their recommendations play a consequential role in shaping investment choices: prospective pension fund members typically enter consultations with a strong preference for low-risk investment lines and, following advice, shift substantially toward more stock-oriented portfolios, underlying the importance of advice for actual choices. We corroborate this self-reported evidence with an analysis showing a strong spatial correlation - Pearson correlation coefficient of 0.75 - between advice and realized portfolio choices at enrollment: districts with larger gender gaps in advisors' recommendations also exhibit larger gender gaps in actual portfolio allocations at entry.

To explore potential ways to mitigate biased advice, we implement an information treatment within the survey experiment. After they have provided recommendations to a hypothetical client, we randomly inform half of the pension advisors about the existence of gender bias in investment line recommendations, as documented in a prior pilot study, while providing the remaining advisors with gender-neutral information emphasizing the importance of pension advice. We then present advisors with a second hypothetical client and elicit recommendations using a vignette that differs from the first in age and financial characteristics but not in client gender. Among treated advisors, the gender gap in recommended investment lines disappears, whereas it remains unchanged in the control group. This pattern points to implicit bias as the most plausible underlying mechanism for gender differences in advice. If they were instead driven by unobserved structural factors or by an explicit animus, merely making advisors aware of the bias would be unlikely to eliminate it.

Finally, we disclosed information about the existence of gender bias to all advisors at the end of the survey, and, to assess the real-world consequences of this information provision, using administrative data on client choices after consultations, we show that in the five months following the intervention, the gender gap significantly narrows relative to the preceding five months, declining by 60%—a very large reduction. We also performed placebo tests, showing that in previous years no such reduction occurred. Because clients were not directly exposed to the intervention, we attribute this effect to a change in advisors' behavior induced by the heightened awareness of gender bias post information treatment.

Our study contributes to three strands of the literature. First, we speak to work on gender discrimination in financial markets and, more specifically, to recent evidence on gender differences in the supply of financial advice (see, for instance, Mullainathan, Noeth and Schoar, 2012; Alesina, Lotti and Mistrulli, 2013; Brock and De Haas, 2019; Annan, 2022; Egan, Matvos and Seru, 2022). Recent studies document gender gaps in

advice across diverse contexts: women are found to receive more self-serving advice in real-world bank–client meetings (Bucher-Koenen et al., 2025), to be more likely to receive suboptimal recommendations in audit studies where advisors' incentives and beliefs about clients' financial knowledge may interact (Bhattacharya et al., 2024), and to be steered toward more cautious—sometimes patronizing—guidance in algorithmic advice settings (Etgar, Oestreicher-Singer and Yahav, 2024). At the same time, other work finds no economically meaningful gender differences in vignette-based recommendations (d'Astous, Gemmo and Michaud, 2024). We extend this literature to private pension advice. Using otherwise identical vignettes that vary only by client gender, we provide causal evidence that client gender affects the risk-return profile of recommended portfolios, with little corresponding effect on recommended contribution rates. Our setting is particularly economically consequential and carries potentially large welfare implications, as private pension asset allocation decisions affect a large and growing share of households worldwide.[2] Consequently, biased advice in this context can have long-lasting effects on individuals' retirement wealth and financial security. Moreover, we study an institutional environment in which advisors are nonprofit, publicly funded, and compensated through fixed fees rather than commissions. This setting allows us to isolate the origins of gender differences in advice from sales incentives and commission-driven distortions. Our evidence indicates that the observed gap reflects an implicit, awareness-sensitive bias in portfolio recommendations, consistent with gender-norm-based stereotypes rather than systematically different beliefs about clients' preferences. Lastly, we contribute to related evidence on gender interactions in advice contexts (e.g., Luo and Salterio, 2022; Monne, Rutterford and Sotiropoulos, 2024) by examining whether recommendation risk varies with the advisor–client gender pairing. We find no systematic pairing effects, but male advisors recommend riskier investment lines on average, regardless of client gender.

Second, we contribute to the household-finance literature on gender differences in portfolio

[2]The growing importance of decisions about pension asset allocation from an individual point of view is underlined by a trend towards defined contribution schemes, now accounting for 59% of assets in the main markets - see the Global Pension Assets Study of 2025.

choice and to research on the origins of gender gaps in retirement outcomes. A large body of work finds that women invest more conservatively than men (Jianakoplos and Bernasek, 1998; Sunden and Surette, 1998; Barber and Odean, 2001*b*; Agnew, Balduzzi and Sunden, 2003; Arano, Parker and Terry, 2010; Säve-Söderbergh, 2012; Almenberg and Dreber, 2015; Olafsson and Thornquist, 2018) and may earn lower returns in financial and real-estate markets (Andersen et al., 2021; Girshina et al., 2021; Goldsmith-Pinkham and Shue, 2023). Proposed explanations include gender differences in overconfidence (e.g., Barber and Odean, 2001*a*), in preferences — including risk aversion and social preferences (e.g., Croson and Gneezy, 2009) — and in the role of gender norms and socialization in shaping investment behavior (e.g., Ke, 2018), as well as gender gaps in financial literacy and confidence (Dwyer, Gilkeson and List, 2002; Lusardi and Mitchell, 2008; Bucher-Koenen et al., 2017), which may in turn influence advice-seeking behavior (Barber and Odean, 2001*a*). We complement this literature by showing that gender differences in retirement portfolio risk arise already at entry into the private pension system and are closely linked to advice at the initial consultation, highlighting enrollment as a consequential moment in which differences can become persistent. In our setting, advisors are more likely to direct female clients toward conservative investment lines and away from stock-oriented portfolios at entry, indicating that part of the observed gap in portfolio choice is generated through the advisory channel at enrollment. In turn, this perspective is complementary to work documenting gender differences later in the retirement process and in retirement-market interactions (Hurd and Panis, 2006; Bello, 2023). It also aligns with evidence that advice can shift beliefs and choices even when clients evaluate advice conditional on their prior beliefs (Schoar and Sun, 2024), and with quasi-experimental evidence that exogenous changes in advice content lead to causal changes in client portfolios (Andries, Bonelli and Sraer, 2025). Finally, our findings suggest that biased financial advice constitutes an additional mechanism contributing to observed gender differences in portfolio choice. Moreover, we show that this bias is not rooted in systematically different beliefs about relevant structural characteristics—such

as risk tolerance or financial literacy—but instead reflects implicit gender-norm-based stereotypes that shape recommendations at the point of entry.

Third, we contribute to the literature on awareness-based debiasing interventions. A growing body of evidence shows that informational and educational interventions aimed at increasing awareness of unconscious stereotypes can reduce gender bias in domains such as sports, education, and labor markets (see, for instance, Carnes et al., 2015, Pope, Price and Wolfers, 2018, Boring and Philippe, 2021, Chowdhury, Jewell and Singleton, 2024, Ayllón and Zamora, 2025). We extend this stream of research to pension advice, where direct evidence is scarce, by studying whether a light-touch prompt that makes gendered recommendation patterns salient can mitigate disparities. Importantly, we link the intervention not only to advisors' stated recommendations in the experimental setting, but also to downstream patterns in actual administrative enrollment choices, thereby speaking to the effectiveness of awareness-based debiasing in a high-stakes financial decision environment.

Taken together, our findings yield three key insights. First, gender differences in the supply of financial advice translate into gender differences in clients' investment choices, with potentially large welfare implications. As pension systems in many countries transition from pay-as-you-go to private asset-backed arrangements (Mitchell and O'Quinn, 2024), and as asset-backed pension markets shift away from defined-benefit towards defined-contribution schemes (OECD, 2025*b*), investment responsibility and financial risk are increasingly borne by individuals, amplifying the relevance of gender bias in advice for a growing share of the population. Second, the documented gender bias in investment recommendations appears to stem from an unconscious awareness-sensitive bias that diminishes once it is made explicit. Third, a simple and easily implementable information intervention can effectively mitigate this bias, with clear policy relevance.

The paper proceeds as follows. Section 2 presents gender differences in pension investment choices using administrative data. Section 3 offers a description of the institutional setting

within which the advisors operate. Section 4 describes the survey experiment, including the vignette design and the information treatment. Section 5 presents the main findings, while section 6 concludes.

2 Gender Differences in Pension Investment Choices

Pension systems in many countries shift from pay-as-you-go arrangements toward privately asset-backed schemes (Mitchell and O'Quinn, 2024), and within funded systems from defined-benefit to defined-contribution designs (OECD, 2025*b*). As a result, investment responsibility and financial risk increasingly fall on individual households, making individual portfolio choices more consequential for long-run retirement outcomes.[3]

Upon joining a private pension fund, individuals typically face two key decisions: (i) selecting an investment line from a menu of options with distinct risk–return profiles, and (ii) determining a contribution, either as a percentage of labor income (e.g., 2%) or as a nominal amount. Using administrative data from four Italian pension funds, we document a novel empirical fact: gender differences in portfolio allocation emerge already at the moment of initial enrollment. That is, disparities in equity exposure arise not through subsequent portfolio adjustments, but at the very start of individuals' participation in the private pension system.

2.1 Data

Our empirical analysis leverages administrative records from four Italian pension funds active in the so-called second and third pillars (see Appendix A for details), currently serving roughly 140,000 active members. One of these funds is *closed*, i.e., membership is based exclusively on collective agreements, while the other three are *open*, in

[3]The Italian pension system resembles those of other industrialized countries. Appendix A provides a detailed description of its institutional features.

that individuals can also independently join. These funds are located in Trentino-Alto Adige/Südtirol, the northernmost region of Italy, where a substantial share of the population is German-speaking, and are affiliated with a regional public agency that provides financial and administrative services and offers free, neutral, and non-binding retirement advice to the population.

We focus on all individuals who enrolled in one of the four funds between 2008 and 2024.[4] Since our interest lies in the initial decision-making of individuals when joining a fund, we restrict the sample to the first contract signed by an individual. Table 1 summarizes enrollment data. Over the sample period, nearly 219,000 individuals joined one of the four funds. Among them, 49% are male and 51% are female. The average age at enrollment was 36 years. Three quarters of members reside in the region, either in the province of Bolzano-Bozen, i.e., Alto Adige/Südtirol, (43%), or the adjacent province of Trento, i.e., Trentino (32%), while the remaining 25% live elsewhere in Italy or abroad (less than 1%).[5] At the regional level, membership is very high, at more than 58.4% of the workforce (COVIP, 2023). When enrolling, members select their preferred language of communication (Italian or German). Overall, 31% of new members are German-speaking, with some gender differences: 33% of female members and 28% of male members choose German as the language of communication.

Educational attainment is also well documented, with data for 90% of the sample. Among new members, 17% hold at most a middle school degree, 11% completed vocational training, 35% earned a high school diploma, and 27% hold a university degree. Female members, on average, have a higher educational attainment when joining a fund. Table 1 also reports summary statistics on investment line choices and contribution rates, which we discuss in detail in Sections 2.2 and 2.3, respectively.

[4]While data are available for earlier years, only one investment line was offered before 2008, limiting comparability.

[5]Place of residence refers to the time the administrative data were obtained, in early 2025.

Table 1: Characteristics at Pension Fund Entry, 2008-2024

	Overall	Female	Male	N
Number of new admissions (2008–2024)	218,959	112,716	106,243	218,959
Average age at admission (years)	36	36	36	218,959
Average wage at admission (EUR)	22,557	20,871	24,539	112,812
Residence (%)				218,959
Province of Bolzano–Bozen	43.3	45.5	41.0	94,869
Province of Trento	31.7	32.5	30.9	69,493
Other Italian province	24.7	21.7	27.8	54,024
Abroad	0.26	0.22	0.30	573
German-speaking (%)	34.6	36.8	32.3	218,959
Education (%)				197,928
Middle school or lower	17.3	14.0	20.8	37,919
Vocational education	11.2	9.7	12.9	24,620
High school	34.9	34.7	35.1	76,409
University	26.9	32.1	21.5	58,980
Monthly contribution (share of income, %)	1.91	1.89	1.93	122,878
Investment line (%)				218,959
Guaranteed	17.3	18.4	16.2	37,939
Mainly bonds	15.0	17.2	12.7	32,893
Balanced	47.0	47.5	46.4	102,824
Mainly stocks	20.7	17.0	24.6	45,303
Open fund (%)	54.9	51.4	58.6	218,959

Notes: The table reports characteristics of new entries in one of the four pension funds. The column "Overall" presents statistics for all new entries, while the "Female" and "Male" columns show values separately by gender. The column "N" indicates the number of observations available for each characteristic.

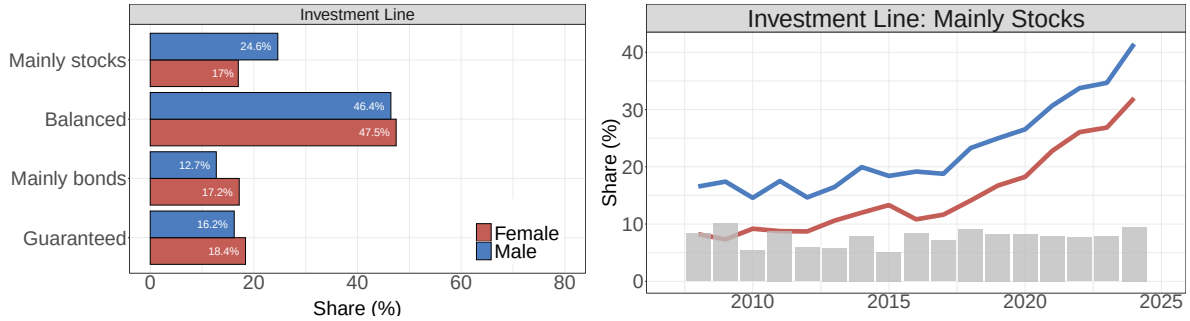
2.2 Investment Line Choices

The four pension funds offer a comparable set of options: (i) a stocks-focused line with a high risk-return profile, (ii) a balanced line, (iii) a bond-focused line, and (iv) a conservative line composed primarily of government bonds and cash equivalents.[6] All new members are required to select an investment line at the time of enrollment, and we observe this decision in the administrative data.

The left panel of Figure 1 displays the distribution of investment line choices by gender for individuals enrolling between 2008 and 2024. Men are more likely to select high-risk

[6]Investment lines are classified according to the framework of the Italian supervisory authority for private pension funds (COVIP). The "Mainly Stocks" line holds at least 50% of assets in stocks. "Balanced" lines combine stocks and bonds without either asset class dominating the portfolio. "Mostly Bonds" lines invest primarily in bonds, with stocks not exceeding 30%. "Guaranteed" lines provide capital protection or a guaranteed minimum return (see COVIP, 2023).

Figure 1: Investment Lines at Admission



Notes: The left panel shows the distribution of investment line choices for male and female individuals at initial enrollment in one of the four pension funds between 2008 and 2024. Each fund offers four investment lines with varying levels of volatility, summarized into four categories: "Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed", arranged from higher to lower risk-return profiles. The right panel displays the annual share of individuals selecting the "Mainly Stocks" investment line. The blue line represents male participants, the red line female participants, and the gray shaded bars indicate the yearly percentage point difference between male and female enrollment in this category.

portfolios: 25% of men opt for the stocks-focused line compared to 17% of women. The majority of both genders choose the balanced option (46% of men and 47% of women), while women are more inclined to select lower-risk alternatives. 17% of women selected the bond-focused line (compared to 13% of men), and 18% selected the most conservative line (versus 16% of men).

The right panel of Figure 1 shows the share of new members selecting the stocks-focused line over time, separately by gender, as well as their difference. Two patterns stand out. First, the gender gap in risk-taking is remarkably stable, averaging about 7 percentage points. Second, while the overall share of individuals selecting the stocks-focused line remained relatively stable from 2008 to 2017, a marked increase is observable beginning in 2018.[7]

The gender differences documented in Figure 1 persist after controlling for observable characteristics. To quantify the role of individual traits, we estimate an ordered probit model where the dependent variable reflects the chosen investment line's risk profile (ranked from least to most stock-oriented). The administrative data provide detailed

[7]A similar upward shift toward stock-oriented investment lines is documented at the national level in COVIP's annual reports, which describe the evolution of the stock of portfolio allocations across all Italian pension funds.

background information on each member, including age, highest educational attainment,[8] preferred language of communication, fund type (open or closed), place of residence, and year of enrollment. Regressing investment choices on these covariates allows us to isolate the conditional relationship of gender with portfolio risk-taking. In our baseline specification, we do not control for annual wages because this variable is observed for only about half of the sample. However, in Table 15 in Appendix C, we show that including annual wages as an additional control leaves our results unchanged.[9]

Table 2 reports the results. Column (1) presents the baseline specification. Women are significantly less likely to choose stock-oriented investment lines when joining a pension fund. Translating ordered probit coefficients into predicted probabilities, we find that conditional on covariates, women are 6.0 percentage points less likely to choose a stock-based investment line than men (19% vs. 25%). Thus, the gender gap in choosing more stock-oriented investment lines remains large and statistically significant even after conditioning on a rich set of covariates.

The control variables exhibit patterns consistent with theoretical priors. Older individuals—who are closer to retirement—are less likely to select stock-oriented portfolios, which is in line with lifecycle investment theory. Individuals with a university degree are significantly more likely to opt for stock-oriented investment lines. Cultural factors also correlate with investment behavior choices: Italian-speaking individuals are considerably less inclined to select stock-oriented investment lines compared to their German-speaking counterparts.

Column (2) explores heterogeneity in the gender gap by interacting gender with preferred language. While Italian speakers are generally less risk-tolerant, the gender gap is wider

[8]Information on education is missing for approximately 20,000 individuals. In Table 14 in Appendix C, we show that the availability of this information does not depend on gender. In Table 16 in Appendix C, we estimate a specification excluding education as a control both for the current sample and for the complete sample, and the coefficients are remarkably similar, showing that our findings are not affected by selection induced by missing education.

[9]In addition, Table 14 in Appendix C shows that the availability of annual wage information in the administrative data does not depend on gender.

Table 2: Pension Investment Choices

	Investment Line (Ordered Probit)		Monthly Contributions (OLS)	
	(1)	(2)	(3)	(4)
Female	-0.224***	-0.268***	-0.117***	-0.054***
	(0.005)	(0.008)	(0.010)	(0.015)
Language: Italian	-0.131***	-0.168***	-0.063***	-0.001
	(0.009)	(0.011)	(0.016)	(0.019)
Age (Joining)	-0.029***	-0.029***	0.012***	0.012***
	(0.000)	(0.000)	(0.001)	(0.001)
Education: High School	0.181***	0.181***	0.114***	0.114***
	(0.008)	(0.008)	(0.016)	(0.016)
Education: Vocational	0.095***	0.093***	0.065***	0.069***
	(0.009)	(0.009)	(0.017)	(0.017)
Education: University	0.376***	0.375***	0.226***	0.228***
	(0.009)	(0.009)	(0.017)	(0.017)
Open Fund	0.417***	0.416***	-0.540***	-0.536***
	(0.006)	(0.006)	(0.010)	(0.010)
Female × Language: Italian		0.068***		-0.113***
		(0.010)		(0.019)
Observations	197,928	197,928	112,852	112,852
R-squared			0.048	0.048

Notes: The table reports estimation results for the determinants of individuals' pension investment choices between 2008 and 2024. The dependent variable in Models (1) and (2) is the investment line selected at enrollment in one of the pension funds. Investment lines are grouped into four ordered categories—"Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed"—ranked from highest to lowest risk-return profile. Models (1) and (2) are estimated using ordered probit, and coefficients are reported with respect to the latent index. Column (1) presents the baseline specification, while Column (2) interacts the female indicator with the individual's language. The dependent variable in Models (3) and (4) is the chosen monthly contribution rate (expressed as a share of income) at enrollment. Column (3) presents the baseline specification, and Column (4) interacts the female indicator with the individual's language. Models (3) and (4) are estimated using OLS. In all specifications, constant terms, fixed effects (place of residence and year of admission), and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. Table 10 in the Appendix C reports the full set of estimates. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

for German speakers. This becomes evident when examining marginal effects for stock-based investment lines. The predicted probability of choosing a stock-based investment line is 24.2% among German-speaking individuals, compared with 20.6% among Italian-speaking individuals. Among German speakers, women are 7.5 percentage points less likely than men to choose a stock-based investment line, whereas among Italian speakers the corresponding gender gap is 5 percentage points. As a result, the gender gap is 2.5 percentage points larger among German-speaking individuals.

Members face minimal barriers to adjust their initial pension choices. Both the contribu-

tion rate and the selected investment line can be modified at any time, typically online via the fund's website, without requiring in-person assistance, that anyway is available through personal consultations free of charge. Our administrative data allow us to track subsequent adjustments to investment line selections. Unfortunately, information on revisions to contribution rates is not systematically recorded.

Despite the minimal transaction costs involved, we find that initial investment choices are highly persistent. To quantify this persistence, we compute the probability of switching investment lines within a 10-year horizon. Table 3 presents these transition probabilities separately by gender. Across all initial investment types, at least 87% of individuals retain their original investment line after a decade. This striking stability suggests that initial choices have a lasting influence on portfolio allocations.

Table 3: Investment Lines After 10 Years

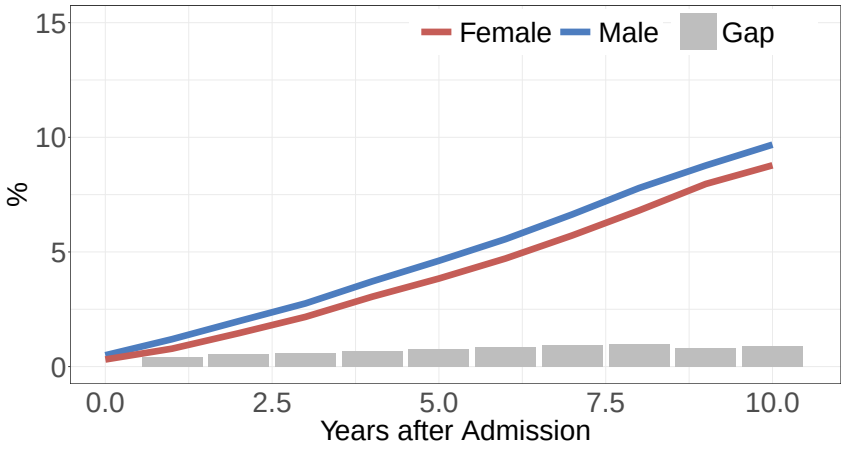
		Year 10							
		Guaranteed		Mainly bonds		Balanced		Mainly stocks	
		Female	Male	Female	Male	Female	Male	Female	Male
Year 0	Guaranteed	0.89	0.87	0.02	0.02	0.05	0.06	0.05	0.05
	Mainly bonds	0.02	0.02	0.91	0.87	0.05	0.07	0.02	0.04
	Balanced	0.04	0.01	0.01	0.01	0.94	0.95	0.01	0.02
	Mainly stocks	0.02	0.02	0.01	0.00	0.01	0.01	0.96	0.97

Notes: The table reports conditional switching probabilities across the four investment lines—"Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed"—after 10 years, conditional on the initial investment line chosen at enrollment, separately for female and male members. Horizontal lines may not sum up to 1 (by gender) due to rounding.

Figure 2 offers a complementary view, plotting the cumulative probability of making at least one change to the investment line as a function of years since enrollment. We again observe limited adjustment behavior: even after 10 years, fewer than 10% of individuals have altered their initial selection at least once. While men are slightly more likely to make changes than women, the overall rate of revision remains low for both groups. Taken together, these findings underscore the importance of initial enrollment decisions.

To summarize, we document a sizable gender gap in investment behavior at entry: women

Figure 2: Changing Investment Line at Least Once



Notes: The figure displays the cumulative probability of switching investment lines at least once as a function of years since enrollment. Switching is defined as changing the initial investment line selected at admission. The red line corresponds to female members, and the blue line to male members. The gray shaded area indicates the difference in switching probabilities between female and male members, expressed in percentage points. The sample is restricted to individuals who have been enrolled in the pension fund for at least 10 years.

consistently opt for lower-risk investment lines. These portfolios tend to deliver lower average returns over the long term. Because these initial allocations are rarely revised, their long-run implications are amplified by their persistence, suggesting that gender differences at entry may translate into significant gaps in accumulated pension wealth.

2.3 Contribution Gap

In addition to examining investment choices, we analyze the contribution rates that new members elect at the time of enrollment. A substantial subset—approximately 123,000 of the nearly 219,000 individuals who joined between 2008 and 2024—opted to contribute a fixed percentage of their income to the pension fund. For the remaining members, the precise contribution rate is not observed in the administrative data. These observations are therefore excluded from the contribution-rate analysis.[10]

[10]In Appendix C, we examine in column (1) of Table 14 whether individuals who choose to specify a fixed contribution rate differ from those who do not and find no significant differences by gender. In Table 17, we show that re-estimating the investment-line specification, i.e., model (1) from Table 2, on the restricted sample for which fixed contribution rates are observed yields qualitatively similar results, showing that the gender gap we documented in the previous section is present also for this subsample.

Among those who selected a fixed contribution rate, the average shares are nearly identical across genders: women contribute an average of 1.89% of their salary, compared to 1.93% for men. Figure 3 illustrates these patterns. The left panel shows the distribution of contribution rates by gender, while the right panel plots contribution rates at the time of enrollment and the corresponding gender gap over time. Both panels indicate that gender differences in contribution behavior are small in magnitude and relatively stable throughout the sample period. This finding stands in contrast to the pronounced gender disparities observed in investment line decisions.

Figure 3: Monthly Contributions at Admission

Notes: The left panel shows the distribution of chosen monthly contributions (as a share of income) for male and female individuals at initial enrollment in one of the four pension funds between 2008 and 2024. Although the underlying variable is continuous, contributions are grouped into four categories: 1% ($x < 1.5\%$), 2% ($1.5\% \leq x < 2.5\%$), 3% ($2.5\% \leq x < 3.5\%$), and 4% or more ($x \geq 4\%$). Figure 18 in Appendix C plots the full distribution. The right panel shows the annual average monthly contribution over time. The blue line represents male contributions, the red line female contributions, and the gray shaded bars indicate the yearly percentage point difference between male and female contributions.

We next examine whether contribution rates vary with individual characteristics. Table 2 reports estimates from linear regressions where the dependent variable is the selected contribution rate in terms of share of income.[11] Column (3) shows that women contribute, on average, 0.12 percentage points less of their income relative to men. While this difference is statistically significant, it is economically quite modest. To illustrate this point, simulations from one of the pension funds' calculators suggest that a 0.1 percentage point

[11] Although the selected contribution rate in terms of share of income is bounded and observed as a fraction of income, our baseline OLS estimates consistently recover conditional mean effects and allow for transparent interpretation in percentage points. However, to assess sensitivity to functional form and bounded support, we additionally estimate fractional probit models following Papke and Wooldridge (1996). The results, presented in Table 20 in Appendix C, are qualitatively unchanged.

increase in the contribution rate for a 25-year-old individual would increase the expected annual pension of approximately €82 at retirement (age 67).[12]

Several other covariates are significantly associated with contribution behavior. Contribution rates increase with age at enrollment and are higher for university graduates. Italian-speaking individuals contribute less than their German-speaking counterparts. Also, contributions to open funds are lower.

Column (4) explores heterogeneity in the gender gap by interacting gender with language and shows that the contribution gap is concentrated among Italian-speaking women, who contribute 0.11 percentage points less than their German-speaking counterparts, while men of the two linguistic groups contribute the same percentage. Indeed, once interactions are included, the main effect of language becomes statistically insignificant.

To summarize the two previous subsections, our analysis reveals that gender gaps in pension investment behavior emerge as early as the point of enrollment. Women are significantly more likely to select lower-risk, lower-return investment lines, while contribution rates are slightly lower for females but economically comparable across genders.

3 Pension Investment Advisors

In the administrative data, we have shown the gender differences in investment decisions when enrolling in a pension fund and their persistence over long periods. We got access to pension advisors who provide consulting services for the four investment funds analyzed in this study, and, as we will see, advisors play a central role in shaping client decisions. When individuals consult these advisors to make their enrollment choices, they do it during a single advisory session lasting on average approximately 30 minutes (Cavotta et al., 2026), making the enrollment consultation a critical juncture for understanding and

[12]Simulation parameters: Birth date: 01/01/1999; employment start: 01/01/2024; annual income: €30,000; contribution rates: 3.5% and 3.6%; firm contribution: 0%; TFR allocation: 100%; investment line: Dynamic. You can access it here: LINK.

potentially addressing gender disparities in pension investment behavior. In this section, we investigate whether the advice provided during these sessions is gender-neutral and to what extent gendered advice contributes to the observed gender gap in pension investment choices.

The four pension funds are affiliated with a public-service company, which we label the agency, in the Italian region Trentino-Alto Adige/Südtirol that finances and provides service management and fund accounting for members of the affiliated pension funds. The institutional objective of this agency is to foster and develop a pension savings system that ensures individuals' financial security. It also maintains a large and distributed network of pension advisors that offer free of charge, neutral, and non-binding information and consultation on retirement, supplementary pensions, and other related matters at its offices in Bozen-Bolzano and Trento, and through information centers distributed across the region. In January 2025, 383 advisors assisted individuals with private pension matters in 135 different information centers.[13]

Regarding advisors, there are three points worth underlining. First, as contracted by the agency, these advisors are mandated to provide free, neutral, and non-binding guidance on supplementary pensions. Unlike some private-sector advisors, they are not subject to commission-based incentives that might influence their recommendations, as they are compensated with a fixed fee per consultation. Second, the agency is the dominant provider in the region: nearly two-thirds of the local workforce are enrolled in one of the four affiliated funds, which makes these advisors highly relevant for the resident population. Third, although advisors are not individually tracked, consultations are monitored at the information center level. For each individual seeking advice, the system records the consultation date, basic demographic information (including age and gender), and—if the individual enrolls after the consultation—a detailed record of their pension choices. These data allow us to link advisory interactions to subsequent enrollment outcomes.

[13]Figure 15 in Appendix C shows the location of the information centers across the region.

Between 2022 and 2024, the advisors affiliated with the agency conducted a total of 20,107 consultations (see Table 4). Of these, 13,191 involved individuals not yet enrolled in a supplementary pension fund, while the remaining 6,916 consultations were with existing pension fund members seeking support with retirement disbursements, early withdrawals, or changes to plan parameters (investment line, monthly contributions). Among the 13,191 non-members, 3,697 individuals enrolled in one of the four affiliated pension funds following the consultation, yielding a take-up rate of 28.0%. This implies that 11% of all new contracts signed with one of the four affiliated pension funds between 2022 and 2024 (34,233 contracts) were preceded by a consultation with one of these advisors. This figure underscores the importance of this group of advisors and their relevance for understanding enrollment decisions in the supplementary pension system. Given that a sizable share of new enrollees interact with an advisor prior to joining a pension fund, this group represents a particularly relevant target for studying how pension advice is provided — and whether it differs systematically by clients' gender.

Table 4 reports the characteristics of individuals seeking pension advice and their subsequent enrollment decisions. Women account for three-fifths of all consultations and exhibit a higher take-up rate than men (31% vs. 23%). Most consultations involve individuals aged 26 to 60, with an average age of 41 among non-members. Those who subsequently enroll tend to be younger, with an average age of 37 years. This age gradient is also reflected in take-up rates: 31.7% of individuals under age 25 enroll following the consultation, compared to just 26.0% among those aged 40 to 60. These patterns underscore advisors' vital role in facilitating pension enrollment among younger individuals.

For individuals who enroll in a pension fund following a consultation, we observe their realized investment choices. Figure 4 reports the distribution of selected investment lines (left panel) and monthly contribution rates (right panel). If we look at all individuals who enrolled in one of the four pension funds (the sample analyzed in Subsection 2.2),

Table 4: Pension Consultations and Enrollment Outcomes in 2022-2024

	Overall	**Non-Members**	**Sign-up rate**
Panel A: Volume			
Number of consultations	20107	13191	28.0%
Panel B: Gender			
Female	61.1%	59.2%	31.2%
Male	38.9%	40.8%	23.4%
Panel C: Age			
$\leq$ 25 years	12.4%	16.3%	31.7%
26-40 years	29.2%	34.5%	33.5%
40-60 years	45.9%	41.4%	26.0%
$>$ 60 years	12.5%	7.8%	7.0%
Mean age	43.8	40.6	37.3

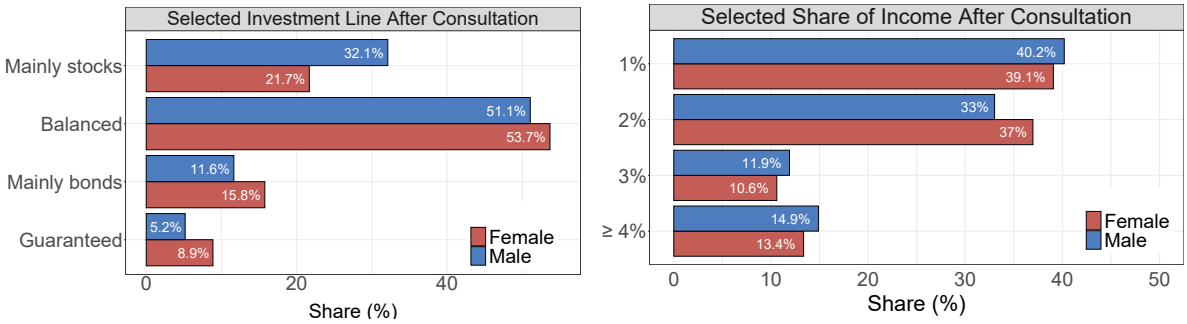
Notes: The table reports summary statistics on consultations conducted by the information centers' advisors during the years 2022-2024 and on the characteristics of individuals attending these sessions. The column "Overall" refers to all consultations. The column "Non-Members" restricts to consultations with individuals who have not yet enrolled in any affiliated pension fund. The column "Sign-up Rate" shows the percentage of non-members who enrolled in an affiliated fund following the consultation.

32.4% chose a stock-based investment line between 2022 and 2024. The figure for these individuals who receive professional advice is lower at 25.4%. The figures are instead very similar in terms of monthly contributions (2.0% vs 2.1%).

Gender differences are slightly more pronounced among individuals who enroll in a pension fund after receiving professional advice. Between 2022 and 2024, 32.1% of men selected a stock-based investment line, compared with only 21.7% of women—a gap of 10.4 percentage points. This disparity is 2 p.p. larger than the gender gap observed among all individuals enrolling over the same period, which amounts to 8.3 percentage points (28.4% for women versus 36.7% for men).

We take advantage of the unique access to affiliated pension advisors to study the enrollment process and evaluate whether gender-biased financial advice contributes to the gender gap in pensions. Our primary empirical strategy is a survey experiment conducted among advisors. To inform the design of this experiment and ensure contextual relevance, we first conducted a series of pre-tests and a pilot survey among a smaller group of pension

Figure 4: Admission choices after consultation with advisors



Notes: The figure reports pension investment choices of female (red bars) and male (blue bars) individuals who enrolled in an affiliated pension fund following a consultation between 2022 and 2024. The left panel shows the distribution of chosen investment lines, summarized into four categories: "Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed." The right panel shows the distribution of monthly contribution rates as a share of income, grouped into four categories: 1% ($x < 1.5$), 2% ($1.5 \leq x < 2.5$), 3% ($2.5 \leq x < 3.5$), and 4% or more ($x \geq 3.5$).

fund advisors. In Spring and Summer 2023, we conducted 15 in-depth, semi-structured interviews with advisors. These interviews—recorded, transcribed, and systematically analyzed in Cavotta et al. (2026)—yielded rich insights into the structure of pension consultations, the communication strategies employed by advisors, the challenges they face, and their perceptions of their professional role. Based on these findings, we developed a pilot survey to capture advisors' experiences and practices in a standardized format, which directly informed the design and content of the main survey experiment.

In November and December 2023, we administered this pilot survey to the heads of the information centers. The objectives of the pilot were threefold: (i) to validate and complement the qualitative insights obtained from the interviews, (ii) to collect structured information on advisors' perceptions of client misconceptions and their role in addressing them, and (iii) to pre-test the baseline vignette that we used in our main survey experiment on gender bias in pension advice. A detailed analysis and discussion of the interviews and the pilot survey results is provided in a companion paper (see Cavotta et al., 2026). In the main survey experiment, we use selected results from the pilot survey as part of an information treatment. Importantly, with the obvious exception of the information treatment, pension advisors were not informed at any point about the gender aspect of the study.

4 Survey Experiment

To identify whether pension advisors provide different recommendations to otherwise identical male and female clients, we have conducted a vignette-based experiment that randomly varies client gender and embeds an information treatment designed to test whether making potential bias salient changes advice. Figure 5 provides an overview of the survey structure. The questionnaire used neutral language and was provided in German and Italian, given that consultants are either German- or Italian-speaking. We provide an English translation of the original questionnaire in Appendix F.[14] The first section collected demographic information and details about the advisors' professional experience at the information centers. Advisors reported how many years they had worked in the role as pension advisors and how much time they typically spend with prospective clients during enrollment meetings. In the second section, each participant was randomly assigned a hypothetical client, either male or female.

After being assigned to one branch, we confronted participants with the following vignette, i.e., with the following hypothetical scenario.

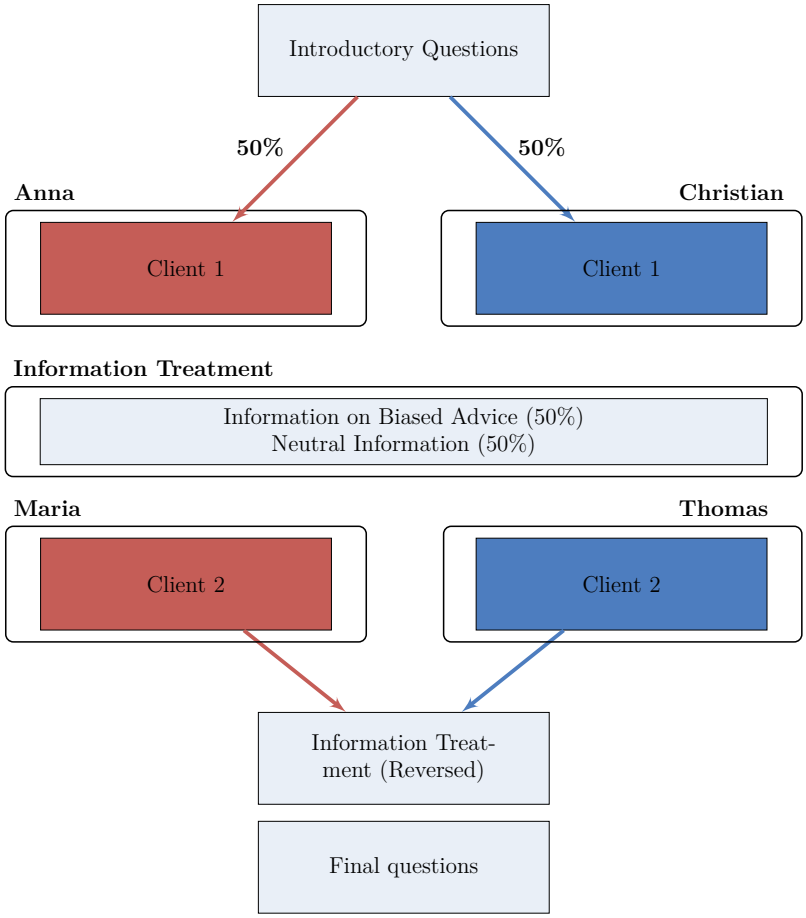
> **Please imagine the following scenario:**
>
> Assume that Anna/Christian, a 25-year-old first-time employee with a permanent employment contract, approaches you, expressing interest in supplementary pension provision. Her/his current net income is €1700.

Thus, except for the client's name and implied gender, the vignette was identical across conditions. Specifically, the age of the client corresponds approximately to the modal age of pension fund entry in the region[15] and the stated net monthly income corresponds

[14] Before dispatching the emails, we subjected the survey to a thorough final review by senior advisors who did not participate in the survey experiment, in order to ensure clarity and comprehensibility.

[15] See Appendix B for additional details.

Figure 5: Survey Overview



Notes: The figure summarizes the sequence of the survey conducted among advisors in February 2025. The survey began with questions about the professional role and some basic demographics, after which advisors were randomly assigned with equal probability to a hypothetical client, either Anna or Christian. Advisors then provided their advice and beliefs about the client. Next, participants were randomly assigned to one of two information treatments: one highlighting gender bias in pension advice and its potential implications, and the other presenting gender neutral information. Advisors were subsequently introduced to a second hypothetical client of the same gender as the first, either Maria or Thomas, and again provided advice. Finally, the other information treatment was presented to ensure that all participants were exposed to both, and the survey concluded with some final questions.

approximately to the average income per taxpayer.[16] On the same survey page, advisors were presented with the following four questions related to this hypothetical client:

1. In your experience, what percentage of her/his income should Anna/Christian contribute to a supplementary pension fund?

[16] According to the regional statistical office, the median gross ("lordo") income in the private sector in 2023, the most recent year available, was €29,175 (see ASTAT – Landesinstitut für Statistik (2025)).

□ 1%

□ 2%

□ 3%

□ Other percentage

If other percentage, please specify: ____ %

2. In your experience, what percentage of individuals with a similar profile to Anna/Christian would be able to calculate the monthly Euro amount they will transfer?

____ %

3. In your experience, which investment line do you consider most suitable for Anna/Christian?

□ Mostly stock-based investment line (e.g., Dynamic Investment Line)

□ Balanced investment line (e.g., Balanced Investment Line)

□ Mostly bond-based investment line (e.g., Cautious Investment Line)

□ Secure investment line (e.g., Guaranteed Investment Line)

4. In your experience, what percentage of individuals with a similar profile to Anna/Christian are aware of the differences between these investment strategies?

____ %

Questions one and three were designed to elicit the recommended contribution levels and investment strategies, allowing us to assess potential gender differences in the financial advice provided. Questions two and four focused on advisors' perceptions of the client's prior knowledge, capturing potential differences in perceived numeracy and financial literacy across genders. These items are combined to construct a measure of perceived financial literacy, defined as the average response across the two questions, which allows us to explore whether differences in perceived financial literacy constitute a channel through which gender disparities in financial advice may arise. Beyond perceptions of financial literacy, advisors' beliefs about clients' risk preferences may also shape their recommendations. To capture this channel, the survey included an additional question

asking advisors to assess their clients' willingness to take risks. Risk attitudes are elicited relying on a standardized measure developed by Falk et al. (2023), which has been widely validated and shown to predict economically relevant risk-taking behavior.[17]

5. In your experience, how willing—or unwilling—is a person with a profile similar to Anna's/ Christian's to take risks?

   Please use a scale from 0 to 10, where 0 means "completely unwilling to take risks" and 10 means "fully willing to take risks," to assess the risk tolerance of a person with a profile similar to Anna's/Christian's.

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

To assess the perceived impact of their advice, we included follow-up questions asking advisors about their beliefs regarding clients' intended choices before the consultation (Questions 6 and 7 below) and their expectations about clients' actual choices following the consultation (Questions 8 and 9 below). In both cases, the possible answers were identical to the ones presented in questions 1 and 3. These questions allow us to capture advisors' perceived influence on clients' investment decisions. The parts in italics are highlighted here for clarity, but were not emphasized in the original text.

Let us now consider Anna's/Christian's intentions before the supplementary pension consultation:

6. In your experience, what percentage of her/his salary did Anna/Christian *intend* to allocate to the supplementary pension plan *before the consultation*?

7. In your experience, which investment line did Anna/Christian *intend to choose before the consultation and receiving all the information needed to make an informed decision about the supplementary pension*?

[17] Please note that this question was asked after Questions 6 to 9 below. See Appendix F for the exact questionnaire.

Now, think about the choices Anna/Christian might make after receiving the supplementary pension consultation.

8. In your experience, what percentage of her/his salary *will* Anna/Christian *choose* to contribute to the supplementary pension plan *after the consultation*?

9. In your experience, which investment line *will* Anna/Christian *choose after the consultation and receiving all the information needed to make an informed decision about the supplementary pension*?

In the second stage of the survey experiment, advisors were randomly assigned to receive one of two informational prompts. Each prompt consisted of a brief summary of findings from our November–December 2023 pilot survey. One group (Treatment A) was shown evidence of gender differences in advisors' suggested investment lines and a description of the potential long-term implications for retirement wealth. The other group (Treatment B) was presented with results on common client misconceptions about pensions, their sources, and the role of financial advice in correcting them. The full wording of both treatments is reproduced below, and their effects are analyzed in Section 5.6. The headings were not part of the text in the survey.

Information Treatment A (Gender Bias in Recommendations, 50%):

A survey conducted in December 2023 examined whether the recommendations made by advisors differ depending on the gender of the person being advised.

The results showed that:

- Advisors recommend similar monthly contribution rates to both men and women.
- Women are more frequently recommended a bond-based investment line, whereas men are more often advised to choose a stock-based investment line.

Differences in investment line selection can significantly affect accumulated retirement wealth and contribute to gender disparities in pension outcomes.

Information Treatment B (Client Misconceptions, 50%):

A survey conducted among advisors in December 2023 explored the prevalence of client misconceptions about the supplementary pension system.

The results showed that:

- 43% of clients possess incomplete or incorrect knowledge about the supplementary pension system. Informal exchanges (word of mouth) contribute to the spread of these misconceptions.
- Many clients appreciate receiving correct information from advisors and incorporate it into their decisions. When the information contradicts prior beliefs, it often elicits positive reactions such as gratitude and relief.

To evaluate the effectiveness of the intervention, advisors were subsequently presented with a follow-up vignette involving a new hypothetical client. Advisors who had previously interacted with Christian (Anna) were now introduced to Thomas (Maria). Given that the gender of the hypothetical client remained the same, it was not possible to eliminate the gender gap by simply repeating the same choices as in the first vignette. In particular, advisors are asked to imagine the following scenario:

Imagine that Maria/Thomas, a 30-year-old with a permanent employment contract and a net monthly salary of €2200, comes to you expressing interest in a supplementary pension plan.

The new profiles are still employees with a permanent contract with an increase in age (from 25 to 30) and net monthly income (from €1700 to €2200). These adjustments are consistent with typical early-career progression and serve to maintain realism in the experimental design by providing different cases. Advisors were then asked two follow-up questions identical to questions 1 and 3 above, about contribution and investment line. These responses allow us to assess whether the informational prompts changed gender disparities in financial advice.

In the final section of the survey, we reversed the informational prompts: advisors who initially received Treatment A were subsequently shown Treatment B, and vice versa. This ensured that all participants were ultimately exposed to both sets of information.

On February 4th, 2025, we sent out e-mails to the consultants working at the information centers, inviting them to participate in a survey. The e-mail invitation was not explicit about the objective of the survey experiment. Rather, it motivated the consultants to support an empirical research project on the state of financial literacy within the region. The survey ran from February 4th, 2025, to February 28th, 2025. Of the 383 consultants contacted, 196 participated in the survey, which corresponds to a response rate of 51%. The median response time for the questionnaire was 7 minutes.

5 Results: Biased Advice

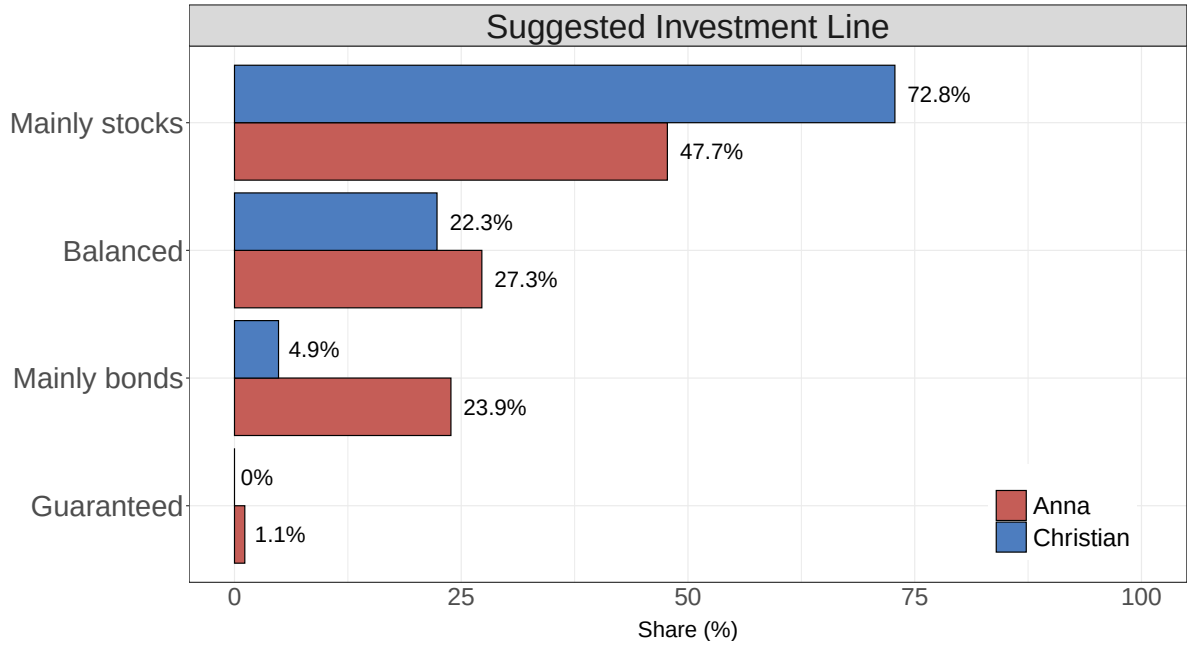
5.1 Recommended Investment Line

We focus first on advisors' recommendations regarding the appropriate investment strategy for a 25-year-old client. Overall, 60.9% of advisors recommended a portfolio primarily composed of stocks, 25.0% suggested a balanced strategy, and 13.5% opted for a bond-based portfolio. Only one (0.5%) recommended a guaranteed-return investment strategy.

Most but not all recommendations are in line with what financial theory prescribes. For young savers with long investment horizons (more than 40 years in our case), stock-based portfolios are typically optimal, even for relatively risk-averse individuals (Blake, Wright and Zhang, 2014). However, Figure 6 illustrates a pronounced gender difference in recommendations. When the hypothetical client was male, 73% of advisors recommended a stock-heavy portfolio, 22% suggested a balanced approach, and only a small minority of 5% a bond-based portfolio. In contrast, when the client was female, only 48% recommended mainly stocks, 27% suggested a balanced strategy, 24% advised a bond-based

portfolio and 1% suggested the investment line with the lowest volatility.

Figure 6: Suggested Investment Line



Notes: The figure shows the distribution of investment lines that advisors deemed optimal for their first hypothetical client, separately for Christian (blue bars) and Anna (red bars). Advisors could choose among four options—"Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed"—arranged from higher to lower risk–return profiles.

The gender differences shown in Figure 6 are unconditional. We next examine whether the gender gap in advice persists when we control for advisor characteristics. Table 5 presents an ordered probit model where we rank the investment lines from least to most stock-oriented.[18] Consistent with the unconditional evidence, female clients are significantly less likely to receive stock-oriented recommendations. On average, female clients are 22 percentage points less likely to receive a recommendation for a stock-based portfolio compared to otherwise identical male clients (see column (1)).[19]

[18] We lose four observations due to item non-response: one for the question on gender, one for location, one for the average length of meetings, and one for the consultant's years of experience. Dropping these variables from the regression leaves the coefficient on client gender virtually unchanged.

[19] Reported marginal effects are derived from the ordered probit model as changes in predicted outcome probabilities and represent average marginal effects. They are computed by evaluating the implied probability changes for each observation and averaging over the sample.

Table 5: Determinants of Pension Investment Recommendations

	Investment Line (Ordered Probit)				Monthly Contributions (OLS)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Client Gender: Female	-0.676***	-1.126***	-0.646***	-1.041***	0.072	0.633	0.072	0.646
	(0.187)	(0.290)	(0.184)	(0.288)	(0.256)	(0.419)	(0.264)	(0.414)
Consultant Gender: Male	0.748***	0.722***	0.771***	0.749***	0.233	0.284	0.263	0.311
	(0.215)	(0.214)	(0.207)	(0.205)	(0.319)	(0.328)	(0.319)	(0.326)
Consultant Birthyear	-0.012	-0.013	-0.013	-0.014	0.034**	0.033**	0.033**	0.032**
	(0.012)	(0.012)	(0.011)	(0.011)	(0.015)	(0.015)	(0.015)	(0.015)
Consultant Beliefs: Risk seeking	0.081*	0.091**			0.043	0.036		
	(0.044)	(0.045)			(0.071)	(0.072)		
Consultant Beliefs: Financial Literacy (in %)	-0.003	-0.002			-0.003	-0.003		
	(0.005)	(0.005)			(0.006)	(0.006)		
Consultant Language: Italian	0.510**	0.128	0.501**	0.162	-0.148	0.268	-0.148	0.279
	(0.251)	(0.302)	(0.247)	(0.293)	(0.379)	(0.490)	(0.380)	(0.484)
Consultant Years of Experience	0.004	0.004	0.002	0.003	0.028*	0.027*	0.027*	0.026
	(0.012)	(0.012)	(0.011)	(0.011)	(0.016)	(0.016)	(0.015)	(0.016)
Average Length of Meetings (in mins)	0.012	0.011	0.013	0.012	0.001	0.002	0.002	0.003
	(0.008)	(0.008)	(0.008)	(0.008)	(0.014)	(0.014)	(0.014)	(0.014)
Client: Female × Consultant Language: Italian		0.701*		0.625*		-0.843		-0.864
		(0.384)		(0.379)		(0.575)		(0.553)
Observations	188	188	188	188	184	184	184	184
R-squared					0.054	0.066	0.051	0.064

Notes: The table reports estimation results for the determinants of pension investment recommendations by advisors in the survey experiment. The dependent variable in Models (1) to (4) is the suggested investment line, summarized into four categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—ordered from highest to lowest risk–return profile. Column (1) presents the baseline specification, while Column (2) interacts the client's gender indicator with the consultant's language. Columns (3) and (4) exclude advisors' beliefs. Models (1) to (4) are estimated using ordered probit, and coefficients are reported with respect to the latent index. The dependent variable in Models (5) to (8) is the recommended monthly contributions (as a share of income in percent) by advisors in the survey experiment. Column (5) presents the baseline specification, and Column (6) interacts the client's gender indicator with the consultant's language. Columns (7) and (8) exclude advisors' beliefs. Models (5) and (8) are estimated using OLS. In all specifications, constant terms, fixed effects (location of consultant), and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. Table 11 in the Appendix C reports the full set of estimates. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

We next examine heterogeneity by advisor language. Italian-speaking advisors are 19 percentage points more likely to recommend stock-heavy portfolios than their German-speaking counterparts. As we see in column (2), where we interact client gender with advisor language, this is largely driven by gender-specific differences across language groups. Average marginal effects indicate that, among German-speaking advisors, women are 36 percentage points less likely than men to receive a stock-based recommendation, whereas the gap among Italian-speaking advisors is only 12 percentage points, with a p-value equal to 0.11. This mirrors the finding in the administrative data analyzed in section 2 that the gender gap is wider for German speakers.

Advisors' gender also shapes recommendations: male advisors are 22 percentage points more likely than female advisors to suggest stock-based strategies. The interaction of advisor and client gender (not shown) is small (0.002) and statistically insignificant (p-value: 0.997). We also find no systematic association between investment advice and advisor age, experience, or average meeting duration.

Advisors' beliefs about clients' risk-seeking behavior also correlate with their investment recommendations. An increase in the perceived risk-seeking score from 0 to 10 is associated with a 2.5 percentage point higher likelihood of recommending a stock-based investment line. This pattern is consistent with advisors tailoring portfolio risk to perceived client preferences, assigning greater stock exposure to clients viewed as more willing to tolerate financial risk. To examine potential non-linearities in this relationship, we additionally model advisors' risk-seeking beliefs using quartile indicators (see Table 12 in Appendix C). The results suggest that the effect of perceived risk seeking is attenuated in the highest quartile of the belief distribution. By contrast, we do not find a statistically significant effect of advisors' beliefs about clients' financial literacy on investment recommendations.

Because advisors' beliefs may be endogenous to their pension investment recommendations, Columns (3) and (4) of Table 5 report specifications that exclude all advisor-belief

controls. The estimated gender gap remains very similar. In these specifications, female clients are, on average, 20 percentage points less likely (compared to 22 percentage points in the baseline specification) than otherwise identical male clients to receive a recommendation for a stock-based portfolio.[20] Throughout the remainder of the paper, we include advisors' belief measures in the baseline specifications. All results are robust to their exclusion.

These gender differences in recommended investment lines can have substantial implications for long-run pension wealth accumulation. Because average returns differ substantially across investment lines, even small shifts in recommendations can translate into meaningful long-run wealth differences. This can be illustrated by a simple back-of-the-envelope calculation. In Italy, across all pension funds, average annual returns between 2012 and 2022 were 4.7% for equity-based investment lines, 2.7% for balanced lines, 2.4% for bond-based lines, and 0.7% for guaranteed lines (see Table 4.15 in COVIP, 2023). Assuming constant returns over a 40-year horizon, accumulated retirement wealth under a stock-based investment line is approximately 60% higher than under a balanced line, 74% higher than under a bond-based line, and 144% higher than under a guaranteed investment line. Applying these return differentials to the recommendation distributions in Figure 6, and assuming that clients follow their advisors' recommendations, women advised by consultants in our experiment would, on average, retire with 13.4% lower capital than their male counterparts, despite being otherwise identical.

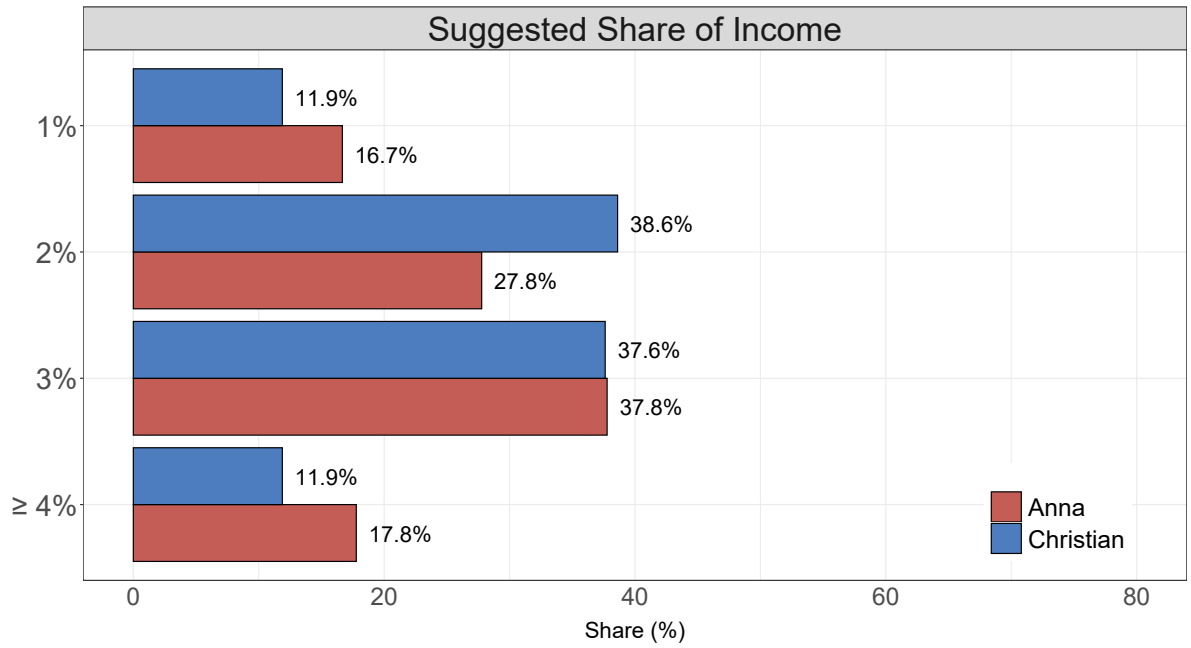
Overall, the evidence points to the presence of gender-biased financial advice in the form of systematically less growth-oriented investment recommendations for women. Importantly, the magnitude of this bias varies systematically across languages, mirroring what we observed in administrative data.

[20] Due to item non-response in the belief-related questions, four observations are lost in the baseline specifications. In Table 5 in Appendix C, we re-estimate Columns (3) and (4) as well as Columns (7) and (8) including these four observations. The results are unchanged.

5.2 Recommended Income Share

Figure 7 reports advisors' suggested monthly pension contributions as a share of income. On average, advisors recommend allocating 2.9% of monthly income to pension savings, and the unconditional distributions are very similar across client gender: 3.0% for Anna and 2.8% for Christian.

Figure 7: Suggested Income Share



Notes: The figure shows the distribution of suggested monthly contributions (as a share of income) for the first hypothetical client, separately for Christian (blue bars) and Anna (red bars). The suggested monthly contributions are grouped into four categories: 1% ($x < 1.5$), 2% ($1.5 \leq x < 2.5$), 3% ($2.5 \leq x < 3.5$), and 4% or more ($x \geq 4$).

To examine whether these patterns persist after controlling for observable advisor characteristics, we present in Table 5, columns (5) and (6), regressions of the recommended savings rate on client gender and the same control variables discussed earlier.[21] Conditional on advisor characteristics, we find no statistically significant difference in the recommended savings rate between male and female clients, and the size of the coefficient is also quite small, corresponding to 0.07 percentage points. Among advisor character-

[21] We lose an additional four observations due to item non-response in the recommended monthly contribution. Restricting the estimation of investment-line recommendations (Models (1) and (2) of Table 5) to the same sample used for the analysis of monthly contributions (Models (5) and (6) of Table 5) leaves the results unchanged. See Table 18 in Appendix C.

istics that matter for saving recommendations, we find that younger advisors and those with more years of experience recommend significantly higher savings rates. Specifically, ten additional years of advisor age is associated with a 0.3 percentage point decrease in the recommended savings rate, and ten additional years of experience corresponds to a similar increase of roughly 0.3 percentage points.[22]

5.3 Perceived Impact of Advice

How important is pension advice for clients' final investment decisions? To address this, following the questions on recommended investment lines and suggested savings rates, we asked participating advisors follow-up questions to gauge their perceived influence on client choices. Specifically, advisors reported which investment line (or share of income) they believed the hypothetical client would have chosen *prior* to the consultation, and which option the client would *actually* choose *after* receiving advice.[23] Figures 8 and 9 display the distributions of these perceived pre- and post-consultation choices. The left panels depict the options advisors believe clients would have chosen before the consultation, the middle panels show the advisors' own recommendations already analyzed in section 5.1, i.e., the investment line/share of income they deem optimal, and the right panels show the options advisors expect clients will actually select after the consultation.

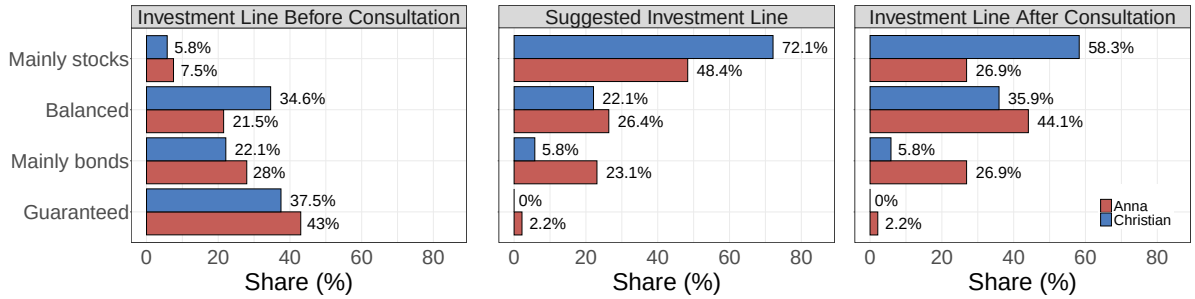
We begin by examining investment line recommendations, summarized in Figure 8. Two key patterns emerge. First, advisors believe that, in the absence of guidance, clients would have opted for significantly more conservative (i.e., less stock-oriented) portfolios than what the advisors themselves deem appropriate. Indeed, for both male and female customers, the modal choice is for the least-risky option, "Guaranteed". "Mainly stocks" is the least preferred option before consultations, for both female and - even more strongly - male customers. Despite an apparent stronger preference for the "Balanced"

[22] As an additional robustness check, we assess the sensitivity of the OLS estimates to functional form and bounded support by re-estimating the specifications using fractional probit models. The results, reported in Columns (5) and (6) of Table 18 in Appendix C, are qualitatively unchanged.

[23] See questions 12-15 of the questionnaire in Appendix G or what reported in Section 4.

option among male customers, advisors perceive no gender differences in clients' initial preferences, as the gap in pre-consultation investment choices between male and female clients is not statistically significant.[24] Second, advisors expect a strong, but not full, update from their clients after the consultation, i.e., they expect that clients change their initial choice by following to a great extent the advisor's recommendation. Specifically, comparing the panels labeled "Investment Line Before Consultation" and "Investment Line After Consultation", advisors expect clients to shift toward more stock-oriented portfolios following the advice. These post-consultation expectations mirror the gender gap observed in the advisors' own recommendations: female clients are expected to end up with less risky portfolios than male clients.

Figure 8: Investment lines before and after consultation

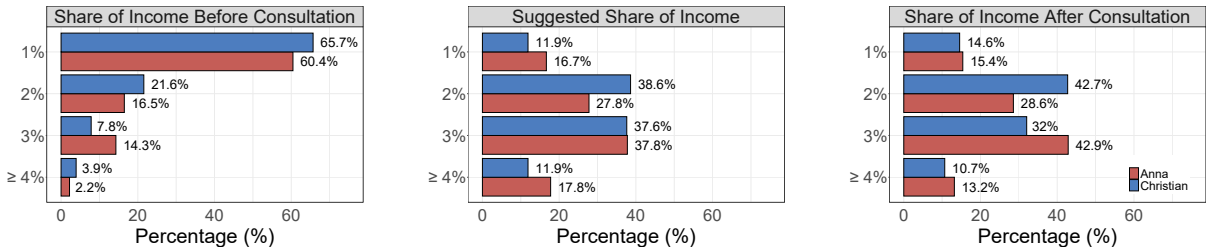


Notes: The figure shows the distribution of investment lines from the perspective of advisors. The left graph depicts the investment lines advisors believe their clients (Anna or Christian) would choose before receiving advice, the middle graph shows the investment lines advisors consider optimal for their hypothetical client, and the right graph reports the investment lines advisors expect their clients will actually choose after the consultation. All distributions are shown separately for Christian (blue bars) and Anna (red bars).

In summary, advisors believe that their suggestions matter, in that they manage to convince initially very cautious clients to move towards more stock-oriented portfolios. While advisors do not anticipate strong gender differences in clients' initial investment preferences, they expect female clients to select more conservative portfolios than male clients after receiving advice—consistent with the gender gap in their own portfolio recommendations. It is of interest to look, in Figure 10, at the perceived transition probabilities between pre- and post-consultation investment line choices. The top-left panel displays the average transition matrix across all advisors. The x-axis represents the investment

[24]See Table 19 column (1) in Appendix C.

Figure 9: Share of income before and after consultation



Notes: The figure shows the distribution of monthly contributions (as a share of income) from the perspective of advisors. The left panel depicts the contributions advisors believe their clients (Anna or Christian) would choose before receiving advice, the middle panel shows the contributions advisors consider optimal for their hypothetical client, and the right panel reports the contributions advisors expect their clients will actually choose after the consultation. All distributions are presented separately for Christian (blue bars) and Anna (red bars).

line that clients are believed to have selected prior to the consultation, while the y-axis indicates the line clients are expected to choose after the consultation. For instance, clients who are believed to prefer a guaranteed line before the consultation are expected to stick with that choice in 3% of cases, switch to a bond-based line in 12%, choose a balanced line in 51%, and opt for a stock-based line in 35% of cases.

The remaining three panels disaggregate the transitions by the investment line recommended by the advisor. The top-right panel presents transition probabilities for advisors who recommended guaranteed or bond-based lines (15% of all advisors), the bottom-left for those recommending balanced lines (25%), and the bottom-right for advisors recommending stock-oriented lines (60%). These subgroup-specific matrices reveal that advisors' own preferences strongly influence their expectations of client decisions after the consultation. Across all subgroups, a clear pattern emerges: the majority of advisors expect that most clients will ultimately choose the investment line that was recommended to them. This suggests that advisors believe their recommendations are not only considered but frequently followed. This pattern holds separately by client gender. Figures 16 and 17 in Appendix C replicate Figure 10 separately for male (Christian) and female (Anna) clients, showing similar transition probabilities across genders.

Figure 10: Advisors' Expected Investment-Line Switching in Response to Consultation

Notes: The figure reports advisors' expected switching probabilities of investment lines, comparing their beliefs about what clients would have chosen prior to the consultation (x-axis) with their expectations of what clients will choose after the consultation (y-axis). The upper left panel presents results for all advisors. The upper right panel restricts the sample to advisors who consider "Mainly Bonds" or "Guaranteed" optimal for Anna or Christian. The lower left panel shows results for advisors who deem "Balanced" optimal, and the lower right panel for those who consider "Mainly Stocks" optimal.

Regarding recommended savings rates, as shown in a comparison between the left and central panels of Figure 9, advisors believe that, absent any guidance, clients would have opted to contribute a lower share of their income than what the advisors themselves consider appropriate. As with investment choices, advisors perceive no statistically significant gender differences in clients' pre-consultation savings preferences.[25] From the right panel of the figure, it is evident that advisors expect substantial updating after the consultation, with an increase in the monthly contribution rates, with no gender differences post-consultation.[26]

Taken together, these patterns suggest that advisors view their role as influential in shaping both the investment choices and the intensity of saving. This is consistent with the results of Linciano et al. (2019). In their representative sample of Italian retail financial decision-makers, about two-thirds of respondents report following the advice they receive from their financial advisor. In addition, we see that the gender disparities in advisor recommendations are expected to carry over into the final decisions of clients.

5.4 Correlation between Advice and Investment Choice

To further assess whether advisors' recommendations translate into realized pension allocations, we compare gender gaps in recommended investment lines with gender gaps in actual enrollment choices at the district level. If advice contributes to the observed allocation gap, districts where advisors more frequently recommend stock-oriented lines to men than to women should also display larger male–female differences in stock-oriented enrollment.

To this end, we compute district-level gender bias by calculating for each of the regional districts in which we have enough observations the difference between the share of advisors recommending a stock-based investment line to "Christian" and the share recommending

[25] See Table 19 column (3) in Appendix C.
[26] See Table 19 column (4) in Appendix C.

the same line to "Anna".[27] We also compute a corresponding measure for contribution rates, defined as the difference between the average monthly share of income recommended to male versus female clients.

We then construct analogous measures of gender bias based on actual client behavior from the administrative pension fund data. For each district, we calculate the difference between the share of male and female clients selecting a stock-based investment line at enrollment. Similarly, for contribution rates, we compute the difference between the average share of income allocated to pension savings by male and female clients. These comparisons allow us to assess whether geographic variation in advisor bias aligns with gender disparities in observed financial choices.

Figure 11 relates district-level gender gaps in advisors' recommendations (x-axis) to district-level gender gaps in realized enrollment choices (y-axis) for 16 districts. The left panel shows a strong positive association for investment lines: districts with larger gender gaps in stocks recommendations also exhibit larger male–female gaps in equity-oriented allocations at enrollment (Pearson correlation coefficient of 0.75.). The right panel shows a positive but much weaker relationship for contribution rates (Pearson correlation coefficient of 0.25).

This positive correlation establishes a link between pension advisor recommendations and actual pension investment choices. This link is consistent with the hypothesis that advisor behavior contributes to the gender disparities observed in clients' investment decisions. While this evidence is correlational, Section 5.7 presents further evidence supporting the view that advisors influence client choices, but first we explore the possible mechanisms behind the gender bias.

[27] The analysis is conducted for Alto Adige/Südtirol using the administrative boundaries of the eight *Comunità comprensoriale/Bezirksgemeinschaften*, seven of which are represented in our advisor sample, and for Trentino using the sixteen *Comunità di valle*, nine of which include observed pension advisors.

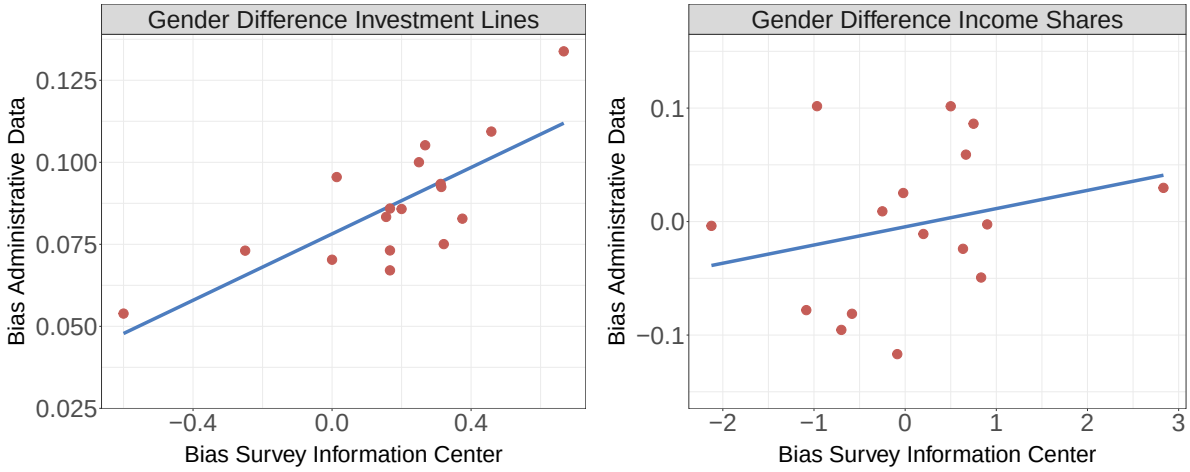


Figure 11: Correlation District-Level Gender Bias

Notes: This figure displays the spatial correlation between advisor-level gender bias in recommendations (x-axis) and gender differences in observed client behavior (y-axis), shown separately for investment lines (left panel) and monthly contribution rates (right panel). Each point represents the gender bias of one district. For investment lines, advisor-level gender bias is measured as the difference between the share of advisors recommending stock-oriented portfolios to men versus women, while the gender gap in the administrative data is defined as the corresponding difference in the share of men and women actually choosing stock-oriented portfolios. For contribution rates, advisor-level bias is defined as the gender difference in the average recommended contribution rate, and the gender gap in the administrative data as the difference between men and women in the average share of monthly income allocated to pension savings.

5.5 Causes of Biased Advice

In this subsection, we will discuss the possible causes of the observed gender bias. While Table 5 indicates that part of the observed gender bias is associated with language—suggesting a role for cultural factors—other mechanisms may also contribute to gender-differentiated investment advice. We examine the role that the (perceived) differences in clients' characteristics, such as risk aversion and financial literacy, or investment horizons play. At the end, we discuss the role of other structural mechanisms.

Financial literacy. The optimal investment strategy involves an initial high weight in stock-based investments and a gradual switch into bond-based investments as the retirement date approaches (Blake, Wright and Zhang, 2014). This strategy, however, assumes that individuals understand optimal investment behavior and will indeed adjust their portfolios to less volatile investments as they near retirement. In the absence of such understanding, the initial choice of a less volatile investment line becomes more

attractive, as it shields individuals from unrecoverable losses close to retirement. Hence, if advisors attribute a lower understanding of optimal investment behavior to women than to men, the observed bias in advice could be rationalized. To address this point and, more generally, considering the weight that the literature reviewed in the introduction gives to gender differences in financial literacy as a possible explanation for different financial outcomes, we included two questions in the questionnaire to measure advisors' perceived level of clients' financial literacy.[28] These questions were designed to capture two components of financial literacy directly related to the choices clients are asked to make. Specifically, we asked advisors to estimate the percentage of individuals with a similar profile to either Anna or Christian, depending on their branch, that (i) would be able to calculate the monthly Euro amount they would transfer to the fund based on their chosen percentage of income, and (ii) understand the differences between the possible investment strategies that they can choose from. We compute an overall measure of perceived financial literacy as the average of these two assessments, capturing advisors' beliefs about the share of clients comparable to the hypothetical profile who are financially literate. On average, advisors believe that 40.6% of their clients are financially literate according to this measure. Importantly, these perceptions do not differ substantially by client gender: advisors assess 42.6% of female clients and 38.8% of male clients as financially literate, a difference that is not statistically significant.[29] The absence of gender differences in perceived financial literacy also holds when controlling for observable characteristics, as shown in Columns (3)–(4) of Table 6.[30]

Risk attitudes. Gender differences in investment recommendations may plausibly stem from advisors' perceptions of gender differences in risk preferences. Pension advisors might hold stereotypical beliefs—consciously or unconsciously—that women are

[28] See questions 9 and 11 of the questionnaire in Appendix F.

[29] Differences in mean perceived financial literacy between Anna and Christian are tested using a two-sample Welch t-test. The p-value for the null hypothesis of equal means is 0.1848.

[30] Table 13 in Appendix C further shows that no gender differences emerge for the two subcomponents of financial literacy—numeracy and understanding of diversification—when considered separately.

more risk-averse, and may adjust their recommendations accordingly. To assess the role of such beliefs, we asked advisors to rate the general willingness to take risks of clients with profiles similar to those used in the vignette experiment. Specifically, they were asked: *"In your experience, how willing—or unwilling—is a person with a profile similar to Anna's/Christian's to take risks?"* Responses were recorded on a scale from 0 ("no willingness to take risks") to 10 ("very high willingness").

On average, advisors rated Anna's risk tolerance at 5.3 and Christian's at 5.1, suggesting negligible perceived gender differences and indistinguishable from a statistical point of view.[31] These differences remain statistically insignificant after controlling for observable advisor characteristics - see columns (1) and (2) of Table 6. Overall, differential beliefs about risk attitudes are unlikely to explain the gender gap in recommendations.

To benchmark advisors' beliefs about financial literacy and risk aversion, we conducted a survey of 1,000 residents in the region.[32] Respondents answered, among others, two standard financial literacy questions—on compound interest and risk diversification (two of the "Big Three" developed by Lusardi and Mitchell, 2011)—and a risk aversion question (from Falk et al., 2023). As a first validation step, we compute average financial literacy scores for the full sample following the methodology in D'Alessio et al. (2020). The resulting scores of 42% closely match the Italian national average of 41% reported by D'Alessio et al. (2020), indicating that residents of the region are broadly representative of the national population in terms of financial literacy. The literacy questions are also closely aligned with those posed to pension advisors in the survey experiment, facilitating a direct comparison between advisors' beliefs and actual population characteristics. Consistent with advisors' assessments, the household survey reveals only modest gender differences in financial literacy: 40% of women and 42% of men answer the questions correctly. To further align the comparison of the household survey with the hypothet-

[31] Differences in mean risk measures of Anna's and Christian's are tested using a two-sample t-test with unequal variances (Welch test). The p-value for the null hypothesis of equal means is 0.57.

[32] In February 2024, we commissioned a survey company to interview 1,000 individuals aged 25 to 60. The sample was stratified by gender, age, language, and province of residence. See Appendix D for further details.

ical clients described in the vignette, we focus on a subsample of younger individuals below age 40 who entered the labor market in their twenties. Within this group, average financial literacy remains very similar (42%), and we again find no systematic gender differences: 43% of men and 41% of women correctly answer the financial literacy questions. Overall, advisors' perceptions of clients' financial literacy appear broadly consistent with observed literacy levels in the relevant population.

In terms of risk preferences, female and male residents aged 25-40 report similar risk attitudes (6.2 vs. 6.0 on a 0–10 Likert scale).[33] Pension advisors, in turn, perceive their clients as less risk-seeking overall, assigning average scores of 5.3 for women and 5.1 for men. Despite differences in absolute levels, both residents' self-assessments and advisors' perceptions indicate that risk preferences are broadly similar across genders.

Beyond the empirical findings, differences in (perceived) risk preferences would, from a theoretical standpoint, need to be very large to justify the substantial disparities observed in investment recommendations. Standard portfolio theory implies that for long-term investment horizons—such as that of a 25-year-old saving for retirement at age 67—a portfolio with a high share of stocks is optimal even for individuals with substantial risk aversion.[34] Indeed, life-cycle models show that stock-heavy strategies remain optimal until approximately age 50, assuming reasonable values for risk preferences (Blake, Wright and Zhang, 2014). Therefore, even if advisors would perceive women as more risk-averse, such perceptions should have limited influence on the advice they offer to young clients making long-term pension decisions.

[33]For the whole population aged 25-60, we observe that men report on average a higher risk seeking attitude compared to women, consistent with findings reported in Falk et al. (2018).

[34]To assess the relative attractiveness of stock (S&P500) versus bond (3-month T-Bills) investments for long-term retirement planning, we computed the Compound Annual Growth Rate (CAGR) across 6289 distinct 40-year periods using historical data (1960 onward), based on daily effective nominal returns. Findings reveal that the S&P500 consistently outperformed T-Bills in every period. The S&P500 had an average CAGR of 7.7% (std dev 1.0%), substantially higher than the T-Bills' 3.6% (std dev 0.7%), resulting in a $1 investment growing to about $19.41 compared to $4.11 over 40 years. While 30-year horizons show a similar pattern, T-Bills gain relative attractiveness in terms of return/risk ratio for shorter investment durations.

Table 6: Determinants of Advisor Beliefs

	Risk seeking measure		Financial literacy measure	
	(1)	(2)	(3)	(4)
Client Gender: Female	0.262	0.604	2.960	2.382
	(0.297)	(0.470)	(2.849)	(4.505)
Consultant Gender: Male	0.190	0.217	-6.688**	-6.734**
	(0.320)	(0.326)	(2.761)	(2.795)
Consultant Birth Year	0.004	0.003	0.400*	0.401*
	(0.018)	(0.019)	(0.220)	(0.219)
Consultant Language: Italian	-0.193	0.065	-0.523	-0.957
	(0.404)	(0.558)	(3.940)	(4.692)
Consultant Years of Experience	-0.006	-0.007	0.318	0.320
	(0.020)	(0.021)	(0.211)	(0.211)
Average Length of Meetings (mins)	0.015	0.016	-0.157	-0.158
	(0.014)	(0.014)	(0.144)	(0.145)
Client: Female × Consultant Language: Italian		-0.514		0.867
		(0.600)		(5.823)
Observations	188	188	188	188
R-squared	0.026	0.030	0.079	0.079

Notes: The table reports estimation results for the determinants of advisors' beliefs about the financial literacy and risk preferences of their hypothetical clients. In Column (1)-(2), the dependent variable is the believed level of risk-seeking, measured on a 0–10 Likert scale. In Columns (3)–(4), the dependent variable is the average of the believed shares of individuals who master the financial literacy concepts of numeracy and diversification. All models are estimated using OLS with robust standard errors. In all specifications, constant terms and fixed effects (location of consultant) are omitted from the table for brevity but included in the estimation. *** p<0.01, ** p<0.05, * p<0.1.

Investment horizon. Gender differences in investment recommendations could also arise from variation in clients' expected investment horizons. Although individuals typically cannot access their accumulated pension savings before retirement, early withdrawals are possible for specific purposes (e.g., health expenses, education, or housing). If women were systematically more likely to withdraw earlier than men, a shorter investment horizon might in principle justify a more conservative advice. To assess this channel, we use the administrative data from the four pension funds used in Section 2.1 to compare early withdrawal behavior by gender. Early withdrawals are not more common among women: on average, 4.0% of men withdraw early versus 2.6% of women. Conditional on withdrawing, the timing is nearly identical (first withdrawal after 9.67 years for men and 9.73 years for women) and men withdraw at a younger age on average (40.6 vs. 42.4). These patterns suggest minimal gender differences in withdrawal behav-

ior. If anything, men exhibit slightly earlier and more frequent withdrawals.[35] Taken together, these findings suggest that differences in investment horizons do not rationalize the observed gender gap in investment recommendations. If advisors were tailoring advice to actual withdrawal behavior, men—rather than women—would be steered toward less volatile investment lines, if anything.

Other mechanisms. Our results indicate that differences in financial literacy, risk aversion, and investment horizons are unlikely to explain the observed gender disparities in pension advice, despite their prominence in the literature as key drivers of gender gaps in financial decision-making. To investigate whether alternative mechanisms may account for the recommendation gap in advice, we complement our structured analysis with qualitative evidence. Specifically, we included an open-ended question at the end of the survey, inviting advisors to articulate, in their own words, what factors might explain the documented gender differences in investment recommendations. After being informed about the existence of gender differences in investment recommendations, advisors were asked the following question: *"In your experience, what factors might explain the results of last year's survey, which found that women are, on average, more frequently recommended bond-based or balanced investment lines compared to men, for whom a clear majority of advisors seemed to consider a stock-based investment line more appropriate?"*

We obtained 74 valid textual responses, which we analyzed using a hybrid deductive–inductive content analysis (see, for example, Haaland et al., 2025).[36] For this, we defined a set of mechanism-based categories closely aligned with the conceptual channels discussed in the paper and refined these categories through iterative reading of the responses. Coding was implemented in two layers. First, each response was assigned a mutually exclusive primary category capturing the dominant explanation emphasized by

[35] Table 21 in Appendix C formally tests these differences using regression analysis and confirms the patterns.

[36] In total, 83 advisors responded to the question. We exclude responses that did not want to provide an answer ($n = 4$) or were coded as unclear or off-topic ($n = 5$).

the respondent. Second, we recorded binary indicators for whether each mechanism was mentioned anywhere in the response, allowing multiple mechanisms to be attributed to a single respondent. Two coders independently classified all responses using a shared codebook, and disagreements were resolved prior to finalizing the coding used in the analysis.[37] Table 7 summarizes the resulting distribution of categories, distinguishing between each respondent's dominant explanation and mechanisms mentioned anywhere in the response.

The open-ended responses yield several informative insights. First, beyond the factors already accounted for in our analysis—namely financial literacy and risk preferences—advisors point to some additional mechanisms. In particular, 13.5% of respondents cite labor market and household constraints (e.g., income instability or career interruptions) as a possible explanation, while another 13.5% attribute the gap to differences in advising behavior, such as more protective or directive guidance toward women. A smaller share (6.8%) refers to pension-system characteristics, including contribution histories, employment gaps, and the way accumulation rules translate career trajectories into pension outcomes, as potential explanations for the observed differences. Notably, advisors do not mention early withdrawals of pension capital or gender differences in liquidity needs. Second, a small but non-negligible share of respondents (12%) explicitly rejects the premise of the question, denying that a gender bias in recommendations exists—even after being presented with evidence documenting such differences. In other words, roughly one out of eight advisors continues to assert that no gender bias is present.

While advisors propose several additional mechanisms as potential explanations for the observed gender differences in investment advice, we believe that our experimental evidence can give us additional evidence to where the bias comes from. As we will show in Sections 5.6 and 5.7, the gender gap in advice disappears once advisors are informed of its presence. This indirectly rules out structural explanations like income instability or career interruptions, because if the difference in advice is justified by some structural

[37] Appendix E provides a detailed discussion of the qualitative analysis and the codebook.

Table 7: Further Mechanisms: Advisors' Perceived Explanations for Gender Differences in Investment Advice

Coding category	Primary category (%)	Mentioned anywhere (%)
Labor market and household constraints	13.5	23.0
Paternalistic (protective) advising behavior	13.5	16.2
Denial of gender bias in advice	9.5	12.2
Pension-system characteristics	6.8	9.5

Notes: The table summarizes additional explanations for the observed gender differences in investment advice, as reported by advisors in the survey. "Primary category" assigns each response to a single dominant explanation (mutually exclusive), while "Mentioned anywhere" records whether a given mechanism appears anywhere in the response and allows multiple mechanisms per response. We exclude categories corresponding to factors already controlled for in our analysis, as well as responses that did not provide an answer ($n = 4$) or were classified as unclear or off-topic ($n = 5$). Table 24 in Appendix E reports all coded responses.

reason, it should remain justified even after it is pointed out that there is a disparity in treatment. In the same way, we can play down the role of explicit bias. If (some) advisors believe that women should be treated differently because of animus, they would find no reason to change their behavior once they were informed that women are indeed treated differently. These considerations point instead to a mechanism consistent with implicit, stereotype-related reasoning—including gender norms, cultural stereotypes, or paternalistic tendencies—that can operate without explicit articulation and attenuates when the bias is made salient. Consistent with this interpretation, we find that the advisor's cultural background, as proxied by language—German or Italian—is correlated with the magnitude of the gender gap in investment recommendations. This association suggests that implicit cultural attitudes and role expectations shape advisors' behavior. The open-ended responses reinforce this interpretation: advisors rarely cite structural constraints as a leading rationale, while stereotype-related explanations are common—consistent with an implicit mechanism that weakens once the disparity is made salient.

5.6 Information Treatment: Mitigating Biased Advice

To test whether making the recommendation gap salient can reduce gender bias in pension advice, our survey experiment included an information intervention administered after the initial consultation with the first hypothetical client (Anna or Christian). Advisors were randomly assigned to one of two informational prompts, both designed to emphasize the importance of their recommendations and to encourage more reflective decision-making by clients. As discussed in Section 4, one prompt presented evidence of gender differences in advisors' recommended investment lines and their potential long-term implications for retirement wealth (treatment group), while the other highlighted common client misconceptions about pensions, their sources, and the role of financial advice in addressing them (control group, in the sense that there is no mention of gender in the information provided).

To empirically evaluate the effect of the treatment, we re-estimate the specifications for Anna and Christian, presented and discussed in Sections 5.1 and 5.2, for the second hypothetical client, Maria and Thomas. If the information intervention is effective, we expect the gender bias in investment line recommendations to decrease for the treatment group, while remaining unchanged in the control group. Moreover, we would expect this effect to be concentrated in investment line recommendations and to be smaller or absent for the recommended monthly contribution. We present the estimation results in Table 8.

We find that the information treatment on gender differences in advisors' recommendations substantially reduces gender disparities in investment recommendations relative to the control group. Indeed, in column (1) of Table 8, we see that the coefficient for the interaction between treatment and having a female client - *Client Female* $\times$ *Treated* - is positive and cancels out the negative coefficient associated with the female clients. Doing the analysis separately, we see that in the control group (Column 2), female clients (Maria) are still considerably less likely than male clients (Thomas) to be advised stock-oriented investment lines. The point estimate of -0.563 for female clients closely aligns

with the estimate for the first hypothetical female client reported in Model (1) in Table 5 in Section 5.1 (−0.676), highlighting the persistence of the gender gap in the absence of an information intervention. Among treated advisors (Column 3), there is no longer a gender gap. Collectively, this evidence indicates that the informational prompt effectively eliminates advisors' baseline gender bias in investment recommendations.[38]

In contrast, we find no evidence that the information treatment affects the level of recommended monthly contributions (Columns 4–6 of Table 8). While the coefficients on the female client indicator are consistently negative, they are never statistically significant. This null impact aligns with the content of the treatments, which specifically targeted perceptions and biases related to investment strategies rather than contribution levels.

To summarize, the treatment is effective in contrasting gender disparities in investment line recommendations, suggesting that information interventions can promote greater equity in financial advisory settings. As mentioned, the fact that a simple informational prompt attenuates gender differences in advice supports the interpretation that the bias is implicit rather than grounded in rational client-specific factors or due to conscious animus. If gendered recommendations were fully justified by unobservable but rational criteria or due to explicit prejudice, one would expect the treatment to have little effect.

5.7 Information Treatment: Effectiveness

In the previous subsection, we showed that the information treatment effectively reduced gender disparities in advisors' recommendations regarding investment lines to hypothetical clients. We now move beyond the hypothetical setting of the survey experiment to examine whether these effects persist in actual client choices. Evidence from the field allows us to assess whether the observed changes reflect durable shifts in behavior rather than short-lived adjustments in self-reported responses.

[38] Although the number of participants differs between the treated (86) and control (102) groups, assignment to treatment was random, with each participant selected into either group with equal probability.

Table 8: Effects of Information Treatment on Recommended Investment Line and Contribution Amount

	Investment Line			**Monthly Contribution**		
	All	Untreated	Treated	All	Untreated	Treated
	(1)	(2)	(3)	(4)	(5)	(6)
Client Gender: Female	-0.550**	-0.563**	0.193	-0.680	-0.502	-0.148
	(0.225)	(0.234)	(0.304)	(0.971)	(0.950)	(0.845)
Treated	-0.122			0.456		
	(0.269)			(1.330)		
Client Gender: Female × Treated	0.662*			0.883		
	(0.354)			(1.543)		
Consultant Gender: Male	0.576***	0.183	0.827**	1.346	2.162	1.270
	(0.216)	(0.297)	(0.338)	(1.253)	(2.234)	(1.511)
Consultant Beliefs: Risk seeking	0.033	0.008	0.072	0.094	-0.029	0.247
	(0.047)	(0.064)	(0.071)	(0.224)	(0.180)	(0.342)
Consultant Beliefs: Financial Literacy (in %)	0.003	0.000	0.002	0.025	0.037	0.029
	(0.005)	(0.007)	(0.006)	(0.026)	(0.048)	(0.036)
Consultant Birth Year	0.003	0.008	-0.008	0.111*	0.038	0.234
	(0.011)	(0.014)	(0.019)	(0.066)	(0.028)	(0.154)
Consultant Language: Italian	0.057	0.265	-0.269	1.848	1.676	2.230
	(0.266)	(0.316)	(0.453)	(1.798)	(2.300)	(3.009)
Consultant Years of Experience	-0.003	0.006	-0.010	0.133*	0.022	0.333
	(0.010)	(0.014)	(0.016)	(0.069)	(0.039)	(0.202)
Average Length of Meetings (mins)	-0.005	0.016	-0.031**	-0.036	-0.075	0.038
	(0.008)	(0.011)	(0.013)	(0.037)	(0.067)	(0.045)
Observations	186	101	85	180	100	80
R-squared				0.094	0.089	0.163

Notes: The table reports estimation results for the determinants of advisors' recommendations to their second hypothetical clients, Maria and Thomas, after the information treatment. Columns (1)–(3) analyze the suggested investment lines, summarized into four categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed". Column (1) interacts the female indicator with the treatment intervention, Column (2) restricts the sample to untreated advisors, and Column (3) to treated advisors. Models (1)–(3) are estimated using ordered probit. Coefficients are interpreted with respect to the latent index. Robust standard errors are reported. Columns (4)–(6) analyze the recommended monthly contributions (as a share of income). Column (4) interacts the female indicator with the treatment intervention, Column (5) restricts the sample to untreated advisors, and Column (6) to treated advisors. Models (4)–(6) are estimated using OLS and robust standard errors are reported. In all specifications, constant terms, fixed effects (location of consultant), and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

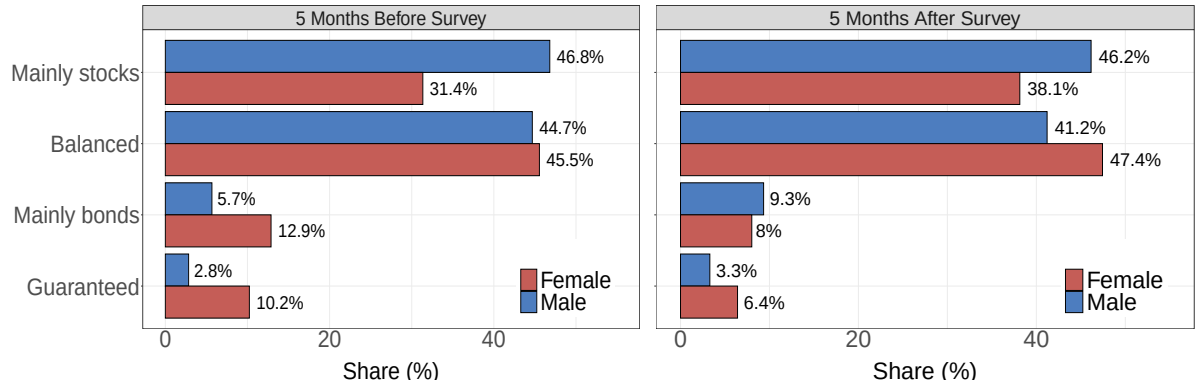
The survey experiment was conducted in February 2025, with more than half of all advisors participating. While only the treatment group received the informational prompt *prior* to advising the second hypothetical client, all participating advisors were shown the same information by the end of the survey. This broad exposure enables us to assess whether consultations and subsequent client choices changed after advisors were informed, and whether any changes persisted in the months following the survey.

To evaluate this, we compare outcomes in the five months before the experiment (September 2024 to January 2025) with the five months after (February to June 2025). We restrict

attention to clients under 50, where longer investment horizons generally make higher-risk portfolios more appropriate.[39]

If the information provided in the survey induced advisors to change their subsequent advising behavior—toward more gender-neutral recommendations—we would expect the gender gap in realized investment-line choices to narrow in the post-survey period if, as advisors believe, clients generally follow advice. Because the prompt explicitly emphasized that women are steered toward lower–risk–return portfolios, any adjustment should primarily manifest in women's post-consultation choices. We expect effects to be concentrated in investment line choices, with little or no impact on monthly contribution rates.

Figure 12: Share of investment lines chosen before and after consultation



Notes: The figure shows the distribution of investment line choices made at enrollment in an affiliated pension fund after consulting an information center advisor. The left panel depicts choices made before the survey (September 2024–January 2025), while the right panel shows choices made after the survey (February–June 2025). Distributions are shown separately for male (blue bars) and female (red bars) clients.

Figure 12 compares the distribution of chosen investment lines by gender in the five months before versus after the survey. The share of female clients selecting stock-based portfolios increases by 6.7 percentage points in the five months after the survey relative to the five months before. The corresponding share for male clients is essentially unchanged.

To identify the effect of the information treatment, we estimate its impact on pension

[39]Results are robust to changes in the age threshold. Lowering the cutoff reduces the number of observations, while raising it includes clients for whom higher-risk profiles may no longer be optimal. We thus believe 50 years to be a reasonable threshold.

investment choices using the following difference-in-differences (DiD) framework:

$$y_i = \alpha_0 + \alpha_1 \text{ Female}_i + \alpha_2 \text{ Post}_t + \alpha_3 \text{ Female}_i \times \text{Post}_t + \alpha_c \, X_{i,t} + \epsilon_i, \tag{1}$$

where y_i represents the chosen investment line or monthly contribution rate when signing up after a consultation. Female_i takes values one in case an individual is female and zero otherwise. The variable Post_t measures the timing of the consultation. It takes values zero if a meeting was before February 4, 2025 (the start of the survey) and takes values 1 in case it took place after (February 4 2025 - June 30 2025). The coefficient α_3 identifies the change before and after the survey (first difference) in the differential effect of the outcomes of interest between female and male individuals (second difference).

In addition to the baseline specification, we estimate an augmented specification that includes the matrix $X_{i,t}$ of controls to account for time-, individual-, and location-specific heterogeneity. These controls include client age, day-of-month fixed effects for the consultation date, information-center fixed effects, and the time elapsed between the consultation and contract activation.

To evaluate whether the survey influenced portfolio choices, we estimate equation (1) using an ordered probit model when the dependent variable is the chosen investment line, and OLS when the dependent variable is the monthly contribution rate. Each specification is estimated both with and without the full set of controls. The results are presented in Table 9.

For the baseline investment line specification (Column 1), the coefficient on the female indicator is negative and statistically significant. Translating ordered probit coefficients into marginal effects, we find that in the five months prior to the survey, women were 18.5 percentage points less likely than men to choose a stock-based investment line. The interaction term *Female* × *Post-Survey* is positive and statistically significant at the 1% level. The corresponding marginal effects indicate that, after the survey, the gender gap

Table 9: Effects of Information Treatment on Effectively Chosen Investment Line and Contribution Amount

	Investment Line		**Monthly Contribution**	
	(1)	(2)	(3)	(4)
Client Gender: Female	-0.486***	-0.630***	0.098	0.161
	(0.087)	(0.068)	(0.172)	(0.229)
Post Survey	-0.066	-0.360***	0.274	0.283
	(0.148)	(0.133)	(0.219)	(0.268)
Client Gender: Female × Post Survey	0.304***	0.522***	0.011	-0.043
	(0.116)	(0.101)	(0.285)	(0.301)
Controls	No	Yes	No	Yes
Observations	938	938	938	938
R-squared			0.007	0.148

Notes: The table reports estimation results of Equation 1, which evaluates the effect of the information treatment on individuals' pension investment choices after consulting an advisor between September 2024 to June 2025. Columns (1)–(2) analyze the suggested investment lines, summarized into four categories—"Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed". Column (1) presents the baseline specification without controls. Column (2) presents the specification with controls for client age, day of consultation, information center fixed effects, time elapsed between consultation and contract activation, and either the chosen share of income or investment line (depending on the outcome). Controls are included, but coefficients are not shown. Models (1)–(2) are estimated using ordered probit. Coefficients are interpreted with respect to the latent index. Robust standard errors are reported. Columns (3)–(4) analyze the recommended monthly contributions (as a share of income). Column (3) presents the baseline specification without controls, while Column (4) presents the same specification with controls (not reported). Models (3)–(4) are estimated using OLS with robust standard errors. *** p<0.01, ** p<0.05, * p<0.1.

narrows substantially: women are only 7.1 percentage points less likely than men to select a stock-based portfolio. The reduction in marginal effects of 11.4 percentage points is somewhat larger than the corresponding difference in empirical group means of 7.3 percentage points ($= (46.8 - 31.4) - (46.2 - 38.1)$). This discrepancy arises because marginal effects from the ordered probit are computed from model-implied outcome probabilities, which need not coincide with differences in empirical group means, even in the absence of additional covariates. The ordered probit imposes a parametric latent-index structure that smooths observed cell frequencies, leading to differences between model-based and raw comparisons. Overall, the informational intervention is associated with a roughly 60% reduction in the gender gap in investment choices, representing a strong decline in gender disparities in real-world advisory outcomes. Column (2) reports the specification with controls. The estimated effects are slightly smaller in magnitude, but the interpretation remains unchanged.

In Column (3) and (4) of Table 9, we examine whether the intervention affected monthly contribution choices using OLS. As expected—given that the information treatment specifically targeted investment lines rather than contribution behavior—we find no statistically significant effect on contribution rates.

In order to examine how the impact of the shock varies over time and in order to test for (the absence of) pre-trends, we accompany the analysis with an event-study of the form:

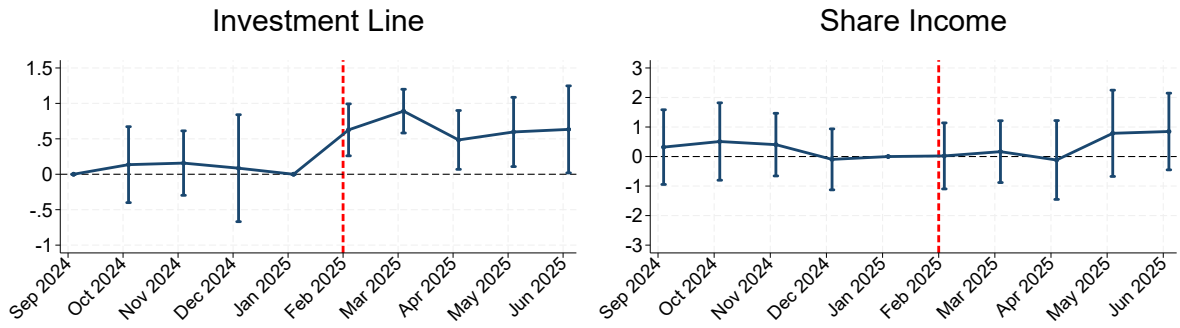
$$y_{it} = \beta_0 + \eta_t + \sum_{\substack{k=\text{Sep 2024},\ldots,\text{Jun 2025} \\ k \neq \text{Jan 2025}}} \beta_k \text{ Female}_i \times \mathbb{1}(\text{T}_t = k) + \beta_c \, X_i + \epsilon_{it}. \tag{2}$$

The event study model provides an estimate of the differential outcome for female and male individuals in any given month. The estimates correspond to the coefficients $\beta_{\text{Sep 2024}}, ..., \beta_{\text{Jun 2025}}$. Because we normalize $\beta_{\text{Jan 2025}}$ to zero, the treatment effects for each month are estimated relative to January 2025, the month before the survey. Individual-specific controls X_i account for time-invariant individual characteristics that are constant over time. Month-specific fixed effects η_t account for month-specific effects that are common to all individuals.

Our identification strategy relies on the assumption of common trends. To this end, we estimate the event study (Equation 2) for our main outcomes of interest, investment lines and monthly contributions. The estimated series of coefficients on the variable of interest, β_k, and their 90% confidence intervals, are plotted in Figure 13. In the months leading up to February 2025, we find no evidence of differential pre-trends in either outcome, supporting the validity of the central identification assumption. Moreover, to the best of our knowledge, no relevant event (e.g., policy changes) happened at the time of the intervention that could confound the estimated effects. After the intervention, we see a treatment effect for the investment line that, despite a small rebound after a couple of months, remains significant throughout the period. As expected, nothing happens with respect to the share of income. To rule out that seasonal patterns drive the observed changes in the

gender gap in investment-line choices, we re-estimate the event-study specification using placebo intervention dates in February 2023 and February 2024. We detect no significant effects around either placebo date (see Figure 19 in Appendix C), reinforcing the interpretation that the documented changes are attributable to the information intervention rather than to seasonal fluctuations.

Figure 13: Effect of information treatment on actual portfolio choices



Notes: The figures plot the sequence of coefficients β_k from the event study model in Equation 2. The left panel shows coefficients for chosen investment lines (estimated using ordered probit), and the right panel shows coefficients for chosen monthly contributions as a share of income (estimated using OLS). Ninety-percent confidence intervals are based on heteroskedasticity-robust standard errors clustered at the information center level. The red dashed line marks February 2025, when the survey with the information treatment was conducted.

To summarize, these findings show that a light-touch information intervention—designed to raise awareness of potential gender bias and its long-term implications for retirement outcomes—can meaningfully reduce both biased investment recommendations and actual client investment choices. Given its low cost, ease of implementation, and scalability, such an intervention represents a promising policy tool for enhancing the quality and equity of financial advice.

6 Conclusions

The global move toward defined-contribution pensions makes retirement security increasingly dependent on household portfolio choices and the intermediaries who shape them. We show that gender differences in retirement outcomes can arise not only through earn-

ings and contribution gaps, but also through systematically different portfolio recommendations at enrollment.

Using administrative account records from four Italian pension funds, we find a persistent gender gap in portfolio risk: women are substantially more likely than men to choose less stock-oriented portfolios at entry. Under realized return paths, these conservative allocations would have generated substantially lower wealth accumulation for a given contribution stream, highlighting a potentially important channel through which differences at entry can compound over the life cycle.

Combining this evidence with a vignette-based experiment and evidence on advisory practices, we show that advisors recommend comparable contribution rates to observationally identical male and female clients but propose less stock-oriented portfolios to women even when age and income are held fixed. At the same time, advisors do not report sizable gender differences in their clients' risk attitudes or financial literacy, and there are no gender differences in investment horizons. When provided with concise feedback documenting gendered recommendation patterns through an information experiment, the portfolio gap disappears. That the bias vanishes once made salient suggests it is largely implicit rather than driven by client fundamentals or explicit animus.

Two empirical links suggest that the vignette patterns map to real-world allocations. First, districts where advisors display stronger gender bias in the vignette also exhibit larger gender gaps in portfolio allocation at enrollment in the administrative data. Second, in the months following the survey debriefing, the gender gap in portfolio composition among advised clients narrows. Together, these results connect advisory bias to realized allocations and suggest that a simple awareness intervention can shift real choices. Building on this evidence, our results point to low-cost interventions that preserve choice while improving equity. Simple, periodic feedback to advisors on gender patterns in recommended and realized portfolios—delivered by supervisory bodies or pension funds—could curb biased advice without imposing uniform risk targets. Incorporating

bias-awareness modules into training and accreditation may reinforce these effects.

Future work should test these mechanisms across different financial advisory environments and institutional settings. More broadly, our findings also speak to the rapidly expanding role of algorithmic and AI-based financial advice. As robo-advisors and AI-supported tools are increasingly used to guide long-term financial decisions, concerns about fairness, bias, and trust become central. Robo-advice is often motivated by the promise of scalable, lower-cost personalized guidance in household finance (D'Acunto and Rossi, 2023). At the same time, recent work emphasizes that algorithmic advice systems may inherit or amplify existing biases and therefore require explicit governance and monitoring to ensure equitable treatment across client groups (Kofman, 2025). In this context, our results highlight the importance of understanding whether new advice technologies mitigate or reproduce disparities at critical decision points such as pension enrollment.

Declaration of AI-assisted technologies in the writing process

During the preparation of this manuscript, the authors used ChatGPT and Grammarly to improve language and readability. To finalize the paper, the authors also considered feedback provided by Refine.ink. All outputs were carefully reviewed and edited as necessary. The authors take full responsibility for the content of this publication.

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Appendix

A Pension System in Italy

The Italian pension system follows a three-pillar structure. The first pillar is a mandatory pay-as-you-go public social security scheme that provides a basic pension that, so far, has been relatively generous in terms of replacement rates, but less and less so due to subsequent reforms. The second pillar consists of pension funds whose membership depends on the sector or geographical area of activity of the worker, funded through the so-called end-of-service indemnity (Trattamento di Fine Rapporto or TFR) plus additional employee and employer contributions, which are—at least in part—mandatory for some employees and voluntary for others. The third pillar comprises individual pension schemes, which are voluntary, tax-advantaged financial products managed by private banks or insurance companies. Depending on collective contracts, these individual schemes may also allow private sector employees to allocate their TFR contributions, with employers having the option to contribute as well. The pension funds of the second and third pillars, which we label as *private*, operate under a defined contribution model, where eventual benefits depend on the contribution history, market performance, and administrative costs. Most funds offer a menu of investment options that differ in their exposure to equity market risk. In Italy, at the end of 2022, approximately 9.2 million individuals were enrolled in private pension funds—equivalent to 36.2% of the workforce—with total assets under management reaching 205.6 billion euros (10.8% of GDP) and annual contributions amounting to 18.2 billion euros (COVIP, 2023).

A well-documented gender gap persists in participation and outcomes within the private pension system. According to the latest annual report by the "Commission for the Supervision of Pension Funds" - COVIP, men participate in complementary pension funds at higher rates than women across all age groups. This disparity persists even after controlling for labor force participation: 39.2% of working men contribute to a private pension

fund, compared to only 32.2% of working women (COVIP, 2023). Conditional on participation, men also contribute substantially more than women. In 2022, the average annual contribution was 2,950 euros for men, versus 2,480 euros for women—a gap of approximately 20%. Importantly, this contribution gap is not uniform across age groups. While there is little difference among individuals aged 20–30, the disparity grows steadily with age. Moreover, the report documents significant gender differences in portfolio choice: women are more likely to select investment options with lower volatility and, on average, lower returns. Taken together, lower participation rates, smaller contributions, and more conservative investment strategies contribute to substantially lower accumulated pension wealth for women at retirement.

B Age at entry

In this section, we briefly explore the age at entry. In Figure 14, the left-hand graph shows the distribution of the age at entry, while the right-hand graph shows the average age at entry over time. The figure shows that a large share of subscribers join the pension fund in their twenties, in line with our vignette. The average age at entry is around 36 years old and quite stable over time. Females seem to enter slightly later, but the gap between women and men seems to be shrinking over time, with a substantial overlap in recent years.

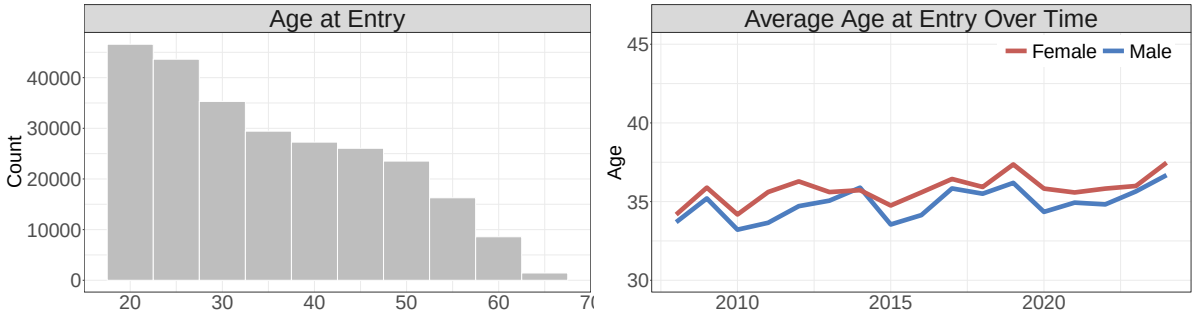


Figure 14: Age at Entry

C Additional Results

Table 10: Pension Investment Choices (All coefficients)

	Investment Line (Ordered Probit)		Monthly Contributions (OLS)	
	(1)	(2)	(3)	(4)
Female	-0.224***	-0.268***	-0.117***	-0.054***
	(0.005)	(0.008)	(0.010)	(0.015)
Language: Italian	-0.131***	-0.168***	-0.063***	-0.001
	(0.009)	(0.011)	(0.016)	(0.019)
Female × Language: Italian		0.068***		-0.113***
		(0.010)		(0.019)
Age (Joining)	-0.029***	-0.029***	0.012***	0.012***
	(0.000)	(0.000)	(0.001)	(0.001)
Education: High School	0.181***	0.181***	0.114***	0.114***
	(0.008)	(0.008)	(0.016)	(0.016)
Education: Vocational	0.095***	0.093***	0.065***	0.069***
	(0.009)	(0.009)	(0.017)	(0.017)
Education: University	0.376***	0.375***	0.226***	0.228***
	(0.009)	(0.009)	(0.017)	(0.017)
Open Fund	0.417***	0.416***	-0.540***	-0.536***
	(0.006)	(0.006)	(0.010)	(0.010)
Residence: Abroad	0.032	0.031	-0.093	-0.092
	(0.049)	(0.049)	(0.109)	(0.108)
Residence: Other Italian Province	-0.104***	-0.102***	-0.305***	-0.313***
	(0.011)	(0.011)	(0.027)	(0.027)
Residence: Province of Trento	0.020**	0.020**	-0.434***	-0.433***
	(0.009)	(0.009)	(0.015)	(0.015)
Admission in 2009	-0.079***	-0.079***	0.026	0.027
	(0.026)	(0.026)	(0.036)	(0.036)
Admission in 2010	-0.048**	-0.048**	0.108***	0.108***
	(0.021)	(0.021)	(0.031)	(0.031)
Admission in 2011	-0.036*	-0.036*	0.153***	0.153***
	(0.021)	(0.021)	(0.029)	(0.029)
Admission in 2012	-0.039*	-0.039*	0.080***	0.081***
	(0.022)	(0.022)	(0.030)	(0.030)
Admission in 2013	0.095***	0.095***	0.209***	0.208***
	(0.020)	(0.020)	(0.032)	(0.032)
Admission in 2014	0.162***	0.163***	0.126***	0.125***
	(0.019)	(0.019)	(0.029)	(0.029)
Admission in 2015	0.152***	0.152***	0.133***	0.134***
	(0.018)	(0.018)	(0.026)	(0.026)
Admission in 2016	0.111***	0.111***	0.155***	0.155***
	(0.017)	(0.017)	(0.026)	(0.026)
Admission in 2017	0.205***	0.206***	0.208***	0.207***
	(0.017)	(0.017)	(0.026)	(0.026)
Admission in 2018	0.275***	0.276***	0.271***	0.269***
	(0.017)	(0.017)	(0.026)	(0.026)
Admission in 2019	0.352***	0.353***	0.383***	0.381***
	(0.017)	(0.017)	(0.027)	(0.027)
Admission in 2020	0.345***	0.346***	0.367***	0.366***
	(0.018)	(0.018)	(0.027)	(0.027)
Admission in 2021	0.559***	0.560***	0.438***	0.437***
	(0.017)	(0.017)	(0.027)	(0.027)
Admission in 2022	0.603***	0.604***	0.461***	0.460***
	(0.017)	(0.017)	(0.027)	(0.027)
Admission in 2023	0.569***	0.570***	0.390***	0.389***
	(0.018)	(0.018)	(0.027)	(0.027)
Admission in 2024	0.765***	0.766***	0.485***	0.484***
	(0.018)	(0.018)	(0.027)	(0.027)
Cut Point 1	-1.629***	-1.654***		
	(0.019)	(0.019)		
Cut Point 2	-1.085***	-1.110***		
	(0.019)	(0.019)		
Cut Point 3	0.381***	0.356***		
	(0.018)	(0.019)		
Constant			1.520***	1.483***
			(0.030)	(0.031)
Observations	197,928	197,928	112,852	112,852
R-squared			0.048	0.048

Notes: The table reports the full estimation results of Table 2 for the determinants of individuals' pension investment choices between 2008 and 2024. The dependent variable in Models (1) and (2) is the investment line selected at enrollment in one of the pension funds. Investment lines are grouped into four ordered categories—"Mainly Stocks", "Balanced", "Mainly Bonds", and "Guaranteed"—ranked from highest to lowest risk–return profile. Models (1) and (2) are estimated using ordered probit, and coefficients are reported with respect to the latent index. Column (1) presents the baseline specification, while Column (2) interacts the female indicator with the individual's language. The dependent variable in Models (3) and (4) is the chosen monthly contribution rate (expressed as a share of income) at enrollment. Column (3) presents the baseline specification, and Column (4) interacts the female indicator with the individual's language. Models (3) and (4) are estimated using OLS. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Determinants of Pension Investment Recommendations (All coefficients)

	Investment Line (Ordered Probit)				Monthly Contributions (OLS)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Client Gender: Female	-0.676***	-1.126***	-0.646***	-1.041***	0.072	0.633	0.072	0.646
	(0.187)	(0.290)	(0.184)	(0.288)	(0.256)	(0.419)	(0.264)	(0.414)
Consultant Gender: Male	0.748***	0.722***	0.771***	0.749***	0.233	0.284	0.263	0.311
	(0.215)	(0.214)	(0.207)	(0.205)	(0.319)	(0.328)	(0.319)	(0.326)
Consultant Beliefs: Risk seeking	0.081*	0.091**			0.043	0.036		
	(0.044)	(0.045)			(0.071)	(0.072)		
Consultant Beliefs: Financial Literacy (in %)	-0.003	-0.002			-0.003	-0.003		
	(0.005)	(0.005)			(0.006)	(0.006)		
Consultant Birthyear	-0.012	-0.013	-0.013	-0.014	0.034**	0.033**	0.033**	0.032**
	(0.012)	(0.012)	(0.011)	(0.011)	(0.015)	(0.015)	(0.015)	(0.015)
Consultant Language: Italian	0.510**	0.128	0.501**	0.162	-0.148	0.268	-0.148	0.279
	(0.251)	(0.302)	(0.247)	(0.293)	(0.379)	(0.490)	(0.380)	(0.484)
Location Consultant: Province TN	0.395	0.363	0.435*	0.411*	-0.428	-0.396	-0.402	-0.373
	(0.261)	(0.256)	(0.252)	(0.247)	(0.362)	(0.362)	(0.361)	(0.360)
Consultant Years of Experience	0.004	0.004	0.002	0.003	0.028*	0.027*	0.027*	0.026
	(0.012)	(0.012)	(0.011)	(0.011)	(0.016)	(0.016)	(0.015)	(0.016)
Average Length of Meetings (in mins)	0.012	0.011	0.013	0.012	0.001	0.002	0.002	0.003
	(0.008)	(0.008)	(0.008)	(0.008)	(0.014)	(0.014)	(0.014)	(0.014)
Client: Female × Consultant Language: Italian		0.701*		0.625*		-0.843		-0.864
		(0.384)		(0.379)		(0.575)		(0.553)
Cut Point 1	-25.812	-27.298	-28.129	-29.015				
	(23.421)	(23.612)	(22.601)	(22.741)				
Cut Point 2	-24.247	-25.688	-26.565	-27.411				
	(23.389)	(23.558)	(22.552)	(22.670)				
Cut Point 3	-23.352	-24.776	-25.682	-26.513				
	(23.387)	(23.548)	(22.550)	(22.662)				
Constant					-64.905**	-62.631**	-63.057**	-60.860**
					(30.678)	(30.202)	(30.121)	(29.731)
Observations	188	188	188	188	184	184	184	184
R-squared					0.054	0.066	0.051	0.064

Notes: The table reports the full estimation results of Table 5 for the determinants of pension investment recommendations by advisors in the survey experiment. The dependent variable in Models (1) to (4) is the suggested investment line, summarized into four categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—ordered from highest to lowest risk–return profile. Column (1) presents the baseline specification, while Column (2) interacts the client's gender indicator with the consultant's language. Columns (3) and (4) exclude advisors beliefs. Models (1) to (4) are estimated using ordered probit, and coefficients are reported with respect to the latent index. The dependent variable in Models (5) to (8) is the recommended monthly contributions (as a share of income in percent) by advisors in the survey experiment. Column (4) presents the baseline specification, and Column (5) interacts the client's gender indicator with the consultant's language. Columns (6) and (7) exclude advisors beliefs. Models (5) and (8) are estimated using OLS. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 12: Determinants of Pension Investment Recommendations (non-linear consultants' beliefs)

	Investment Line (Ordered Probit)		Monthly Contributions (OLS)	
	(1)	(2)	(3)	(4)
Client Gender: Female	-0.660***	-1.080***	0.038	0.585
	(0.187)	(0.306)	(0.266)	(0.444)
Consultant Gender: Male	0.739***	0.719***	0.215	0.256
	(0.214)	(0.211)	(0.323)	(0.328)
Consultant Beliefs: Risk seeking (2nd Quartile)	-0.150	-0.128	-0.035	-0.057
	(0.237)	(0.236)	(0.345)	(0.349)
Consultant Beliefs: Risk seeking (3rd Quartile)	0.129	0.184	0.100	0.040
	(0.250)	(0.254)	(0.413)	(0.437)
Consultant Beliefs: Risk seeking (4th Quartile)	0.537*	0.563*	0.111	0.097
	(0.291)	(0.291)	(0.397)	(0.398)
Consultant Beliefs: Financial Literacy (in %) (2nd Quartile)	0.066	0.053	-0.421	-0.351
	(0.294)	(0.299)	(0.410)	(0.429)
Consultant Beliefs: Financial Literacy (in %) (3rd Quartile)	-0.218	-0.218	-0.482	-0.464
	(0.241)	(0.246)	(0.366)	(0.369)
Consultant Beliefs: Financial Literacy (in %) (4th Quartile)	-0.202	-0.166	-0.257	-0.257
	(0.255)	(0.263)	(0.400)	(0.400)
Consultant Birthyear	-0.011	-0.011	0.037**	0.036**
	(0.012)	(0.012)	(0.016)	(0.016)
Consultant Language: Italian	0.421	0.072	-0.210	0.195
	(0.258)	(0.322)	(0.352)	(0.474)
Consultant Years of Experience	0.002	0.002	0.032**	0.030*
	(0.012)	(0.012)	(0.016)	(0.016)
Average Length of Meetings (in mins)	0.010	0.009	-0.001	0.001
	(0.008)	(0.008)	(0.014)	(0.014)
Client: Female × Consultant Language: Italian		0.644		-0.815
		(0.404)		(0.610)
Observations	188	188	184	184
R-squared			0.063	0.074

Notes: The table reports estimation results for the determinants of pension investment recommendations by advisors in the survey experiment. The variables *Consultant Beliefs: Risk Seeking* and *Consultant Beliefs: Financial Literacy* are divided into quartiles, with the first quartile serving as the reference category. The dependent variable in Models (1) and (2) is the suggested investment line, summarized into four categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—ordered from highest to lowest risk–return profile. Models (1) and (2) are estimated using ordered probit, and coefficients are reported with respect to the latent index. Column (1) presents the baseline specification, while Column (2) interacts the client's gender indicator with the consultant's language. The dependent variable in Models (3) and (4) is the recommended monthly contributions (as a share of income in percent) by advisors in the survey experiment. Column (3) presents the baseline specification, and Column (4) interacts the client's gender indicator with the consultant's language. Models (3) and (4) are estimated using OLS. In all specifications, constant terms, fixed effects (location of consultant), and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. Table 11 in the Appendix C reports the full set of estimates. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Determinants of Advisor Beliefs: Subcomponents of Financial Literacy

	Diversification		Numeracy	
	(1)	(2)	(3)	(4)
Client Gender: Female	1.516	-3.323	4.404	8.088*
	(3.211)	(5.271)	(3.385)	(4.816)
Consultant Gender: Male	-1.627	-2.009	-11.750***	-11.459***
	(3.176)	(3.127)	(3.536)	(3.593)
Consultant Birth Year	0.405	0.414	0.395*	0.388*
	(0.260)	(0.256)	(0.230)	(0.234)
Consultant Language: Italian	-8.911*	-12.547**	7.864*	10.632*
	(4.557)	(5.068)	(4.364)	(5.630)
Consultant Years of Experience	0.312	0.325	0.324	0.314
	(0.250)	(0.249)	(0.222)	(0.222)
Average Length of Meetings (mins)	-0.184	-0.196	-0.130	-0.121
	(0.161)	(0.161)	(0.158)	(0.159)
Client: Female × Consultant Language: Italian		7.257		-5.524
		(6.680)		(6.636)
Observations	188	188	188	188
R-squared	0.082	0.088	0.102	0.105

Notes: The table reports estimation results for the determinants of advisors' beliefs about the subcomponents of financial literacy. In Column (1)-(2), the dependent variable is the believed percentage of individuals with a similar profile as the hypothetical client who can distinguish between the risk–return profiles of available investment lines. In Column (3)-(4), the dependent variable is the believed percentage of individuals who can correctly compute the € amount they would pay each month based on their chosen contribution rate. All models are estimated using OLS with robust standard errors. In all specifications, constant terms, and fixed effects (location of consultant) are omitted from the table for brevity but included in the estimation. *** p<0.01, ** p<0.05, * p<0.1.

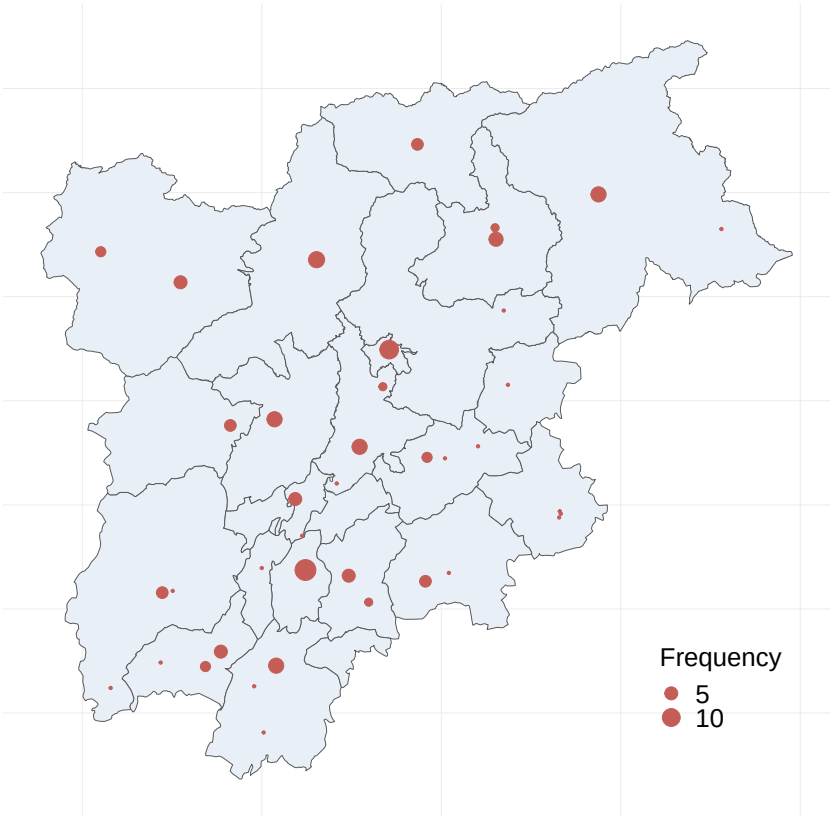


Figure 15: Location of information centers

Notes: The figure shows the location of the information centers in the Trentino-Alto Adige/Südtirol region. Red dots indicate the locations, with dot size proportional to the number of information centers in each location.

Table 14: Selection of observables in pension funds data

	Observe Monthly Contribution (0/1) (1)	Observe Education (0/1) (2)	Observe Wage (0/1) (3)
Female	-0.015	-0.001	-0.001
	(0.010)	(0.009)	(0.008)
Residence: Abroad	-0.681***	-0.397***	-0.616***
	(0.092)	(0.083)	(0.067)
Residence: Other Italian Province	-1.135***	0.048**	-1.022***
	(0.024)	(0.020)	(0.017)
Residence: Province of Trento	-0.112***	-0.190***	-0.045***
	(0.023)	(0.018)	(0.014)
Age (Joining)	-0.025***	-0.008***	-0.018***
	(0.000)	(0.000)	(0.000)
Language: Italian	-0.390***	-0.085***	-0.305***
	(0.022)	(0.019)	(0.015)
Education: High School	-0.071***		0.001
	(0.016)		(0.013)
Education: Vocational	0.020		0.066***
	(0.017)		(0.014)
Education: University	-0.161***		-0.062***
	(0.018)		(0.014)
Open Fund	-4.183***	-0.292***	-2.224***
	(0.051)	(0.011)	(0.011)
Observations	197,928	218,959	197,928

Notes: The table reports estimates examining the observability of individual characteristics in the administrative data from the pension funds. The dependent variable in Model (1) is binary and takes the value one if an individual specifies a contribution rate and zero otherwise. The dependent variable in Model (2) is binary and takes the value one if an individuals education is observed in the administrative data and zero otherwise. The dependent variable in Model (3) is binary and takes the value one if the individual's wage can be computed from the administrative data and zero otherwise. All models are estimated using probit. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 15: Robustness: Annual Wage

	Investment Line			Monthly Contribution		
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.224***	-0.308***	-0.316***	-0.117***	-0.167***	-0.120***
	(0.005)	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)
Residence: Abroad	0.032	0.027	0.028	-0.093	-0.081	-0.084
	(0.049)	(0.072)	(0.072)	(0.109)	(0.114)	(0.115)
Residence: Other Italian Province	-0.104***	0.039*	0.037	-0.305***	-0.283***	-0.266***
	(0.011)	(0.023)	(0.023)	(0.027)	(0.028)	(0.028)
Residence: Province of Trento	0.020**	0.101***	0.092***	-0.434***	-0.477***	-0.432***
	(0.009)	(0.011)	(0.011)	(0.015)	(0.016)	(0.016)
Age (Joining)	-0.029***	-0.017***	-0.017***	0.012***	0.013***	0.011***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Language: Italian	-0.131***	-0.151***	-0.148***	-0.063***	-0.044***	-0.056***
	(0.009)	(0.011)	(0.011)	(0.016)	(0.017)	(0.017)
Education: High School	0.181***	0.248***	0.255***	0.114***	0.148***	0.112***
	(0.008)	(0.012)	(0.012)	(0.016)	(0.017)	(0.017)
Education: Vocational	0.095***	0.089***	0.092***	0.065***	0.085***	0.070***
	(0.009)	(0.012)	(0.012)	(0.017)	(0.017)	(0.018)
Education: University	0.376***	0.428***	0.442***	0.226***	0.302***	0.227***
	(0.009)	(0.012)	(0.012)	(0.017)	(0.018)	(0.017)
Open Fund	0.417***	0.598***	0.577***	-0.540***	-0.634***	-0.524***
	(0.006)	(0.009)	(0.009)	(0.010)	(0.012)	(0.011)
Annual Wage at Admission (in '000 EUR)		0.002***			-0.008***	
		(0.000)			(0.000)	
Cut Point 1	-1.629***	-1.208***	-1.230***			
	(0.019)	(0.024)	(0.024)			
Cut Point 2	-1.085***	-0.584***	-0.606***			
	(0.019)	(0.024)	(0.023)			
Cut Point 3	0.381***	0.885***	0.862***			
	(0.018)	(0.024)	(0.023)			
Observations	197,928	103,060	103,060	112,852	102,802	102,802
R-squared				0.048	0.053	0.047

Notes: The table reports robustness estimates for the specifications presented in Table 2 by adding annual wage. Columns (1)–(3) analyze recommended investment lines, grouped into four ordered categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—and are estimated using an ordered probit model. Model (1) replicates the model of Column (1) from Table 2. Model (2) additionally controls for individuals' annual wages (in thousands of euros) at the time of enrollment. Model (3) excludes annual wages while retaining the same estimation sample as Model (2). Columns (4)–(6) analyze individuals' monthly contributions expressed as a share of income and are estimated using OLS. Model (4) replicates the model of Column (3) from Table 2. Model (5) additionally controls for individuals' annual wages (in thousands of euros) at the time of enrollment. Model (6) excludes annual wages while retaining the same estimation sample as Model (5). Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 16: Robustness: Education

	Investment Line			Monthly Contribution		
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.224***	-0.184***	-0.180***	-0.117***	-0.091***	-0.091***
	(0.005)	(0.005)	(0.005)	(0.010)	(0.009)	(0.009)
Residence: Abroad	0.032	0.122**	0.096**	-0.093	-0.046	-0.034
	(0.049)	(0.049)	(0.046)	(0.109)	(0.109)	(0.095)
Residence: Other Italian Province	-0.104***	-0.071***	-0.077***	-0.305***	-0.266***	-0.257***
	(0.011)	(0.010)	(0.010)	(0.027)	(0.027)	(0.025)
Residence: Province of Trento	0.020**	0.026***	0.009	-0.434***	-0.434***	-0.424***
	(0.009)	(0.009)	(0.009)	(0.015)	(0.015)	(0.015)
Age (Joining)	-0.029***	-0.030***	-0.030***	0.012***	0.011***	0.010***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Language: Italian	-0.131***	-0.097***	-0.104***	-0.063***	-0.045***	-0.036**
	(0.009)	(0.009)	(0.009)	(0.016)	(0.016)	(0.015)
Education: High School	0.181***			0.114***		
	(0.008)			(0.016)		
Education: Vocational	0.095***			0.065***		
	(0.009)			(0.017)		
Education: University	0.376***			0.226***		
	(0.009)			(0.017)		
Open Fund	0.417***	0.377***	0.364***	-0.540***	-0.569***	-0.541***
	(0.006)	(0.006)	(0.005)	(0.010)	(0.010)	(0.009)
Cut Point 1	-1.629***	-1.830***	-1.737***			
	(0.019)	(0.017)	(0.014)			
Cut Point 2	-1.085***	-1.289***	-1.198***			
	(0.019)	(0.017)	(0.014)			
Cut Point 3	0.381***	0.165***	0.238***			
	(0.018)	(0.017)	(0.014)			
Observations	197,928	197,928	218,959	112,852	112,852	122,878
R-squared				0.048	0.046	0.046

Notes: The table reports robustness estimates for the specifications presented in Table 2 obtained by excluding education as a control variable. Columns (1)–(3) analyze recommended investment lines, grouped into four ordered categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—and are estimated using an ordered probit model. Model (1) replicates the model of Column (1) from Table 2. Model (2) excludes controls for individuals' education while retaining the same estimation sample as Model (1). Model (3) excludes controls for individuals' education and uses the full available sample. Columns (4)–(6) analyze individuals' monthly contributions expressed as a share of income and are estimated using OLS. Model (4) replicates the model of Column (3) from Table 2. Model (5) excludes controls for individuals' education while retaining the same estimation sample as Model (4). Model (6) excludes controls for individuals' education and uses the full available sample. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 17: Robustness: Monthly Contribution

	Investment Line	
	(Baseline)	(Sample restricted to monthly contributions)
	(1)	(2)
Female	-0.224***	-0.314***
	(0.005)	(0.007)
Residence: Abroad	0.032	0.025
	(0.049)	(0.067)
Residence: Other Italian Province	-0.104***	0.062***
	(0.011)	(0.022)
Residence: Province of Trento	0.020**	0.106***
	(0.009)	(0.011)
Age (Joining)	-0.029***	-0.017***
	(0.000)	(0.000)
Language: Italian	-0.131***	-0.157***
	(0.009)	(0.011)
Education: High School	0.181***	0.247***
	(0.008)	(0.011)
Education: Vocational	0.095***	0.090***
	(0.009)	(0.012)
Education: University	0.376***	0.438***
	(0.009)	(0.011)
Open Fund	0.417***	0.582***
	(0.006)	(0.008)
Cut Point 1	-1.629***	-1.237***
	(0.019)	(0.023)
Cut Point 2	-1.085***	-0.619***
	(0.019)	(0.023)
Cut Point 3	0.381***	0.844***
	(0.018)	(0.023)
Observations	197,928	112,852

Notes: The table reports robustness estimates for the specifications presented in Table 2, restricting the sample to observations for which individuals' monthly contributions (expressed as a share of income) are observed. That is, the estimation sample used in Model (3) in Table 2. Columns (1)–(2) analyze recommended investment lines, grouped into four ordered categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—and are estimated using an ordered probit model. Model (1) replicates the Model (1) from Table 2. Model (2) estimates the same specification but restricts the estimation sample to the observations used in Model (3) of Table 2. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 18: Determinants of Pension Investment Recommendations (Stable Sample & Fractional Probit)

	Investment Line (Ordered Probit)		Monthly Contributions (OLS)		(Fractional Probit)	
	(1)	(2)	(3)	(4)	(5)	(6)
Client Gender: Female	-0.716***	-1.213***	0.108	0.654	0.016	0.091
	(0.190)	(0.292)	(0.256)	(0.421)	(0.038)	(0.058)
Consultant Gender: Male	0.724***	0.698***	0.274	0.322	0.040	0.046
	(0.222)	(0.221)	(0.323)	(0.331)	(0.046)	(0.046)
Consultant Beliefs: Risk seeking	0.085*	0.095**	0.030	0.023	0.005	0.004
	(0.044)	(0.045)	(0.072)	(0.073)	(0.011)	(0.011)
Consultant Beliefs: Financial Literacy (in %)	-0.002	-0.001	-0.003	-0.003	-0.001	-0.001
	(0.005)	(0.005)	(0.006)	(0.006)	(0.001)	(0.001)
Consultant Birthyear	-0.014	-0.014	0.034**	0.033**	0.005**	0.005**
	(0.012)	(0.012)	(0.015)	(0.015)	(0.002)	(0.002)
Consultant Language: Italian	0.493*	0.080	-0.145	0.261	-0.021	0.038
	(0.256)	(0.307)	(0.379)	(0.489)	(0.054)	(0.070)
Consultant Years of Experience	0.004	0.005	0.028*	0.026*	0.004*	0.004*
	(0.012)	(0.012)	(0.015)	(0.016)	(0.002)	(0.002)
Average Length of Meetings (in mins)	0.013	0.011	0.002	0.003	0.000	0.000
	(0.008)	(0.008)	(0.014)	(0.014)	(0.002)	(0.002)
Client Gender: Female × Consultant Language: Italian		0.772**		-0.823		-0.118
		(0.388)		(0.573)		(0.083)
Observations	183	183	183	183	183	183
R-squared			0.052	0.064		

Notes: The table reports estimation results corresponding to Table 5, restricting the estimation sample to observations for which both the suggested investment line and the recommended monthly contribution are available. The dependent variable in Models (1) and (2) is the suggested investment line, summarized into four categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—ordered from highest to lowest risk–return profile. Models (1) and (2) are estimated using ordered probit, and coefficients are reported with respect to the latent index. Column (1) presents the baseline specification, while Column (2) interacts the client's gender indicator with the consultant's language. The dependent variable in Models (3) to (6) is the recommended monthly contributions (as a share of income in percent) by advisors in the survey experiment. Column (3) presents the baseline specification, and Column (4) interacts the client's gender indicator with the consultant's language. Models (3) and (4) are estimated using OLS. Models (5) and (6) re-estimate the specifications in Columns (3) and (4) using a fractional probit model, with the dependent variable rescaled to lie in the unit interval. In all specifications, constant terms, fixed effects (location of consultant), and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 19: Determinants of Believed Pension Investment Choices Before and After Consultation

	Investment Line (Ordered Probit)		Monthly Contributions (OLS)	
	Prior	Posterior	Prior	Posterior
	(1)	(2)	(3)	(4)
Client Gender: Female	-0.118	-0.932***	-0.227	0.105
	(0.174)	(0.173)	(0.173)	(0.187)
Consultant Gender: Male	0.486***	0.494***	-0.355*	-0.147
	(0.173)	(0.183)	(0.201)	(0.218)
Consultant Beliefs: Risk seeking	0.064	0.188***	-0.003	0.129***
	(0.045)	(0.043)	(0.053)	(0.046)
Consultant Beliefs: Financial Literacy (in %)	0.004	-0.008*	-0.000	-0.006
	(0.005)	(0.004)	(0.006)	(0.005)
Consultant Birthyear	0.003	-0.010	0.032**	0.019
	(0.011)	(0.011)	(0.014)	(0.012)
Consultant Language: Italian	-0.181	0.085	-0.606**	-0.751***
	(0.247)	(0.222)	(0.295)	(0.262)
Consultant Years of Experience	-0.000	0.002	0.004	0.001
	(0.011)	(0.011)	(0.010)	(0.012)
Average Length of Meetings	-0.013*	0.011	0.002	-0.003
	(0.008)	(0.008)	(0.008)	(0.009)
Observations	188	188	181	183
R-squared			0.156	0.157

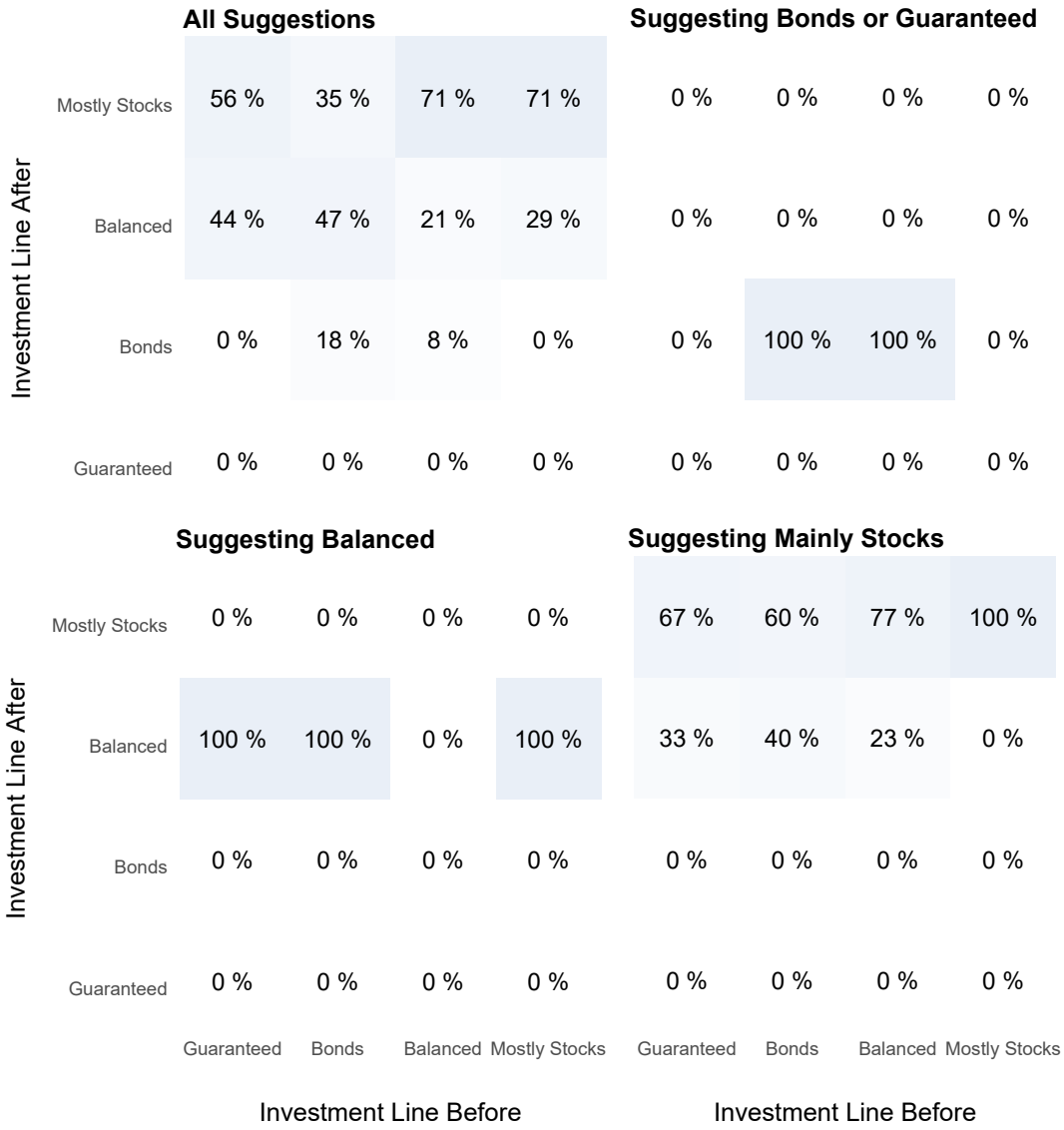
Notes: The table reports estimation results corresponding to the beliefs illustrated in Figures 8 and 9. The dependent variable in Models (1) and (2) is the investment line that advisors believe clients choose, summarized into four ordered categories—"Mainly Stocks," "Balanced," "Mainly Bonds," and "Guaranteed"—ranked from highest to lowest risk-return profile. These models are estimated using ordered probit, and coefficients are reported with respect to the latent index. Column (1) captures advisors' beliefs about clients' investment-line choices before the consultation, while Column (2) captures their beliefs about clients' choices after the consultation. The dependent variable in Models (3) and (4) is the monthly contribution rate (expressed as a percentage of income) that advisors believe clients choose and is estimated using OLS. Column (3) refers to advisors' beliefs about the monthly contributions clients would choose before the consultation, and Column (4) refers to advisors' beliefs about the monthly contributions clients would choose after the consultation. In all specifications, constant terms, consultant location fixed effects, and threshold (cutpoint) parameters in the ordered probit models are omitted from the table for brevity but included in the estimation. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Table 20: Pension Investment Choices (Fractional Probit)

	Monthly Contributions (Fractional Probit)	
	(1)	(2)
Female	-0.025***	-0.012***
	(0.002)	(0.003)
Language: Italian	-0.015***	-0.002
	(0.003)	(0.004)
Age (Joining)	0.002***	0.002***
	(0.000)	(0.000)
Education: High School	0.024***	0.024***
	(0.003)	(0.003)
Education: Vocational	0.014***	0.014***
	(0.004)	(0.004)
Education: University	0.047***	0.048***
	(0.004)	(0.004)
Open Fund	-0.122***	-0.121***
	(0.002)	(0.002)
Female × Language: Italian		-0.024***
		(0.004)
Observations	112,852	112,852

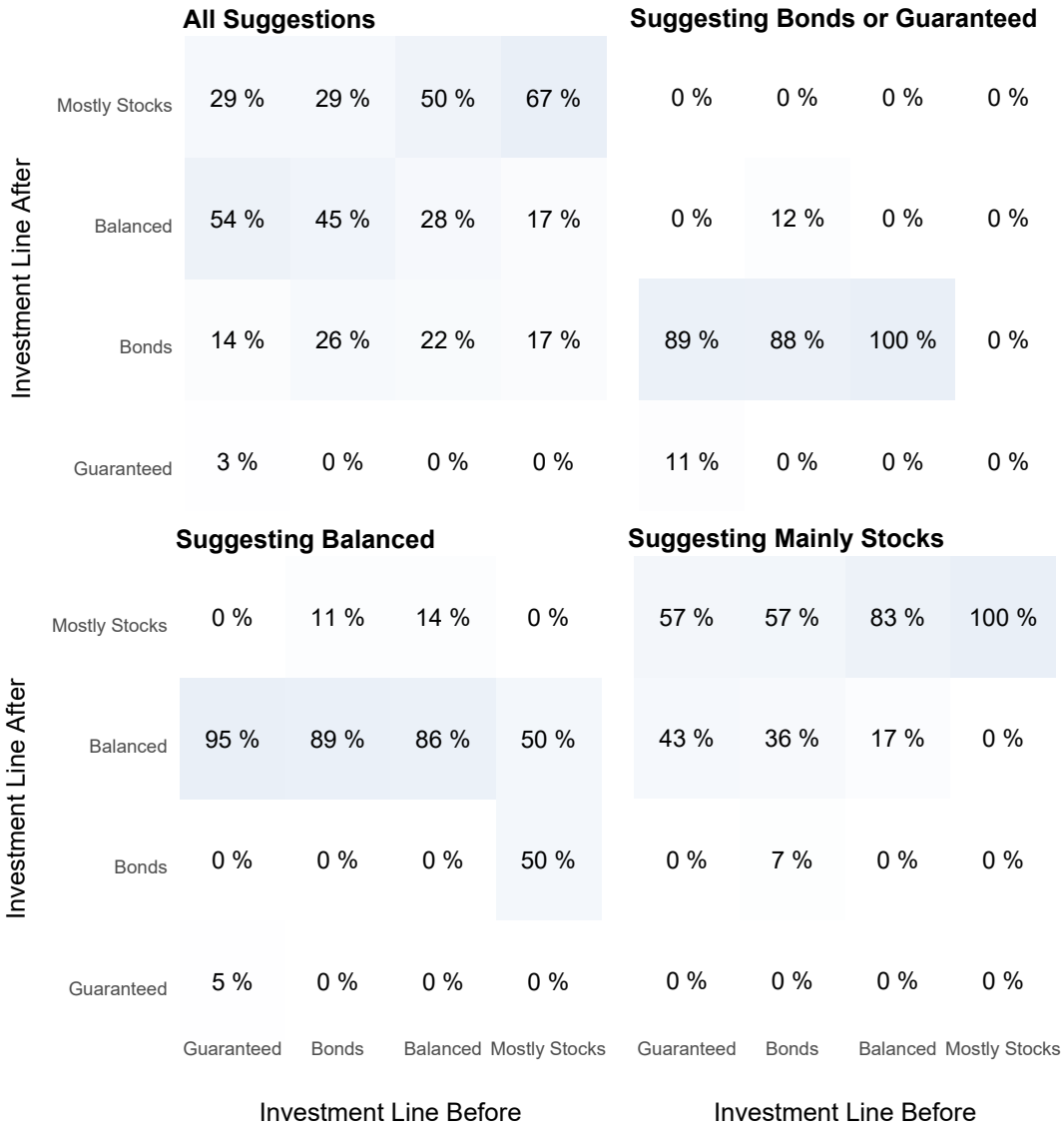
Notes: The table reports estimation results corresponding to Columns (3) and (4) of Table 2, re-estimated using a fractional probit model instead of OLS. The dependent variable is the monthly contribution rate, expressed as a share of income within the unit interval. All specifications include constant terms and residence-location fixed effects, which are omitted from the table for brevity but included in the estimation. Robust standard errors are reported throughout. *** p<0.01, ** p<0.05, * p<0.1.

Figure 16: Advisors' Expected Investment-Line Switching in Response to Consultation (only male clients)



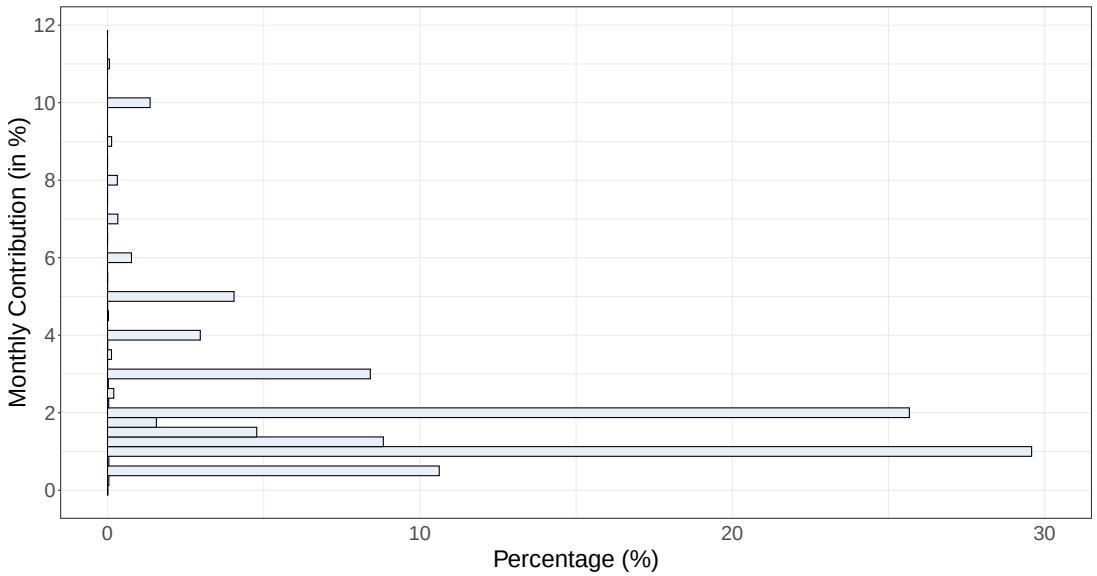
Notes: The figure reports advisors' expected switching probabilities of investment lines, comparing their beliefs about what male clients would have chosen prior to the consultation (x-axis) with their expectations of what male clients will choose after the consultation (y-axis). The upper left panel presents results for all advisors. The upper right panel restricts the sample to advisors who consider "Mainly Bonds" or "Guaranteed" optimal for Anna or Christian. The lower left panel shows results for advisors who deem "Balanced" optimal, and the lower right panel for those who consider "Mainly Stocks" optimal.

Figure 17: Advisors' Expected Investment-Line Switching in Response to Consultation (only female clients)



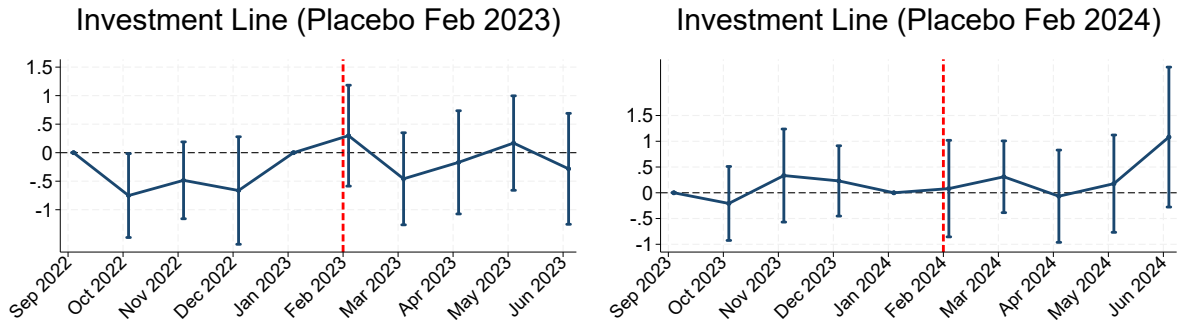
Notes: The figure reports advisors' expected switching probabilities of investment lines, comparing their beliefs about what female clients would have chosen prior to the consultation (x-axis) with their expectations of what female clients will choose after the consultation (y-axis). The upper left panel presents results for all advisors. The upper right panel restricts the sample to advisors who consider "Mainly Bonds" or "Guaranteed" optimal for Anna or Christian. The lower left panel shows results for advisors who deem "Balanced" optimal, and the lower right panel for those who consider "Mainly Stocks" optimal.

Figure 18: Monthly Contributions at Admission (Full Distribution)



Notes: The figure shows the full distribution of chosen monthly contributions (as a share of income) at initial enrollment in one of the four pension funds between 2008 and 2024.

Figure 19: Effect of placebo information treatment on actual portfolio choices



Notes: The figure presents results from two placebo interventions. Each panel plots the sequence of event-time coefficients β_k from the event-study specification in Equation 2. The left panel reports estimates for chosen investment lines (ordered probit) over the period September 2022 to June 2023, while the right panel reports estimates for the period September 2023 to June 2024. Ninety-percent confidence intervals are based on heteroskedasticity-robust standard errors clustered at the information center level. The red dashed vertical lines indicate the placebo intervention dates (February 2023 and February 2024).

Table 21: Determinants of Early Withdrawal Behavior

	Dependent variable:					
	Early Withdrawal (0/1)		Age 1^{st} Withdrawal		Years until 1^{st} Withdrawal	
	Probit		*OLS*		*OLS*	
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.223^{***}	-0.221^{***}	0.181^{***}	0.127^{*}	0.078	0.042
	(0.011)	(0.012)	(0.062)	(0.066)	(0.060)	(0.067)
Language: Italian	0.103^{***}	0.085^{***}	-0.099	-0.091	-0.494^{***}	-0.619^{***}
	(0.018)	(0.019)	(0.098)	(0.102)	(0.095)	(0.102)
Investment Line: Mainly bonds	-0.055^{***}	-0.055^{***}	0.303^{***}	0.185^{*}	-0.109	-0.287^{***}
	(0.018)	(0.020)	(0.098)	(0.106)	(0.095)	(0.107)
Investment Line: Balanced	-0.111^{***}	-0.125^{***}	0.409^{***}	0.298^{***}	-0.029	-0.185^{**}
	(0.015)	(0.016)	(0.080)	(0.088)	(0.077)	(0.088)
Investment Line: Mainly stocks	-0.161^{***}	-0.163^{***}	0.526^{***}	0.350^{***}	0.116	-0.103
	(0.018)	(0.020)	(0.102)	(0.109)	(0.098)	(0.110)
Birthyear	-0.007^{***}	-0.006^{***}	-0.943^{***}	-0.948^{***}	0.002	-0.004
	(0.0005)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
Education: High School		-0.0001		0.057		0.362^{***}
		(0.018)		(0.098)		(0.099)
Education: Vocational		0.015		-0.233^{**}		0.181^{*}
		(0.020)		(0.106)		(0.107)
Education: University		-0.138^{***}		0.229^{**}		0.501^{***}
		(0.020)		(0.109)		(0.110)
Observations	218,959	197,928	7,164	5,916	7,164	5,916
R^2			0.934	0.936	0.006	0.013

Notes: The table reports estimation results on early withdrawal behavior. The dependent variable in Models (1) and (2) is a binary indicator equal to one if an individual ever withdrew capital early and zero otherwise. Models (1) and (2) are estimated using probit. The dependent variable in Models (3) and (4) is the age at first withdrawal, and the sample is restricted to individuals who withdrew at least once. The dependent variable in Models (5) and (6) is the number of years until the first withdrawal, measured from the year an individual first joined a pension fund. The sample is again restricted to individuals who withdrew at least once. Models (3) to (6) are estimated using OLS. In all specifications, constant terms and residence fixed effects are omitted from the table for brevity but included in the estimation. *** p<0.01, ** p<0.05, * p<0.1.

D Household Survey

In January/February 2024, we conducted a population survey in Trentino–Alto Adige/Südtirol. The survey involved people between the ages of 25 and 60 and was designed to be representative of the two provinces (Trentino and Alto Adige/Südtirol), gender, language, and age. Conducted by an external company, the survey took place between the end of January and mid-February 2024 through computer-assisted telephone interviews (CATI). A total of 1,000 individuals were interviewed, with 500 participants from each province. The survey was designed to collect information on financial literacy, risk aversion, and pension saving behavior. A comprehensive analysis and discussion of the survey design and results is provided in Curi et al. (2026).

We use variations of the "Big Three" questions proposed by Lusardi and Mitchell (2011) to measure financial literacy. The exact questions are presented below. These questions are designed to capture three components of financial literacy: compound interest, numeracy, and the concept of diversification.

Suppose you had 100 euros in a savings account with no management fees and the interest rate was 2% per year. How much do you think you would have in the account after 5 years without ever making a withdrawal?

□ More than EUR 110

□ Exactly EUR 110

□ Less than EUR 110

□ Do not know

Suppose you leave 100 euros in a savings account with no management fees and the interest rate was 1% per year. Also, imagine that inflation is 2%. After 1 year, how much would you be able to buy with the money in this account?

□ More than I would be able to buy today

□ Exactly the same

□ Less than I would be able to buy today

□ Do not know

Please tell us whether this statement is true or false: "In general, investing 1000 euros in the shares of a single company is a less risky investment than investing 1000 euros in the shares of 10 different companies."

□ True

□ False

□ Do not know

We measure individual risk attitudes using the survey question developed by Falk et al. (2023), which is reported below. This measure is designed to capture individuals' willingness to take risks.

How do you see yourself: are you a person who is generally willing to take risks, or do you try to avoid taking risks?

Please use a scale from 0 to 10, where a 0 means you are completely unwilling to take risks and a 10 means you are very willing to take risks. You can also use the values in-between to indicate where you fall on the scale.

0	1	2	3	4	5	6	7	8	9	10
□	□	□	□	□	□	□	□	□	□	□

For each individual, we construct a composite measure of financial literacy that corresponds to the share of correct answers. Table 22 presents the financial literacy scores for the different Italian regions, compiled from the survey conducted in 2020 by the Bank of Italy (D'Alessio et al., 2020). In the national context, the level of financial literacy in the region Trentino–Alto Adige/Südtirol is at the Italian average.

Table 22: Financial Literacy in Italy

	Score
Italy	0.41
Northwest	0.47
Northeast	0.37
Center	0.43
South	0.38
Islands	0.38
Trentino/Alto Adige-Südtirol	0.42

Notes: The table reports average financial literacy scores, measured as the share of correct answers to the "Big Three" financial literacy questions. Scores for Italy and for the Northwest, Northeast, Center, South, and Islands regions are drawn from the 2020 survey conducted by the Bank of Italy (D'Alessio et al., 2020). The score for Trentino–Alto Adige/Südtirol is based on our own household survey of 1,000 individuals.

E Qualitative Analysis of Open-Ended Responses

This appendix provides a more detailed discussion of the qualitative evidence underlying the paper's analysis. To complement and help interpret the experimental results on gender-differentiated pension investment recommendations, we analyze advisors' responses to an open-ended survey question included at the end of the questionnaire. After being presented with an informational prompt summarizing prior evidence that women are, on average, more frequently recommended bond-based or balanced investment lines than men, advisors were asked to reflect on the possible reasons for this pattern. The question was phrased as follows: *"In your experience, what factors might explain the results of last year's survey, which found that women are, on average, more frequently recommended bond-based or balanced investment lines compared to men, for whom a clear majority of advisors seemed to consider an equity-based investment line more appropriate?"* The wording was deliberately open-ended in order to elicit advisors' own interpretations, without steering responses toward pre-specified mechanisms.

Overall, we obtained 83 textual responses that we analyze using a hybrid deductive–inductive content-analysis approach, following qualitative methods increasingly adopted in economics to interpret open-ended survey evidence (see, for example, Haaland et al.,

2025). The coding framework is deductive insofar as it begins from a set of mechanism-based categories that closely mirror the conceptual channels discussed in the paper. At the same time, the approach is inductive: repeated and iterative readings of the responses were used to refine category definitions, consolidate overlapping labels, and ensure that the final codebook accurately captures the language, reasoning, and emphasis expressed by advisors. The resulting codebook is presented in Table 23.

Coding was implemented in two stages. First, each response was assigned a single *primary category* capturing the dominant explanation articulated by the respondent; this classification is mutually exclusive and is intended to summarize the main mechanism emphasized in each answer. Second, we recorded binary indicators for whether each mechanism was *mentioned anywhere* in the response, allowing multiple mechanisms to be attributed to a single respondent. This two-layer structure preserves comparability across responses while recognizing that open-ended answers often combine several related explanations.

Responses were independently coded by two coders using a shared and pre-specified codebook (see Table 23). Disagreements were discussed and resolved prior to finalizing the coding used in the analysis. Responses that were blank or did not contain interpretable content were classified as *no answer* and retained as a separate category. Intercoder agreement for the primary-category classification is high, with a percent agreement of 92.8% and a Cohen's κ of 0.895, indicating a high degree of reliability in the coding process. Table 24 summarizes the resulting distribution of categories, distinguishing between each respondent's dominant explanation and mechanisms mentioned anywhere in the response.

Table 23: Codebook for Open-Ended Responses

Category	Definition	Example from Data
`Stereotype-based beliefs about preferences`	Assumed gender differences in risk tolerance, caution, or investment attitudes. Interpreted as perceived preferences or stereotypes (beliefs), rather than empirically verified preference heterogeneity.	*"Women have fewer years of insurance contributions, and perhaps women are also less willing to take risks?"*
`Labor market and household constraints`	Labor-market or household constraints, including gender pay gaps, part-time work, maternity or caregiving breaks, and related income or wealth constraints.	*"No or lower income due to motherhood—men have higher earnings and are continuously employed."*
`Pension-system characteristics`	Pension-system features such as contribution or insurance years, employment gaps, and how accumulation rules translate career histories into pension outcomes.	*"Women have fewer years of insurance contributions, and perhaps women are also less willing to take risks?"*
`Paternalistic (protective) advising behavior`	Mentions advisors or consultations as the driver of differences, including steering women toward safer options, offering different choices, not taking women seriously, or referring to the advisory role or process.	*"I assume that many advisors think it is less important for women to have adequate financial protection."*
`Financial literacy and confidence`	Financial knowledge, education, interest, confidence, numeracy, or self-efficacy as drivers of behavior or interaction with advice.	*"In the consultation, information is provided and the client makes the decision themselves. Women tend to focus more on security and are less willing to take financial risks than men."*
`Denial of gender bias in advice`	Explicit rejection of the premise that investment advice differs by gender (e.g., "no difference by gender").	*"In my view, the investment line is not related to gender, but it may be that a woman tends to be more prudent in her investments."*
`Other / unclear`	Vague, off-topic, or insufficiently interpretable responses that do not clearly fit the categories above.	*"Because instinct prevails over reason in some situations."*
`No answer`	Empty responses, "don't know," punctuation-only, or equivalent non-responses.	*"."*

Notes: Categories are used to code advisors' open-ended explanations for observed gender differences in investment recommendations. Original responses were provided in German or Italian and have been translated into English for ease of interpretation here in the manuscript.

Table 24: Coding of Advisors' Perceived Explanations for Gender Differences in Investment Advice (including unclear and no answers)

	Primary category		Mentioned anywhere	
Coding category	n	%	n	%
Stereotype-based beliefs about preferences	42	50.6	46	55.4
Paternalistic (protective) advising behavior	10	12.0	12	14.5
Gender differences in labor market and household constraints	10	12.0	17	20.5
Denial of gender bias in advice	7	8.4	9	10.8
Gender differences in pension-system characteristics	5	6.0	7	8.4
Financial literacy and confidence	0	0.0	4	4.8
Other / unclear	5	6.0	5	6.0
No answer	4	4.8	4	4.8

Notes: The table summarizes the coding of 83 open-ended responses. "Primary category" assigns each response to a single dominant explanation (mutually exclusive). "Mentioned anywhere" records whether a given mechanism appears anywhere in the response and allows multiple mechanisms per response.

F Questionnaire Advisors

Here, we present the English translation of the questionnaire to advisors, originally in Italian and German.

Basic information [Page 1]

1. With which gender do you identify?
   ☐ Female
   ☐ Male
   ☐ Other
2. In which year were you born?
   Year:
3. In which municipality is the [Name of the Advisory Service Provider] where you work located?
   Municipality:
4. How many years have you been working at the [Name of the Advisory Service Provider]?
   Number years:
5. How many years have you been working in the field of retirement planning?
   Number years:
6. Approximately how many consultations on supplementary retirement planning do you conduct in a year? A rough estimate is sufficient.
   Number of consultations:
7. On average, how many minutes does a consultation on supplementary retirement planning last?
   Minutes:

[Page 2]

Please imagine the following scenario:

Assume that Anna/Christian, a 25-year-old first-time employee with a permanent employment contract, approaches you, expressing interest in supplementary pension provision. Her/his current net income is €1700.

8. In your experience, what percentage of her/his income should Anna/Christian contribute to a supplementary pension fund?
   ☐ 1%
   ☐ 2%
   ☐ 3%
   ☐ Other percentage
   If other precentage, please specify: %

9. In your experience, what percentage of individuals with a similar profile to Anna/Christian would be able to calculate the monthly Euro amount they will transfer?

   ____ %

10. In your experience, which investment line do you consider most suitable for Anna/Christian?

    ☐ Mostly stock-based investment line (e.g., Dynamic Investment Line)
    ☐ Balanced investment line (e.g., Balanced Investment Line)
    ☐ Mostly bond-based investment line (e.g., Cautious Investment Line)
    ☐ Secure investment line (e.g., Guaranteed Investment Line)

11. In your experience, what percentage of individuals with a similar profile to Anna/Christian understand the differences between these investment strategies?

    ____ %

[Page3]

Let us now consider Anna's/Christian's intentions before the supplementary pension consultation:

12. In your experience, what percentage of her salary did Anna/Christian intend to allocate to the supplementary pension plan before the consultation?

    ☐ 1%
    ☐ 2%
    ☐ 3%
    ☐ Other percentage

    If other precentage, please specify: ____ %

13. In your experience, which investment line did Anna/Christian intend to choose before the consultation and receiving all the information needed to make an informed decision about the supplementary pension?

    ☐ Mostly stock-based investment line (e.g., Dynamic Investment Line)
    ☐ Balanced investment line (e.g., Balanced Investment Line)
    ☐ Mostly bond-based investment line (e.g., Cautious Investment Line)
    ☐ Secure investment line (e.g., Guaranteed Investment Line)

[Page 4]

Now, think about the choices Anna/Christian might make after receiving the supplementary pension consultation.

14. In your experience, what percentage of her salary will Anna/Christian choose to contribute to the supplementary pension plan after the consultation?

    ☐ 1%
    ☐ 2%
    ☐ 3%
    ☐ Other percentage

If other precentage, please specify: ____ %

15. In your experience, which investment line will Anna/Christian choose after the consultation and receiving all the information needed to make an informed decision about the supplementary pension?

☐ Mostly stock-based investment line (e.g., Dynamic Investment Line)

☐ Balanced investment line (e.g., Balanced Investment Line)

☐ Mostly bond-based investment line (e.g., Cautious Investment Line)

☐ Secure investment line (e.g., Guaranteed Investment Line)

[Page 5]

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16. In your experience, how willing—or unwilling—is a person with a profile similar to Anna's/Christian's to take risks?

Please use a scale from 0 to 10, where 0 means "completely unwilling to take risks" and 10 means "fully willing to take risks," to assess the risk tolerance of a person with a profile similar to Anna's/Christian's.

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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Information Treatment A (50%): Gender Bias in Recommendations

17. A survey conducted in December 2023 examined if the recommendations made by [Name of the Advisory Service Provider] advisors differ depending on the gender of the person being advised.

The results showed that:

- [Name of the Advisory Service Provider] advisors recommend similar monthly contribution rates to both men and women.
- Women are more frequently recommended a bond-based investment line, whereas men are more often advised to choose an equities-based investment line.

Differences in investment line selection can significantly affect accumulated retirement wealth and contribute to gender disparities in pension outcomes.

Information Treatment B (50%): Client Misconceptions

18. A survey conducted among [Name of the Advisory Service Provider] advisors in December 2023 explored the prevalence of client misconceptions about the supplementary pension system.

The results showed that:

- 43% of clients possess incomplete or incorrect knowledge about the supplementary pension system. Informal exchanges (word of mouth) contribute to the spread of these misconceptions.
- Many clients appreciate receiving correct information from [Name of the Advisory Service Provider] advisors and incorporate it into their decisions. When the information contradicts prior beliefs, it often elicits positive reactions such as gratitude and relief.

[Page 7]

Please imagine the following scenario:

Imagine that Maria/Thomas, a 30-year-old with a permanent employment contract and a net monthly salary of €2200, comes to you expressing interest in a supplementary pension plan.

19. In your experience, what percentage of her/his income should Maria/Thomas contribute to a supplementary pension fund?

☐ 1%

☐ 2%

☐ 3%

☐ Other percentage

If other precentage, please specify: ____ %

20. In your experience, which investment line do you consider most suitable for Maria/Thomas?

☐ Mostly stock-based investment line (e.g., Dynamic Investment Line)

☐ Balanced investment line (e.g., Balanced Investment Line)

☐ Mostly bond-based investment line (e.g., Cautious Investment Line)

☐ Secure investment line (e.g., Guaranteed Investment Line)

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Information Treatment A (shown to Branch that saw treatment B on Page 6): Gender Bias in Recommendations

21. A survey conducted in December 2023 examined if the recommendations made by [Name of the Advisory Service Provider] advisors differ depending on the gender of the person being advised.

The results showed that:

- [Name of the Advisory Service Provider] advisors recommend similar monthly contribution rates to both men and women.
- Women are more frequently recommended a bond-based investment line, whereas men are more often advised to choose an equities-based investment line.

Differences in investment line selection can significantly affect accumulated retirement wealth and contribute to gender disparities in pension outcomes.

22. In your experience, what factors might explain the results of last year's survey, which found that women are, on average, more frequently recommended bond-based or balanced investment lines compared to men, for whom a clear majority of [Name of the Advisory Service Provider] advisors seemed to consider an equity-based investment line more appropriate?

Information Treatment B (shown to Branch that saw treatment A on Page 6): Client Misconceptions

23. A survey conducted among [Name of the Advisory Service Provider] advisors in December 2023 explored the prevalence of client misconceptions about the supplementary pension system.

    The results showed that:

    - 43% of clients possess incomplete or incorrect knowledge about the supplementary pension system. Informal exchanges (word of mouth) contribute to the spread of these misconceptions.
    - Many clients appreciate receiving correct information from [Name of the Advisory Service Provider] advisors and incorporate it into their decisions. When the information contradicts prior beliefs, it often elicits positive reactions such as gratitude and relief.

24. In your experience, what factors might explain the results of last year's survey presented on the previous page, which found that women are, on average, more frequently recommended bond-based or balanced investment lines compared to men, for whom a clear majority of [Name of the Advisory Service Provider] advisors seemed to consider an equity-based investment line more appropriate?

G Questionnaire Pre-Survey Advisors

This is the English translation of the questionnaire submitted in Italian and German to a small group of advisors in December 2023 on which we base the information treatment. Cavotta et al. (2026) report in details the findings of this questionnaire.

Basic information [Page 1]

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1. With which gender do you identify?
   ☐ Female
   ☐ Male
   ☐ Other percentage

2. In which year were you born?
   Year:

3. In which municipality is the [Name of the Advisory Service Provider] where you work located?
   Municipality:

4. How many years have you been working at the [Name of the Advisory Service Provider]?
   Number years:

5. How many years have you been working in the field of retirement planning?
   Number years:

6. Approximately how many consultations on supplementary retirement planning do you conduct in a year? A rough estimate is sufficient.
   Number consultations:

7. On average, how many minutes does a consultation on supplementary retirement planning last?

   Minutes:

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8. In your experience, on a scale of 0 to 10, where 0 indicates no knowledge, 5 indicates sufficient knowledge, and 10, indicates comprehensive knowledge, what is the level of knowledge about the public pension system among the individuals seeking assistance at the [Name of the Advisory Service Provider]?

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9. In your experience, on a scale of 0 to 10, where 0 indicates no knowledge, 5 indicates sufficient knowledge, and 10, indicates comprehensive knowledge, what is the level of knowledge about the private pension system among the individuals seeking assistance at the [Name of the Advisory Service Provider]?

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

10. In your experience, what share of individuals among the individuals seeking assistance at the [Name of the Advisory Service Provider] has incorrect knowledge and perceptions about voluntary retirement provision?

    %

11. In your experience, to what extent do customers tend to incorporate the information provided by you into their decision-making?
    (On a scale of 0, meaning “never”, to 5, indicating “half of the time”, and 10 representing “always”.)

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

12. Please briefly describe the incorrect knowledge and perceptions that arise during the enrollment phase for the pension fund.

13. Please briefly describe the incorrect knowledge and perceptions that arise during an early capital withdrawal.

14. Please briefly describe the incorrect knowledge and perceptions that arise during the retirement entry phase.

15. In your opinion, what are the causes of these incorrect knowledge and perceptions that you mentioned in questions 11-13?

[Page 3]

Please imagine the following scenario:

Assume that Anna/Christian, a 25-year-old first-time employee with a permanent employment contract, approaches you, expressing interest in supplementary pension provision. Her/his current net income is €1700.

16. In your experience, what percentage of her/his income should Anna/Christian contribute to a supplementary pension fund?

☐ 1%

☐ 2%

☐ 3%

☐ Other percentage

If other precentage, please specify: %

17. In your experience, what percentage of individuals with a similar profile to Anna/Christian would be able to calculate the monthly Euro amount they will transfer?

%

18. In your experience, which investment line do you consider most suitable for Anna/Christian?

☐ Mostly stock-based investment line (e.g., Dynamic Investment Line)

☐ Balanced investment line (e.g., Balanced Investment Line)

☐ Mostly bond-based investment line (e.g., Cautious Investment Line)

☐ Secure investment line (e.g., Guaranteed Investment Line)

19. In your experience, what percentage of individuals with a similar profile to Anna/Christian understand the differences between these investment strategies?

%

[Page 4]

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20. Back to your experience at the [Name of the Advisory Service Provider], what do you do to correct a person who has incorrect knowledge or perception?

21. In your experience, which categories of individuals more frequently have incorrect knowledge/perceptions (e.g., based on gender, age, or education level)?

    Please, if possible, address separately individuals who come to you for entry into a pension fund, for early capital withdrawal, and during the retirement entry phase.

22. In your experience, to what extent do customers tend to incorporate the information provided by you into their decision-making?

    (On a scale of 0, meaning "never,' to 5, indicating 'half of the time,' and 10 representing 'always.)

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

23. In your experience, what reactions do customers typically exhibit when confronted with information that contradicts their prior knowledge?

    ☐ Anger

    ☐ Confusion

    ☐ Fear

    ☐ Frustration

    ☐ Gratitude

    ☐ Indifference

    ☐ Relief

24. In your experience, how useful are the following tools/approaches for conveying information during consultations at the [Name of the Advisory Service Provider]?

    On a scale of 0, meaning "Completely useless', to 5, indicating "Neither useless nor useful", and 10 representing "Very useful".

    Brochures:

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

    Talk about own experiences:

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

    Talk about experiences of Others:

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

    Simulations:

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Diagrams:

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐