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Stereotypes, Financial Literacy, and Confidence: An Information Provision Experiment

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Stereotypes, financial literacy, and confidence: An information provision experiment*

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January 7, 2026

Abstract

Financial literacy is an important prerequisite for making informed financial decisions, but it remains low, especially among women and older people. Internalized stereotypes can undermine confidence and subsequently affect behavior in financial matters, leading to suboptimal decisions. This paper investigates how stereotype salience affects confidence in financial literacy. In an information provision experiment, we inform respondents about age or gender differences in numeracy to examine the impact on financial literacy, confidence, hypothetical investment and saving decisions, and demand for information and education. We find that being informed about age differences has no significant effect. In contrast, being informed about gender differences increases the confidence of male respondents through a stereotype boost, while leaving female respondents largely unaffected.

JEL Codes: C90, D91, G53, I24, J16

Keywords: survey experiment, numeracy, gender stereotypes, age stereotypes

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1 Introduction

To make informed financial decisions, individuals need to have a solid understanding of financial concepts. In recent years, the shift from defined benefit to defined contribution pension schemes has placed greater responsibility on the individual to actively manage their own savings (Poterba 2014). As a result, individuals need to keep up with increasingly complex financial markets and recent inflation developments in order to remain financially resilient. In response, policymakers at the national and international level have launched initiatives to enhance financial literacy (see, e.g., OECD 2020). Despite these efforts and the growing importance of financial literacy, it remains relatively low worldwide – especially among women and older people (Lusardi and Mitchell 2011). However, financial literacy is particularly important for these groups because women are at higher risk of facing poverty in old age, while older people need to be able to make informed decisions about their pensions, such as when to retire, and to manage their financial needs after retirement (Lusardi and Messy 2023; Preston and Wright 2023).

These group differences in financial literacy cannot be fully explained by differences in cognitive ability. Confidence can be a driving force in explaining differences in financial literacy and financial decision making. For example, women are less confident in their own financial literacy and in their ability to handle financial matters (Lusardi and Mitchell 2014). In contrast, older people continue to show high levels of confidence in financial decision making, although financial literacy (Okamoto and Komamura 2021; Finke et al. 2017; Almenberg and S  ve-S  derbergh 2011) and numeracy (Hanushek et al. 2025) decline with age.

While previous studies have provided evidence of group differences in both financial literacy and confidence in one’s own financial literacy (see, e.g., Bucher-Koenen et al. 2023; Bottazzi and Lusardi 2021; Finke et al. 2017), the mechanisms driving these findings are not yet fully understood. One potential mechanism could be internalized stereotypes: If certain groups have been conditioned to believe that they know less about financial matters, this may be reflected in their knowledge, confidence and ultimately their savings decisions. The psychological literature refers to this as stereotype threat. Stereotype threat occurs when an individual from a stereotyped group fears being judged or treated unfairly based on that stereotype (Spencer et al. 1999; Steele et al. 2002; Spencer et al. 2016).

To investigate the role of stereotypes for financial literacy and confidence we conduct an information provision experiment with a quota-representative sample of about 2,500 German respondents. Treated respondents are exposed to information about either age or gender differences in numeracy skills, thereby making existing stereotypes salient. More specifically, they are informed that according to the results of an international study comparing the skills of adults, young people (men) have higher numeracy skills than older people (women). We base our treatment on negative stereotypes about numeracy related to age and gender. In addition, the experiment includes an active control group which is informed that in an international comparison, adults in Germany have average everyday skills. This experimental design allows us to analyze whether the exposure to stereotypes affects confidence and, therefore, correct answers to financial literacy questions. We also investigate whether exposure to these group differences translates into behavioral changes by analyzing hypothetical investment

and savings decisions and the demand for information and education. If financial literacy – or even confidence in one’s own ability – is affected by exposure to stereotypes, this may have implications for behavior. For example, groups that are stereotypically associated with lower skills might abstain from making important financial decisions because they do not consider themselves able to make the right decisions. They may also have a greater demand for additional information and for educational opportunities.

Our results provide suggestive evidence that information about gender differences in numeracy skills may increase confidence in answering financial literacy questions, but decreases confidence when comparing oneself to others. When focusing on the effects on men and women, we observe no evidence of stereotype threat affecting women. However, exploratory analysis reveals an increase in confidence among male respondents. This increase in confidence does not translate into differences in savings decisions or demand for information and education. Focusing instead on the age treatment, we observe neither average treatment effects nor heterogeneity in the response to treatment for any of our outcomes.

This paper is closely linked to three strands of literature: First, there is an emerging literature that uses randomized control trials to better understand answering behavior in financial literacy questions. For example, Bucher-Koenen et al. (2024) and Cziriak et al. (2024) show that the gender gap in financial literacy decreases if respondents are not able to choose the “I don’t know” option. Moreover, they demonstrate that a substantial part of the gender gap in financial literacy can be explained by a lack of confidence among women. Hospido et al. (2023) propose additional measures to reduce this bias in confidence. They find that women are less likely to choose the “I don’t know” option and answer more questions correctly if they are presented with the information that the gender gap in financial literacy is driven by women answering more often with “I don’t know”. While this information reduces the gender gap in financial literacy, it does not eliminate it completely.

The second research strand focuses on the effect of individual (over)confidence on different economic outcomes. In the context of financial literacy, there are gender and age gaps in confidence (Lusardi and Mitchell 2014). While financial literacy appears to decline at older ages, confidence tends to increase, especially for older men (Okamoto and Komamura 2021; Finke et al. 2017). As perceived financial literacy can be a driver for financial outcomes (Vörös et al. 2021; Anderson et al. 2017), overconfidence in one’s own financial literacy can foster adverse financial behavior, for instance mortgage payment delinquency (Kim et al. 2020). Moreover, men tend to be more overconfident than women in competitive situations, which contributes to the gender gap in, for example, (expected) wages (Adamecz-Völgyi and Shure 2022; Briel et al. 2022) or financial decisions (Beckmann and Menkhoff 2008; Barber and Odean 2001).

Finally, we contribute to the literature on stereotypes and task performance, with a particular focus on numeracy. Stereotype threat has been extensively studied in the psychological literature. One focus of this research is the effect on performance-based outcomes. This literature establishes that stereotypes about women being ‘bad at math’ hinder women’s performance in numeracy-related tasks (see for instance Spencer et al. 1999; Steele et al. 2002). Johnson et al. (2012) show that women perform better in math tests when they are told that they usually perform well in them. However, men seemed to

perform better under stereotype threat. According to Johns et al. (2005), achievement gaps between genders can be closed by informing women about the effects that stereotype threat can have on the performance in math tests. Crisp et al. (2009) show that, despite exposure to stereotype threat, the performance of female STEM students increased. Potential reasons include intrusive thoughts (Cadinu et al. 2005), the feeling of dejection (Keller and Dauenheimer 2003), anxiety (Spencer et al. 1999), and upbringing (Tomasetto et al. 2011). A similar pattern emerges for older adults. They tend to perform worse in cognitive tasks when confronted with ageism or age-related stereotypes (Barber 2017; Lamont et al. 2015).

In the economics literature, stereotype threat is not yet widely studied. Related to numeracy, Fryer et al. (2008) find no effect of stereotype threat on the performance of female college students in a math test in an experimental setting. However, gender gaps increase in favor of men when stereotype threat and financial incentives are introduced by the authors. Tinghög et al. (2021) find that stereotype threat via financial anxiety affects the gender gap in financial literacy. Furthermore, stereotype threat has been documented in relation to achievement gaps in higher education (Dee 2014), strategic reasoning (Cubel and Sanchez-Pages 2017), and purchasing behavior (Lee et al. 2011). In addition, stereotypes about gender and numeracy are formed at an early age. These stereotypes seem to have a negative impact on girls’ financial knowledge, but a positive impact on boys’ (Driva et al. 2016). As Skagerlund et al. (2018) point out, numeracy can be a predictor for financial literacy. The presence of gender differences in financial literacy at younger ages can be explained by the socio-cultural environment of children (Bottazzi and Lusardi 2021). Jouini et al. (2018) argue that negative stereotypes about gender and math lead to lower confidence, less risky decisions, and lower performance of women in math-related tasks.

Previous experimental studies have typically informed participants about performance differences related to the task at hand, finding that stereotyped groups perform worse when made aware of the stereotypes. Studies focusing on numeracy usually take place in an academic environment with children or young adults (Johnson et al. 2012). Hence, we know little about whether numeracy stereotypes affect outcomes beyond math-test performance, and whether stereotype effects are also observed in representative adult populations.

Our experiment addresses these gaps. We study a representative sample of the adult population in Germany. We first provide information about age and gender differences in math performance, and then assess financial literacy. This experimental setup allows us to investigate whether stereotype effects transfer from one domain to another, from numeracy to financial literacy, highlighting a mechanism that may contribute to gaps in financial literacy. Moreover, we contribute to this literature by analyzing how stereotypes affect confidence in financial literacy, an aspect less widely studied in previous research. By exposing respondents to stereotypes by making group differences salient, we can examine both answering behavior and confidence in the context of financial literacy. We show that the direction of the stereotype matters. The exposure to a numeracy stereotype in favor of men does not seem to affect women but increases the confidence of men. In addition, while most studies focus on gender differences, our paper provides a more nuanced picture by examining the role of information about both age and

gender differences in numeracy skills.

Our paper is structured as follows. In Section 2 we present our experimental design and in Section 3 our empirical strategy and hypotheses. The results are presented in Section 4. Finally, Section 5 concludes.

2 Survey and experimental design

2.1 Survey

Our analysis is based on data from an online survey conducted in Germany in November 2023. The target population of the survey was the German population over the age of 17, and the sample is quota representative in terms of age, gender, education, and residence in East or West Germany. Our sample has 2,517 observations, from which we exclude 19 respondents due to missing values in outcome and control variables. This sample size allows us to detect treatment effects of around 14 percent of a standard deviation at a 0.05 significance level with a statistical power of 0.8. On average, respondents took 9 minutes and 42 seconds to complete the survey. The average age of the respondents is 50, half of them are female and about 16% live in East Germany. About a third of the respondents have completed at least 12 years of schooling, 55% are employed and 32% of respondents have a migration background.¹ When comparing our sample to the average population (see Table B.2), we observe only small differences with the exception of political leaning. Respondents in our sample seem to be more conservative than the average population.²

The survey includes an information provision experiment designed to make stereotypes salient. Specifically, respondents are randomly informed about differences in numeracy skills between groups. The experimental design is described below.

2.2 Experimental design

Our experimental design consists of three steps: The elicitation of prior beliefs, the information treatment, and the measurement of our outcomes. Figure 1 provides an overview of the experimental setup.

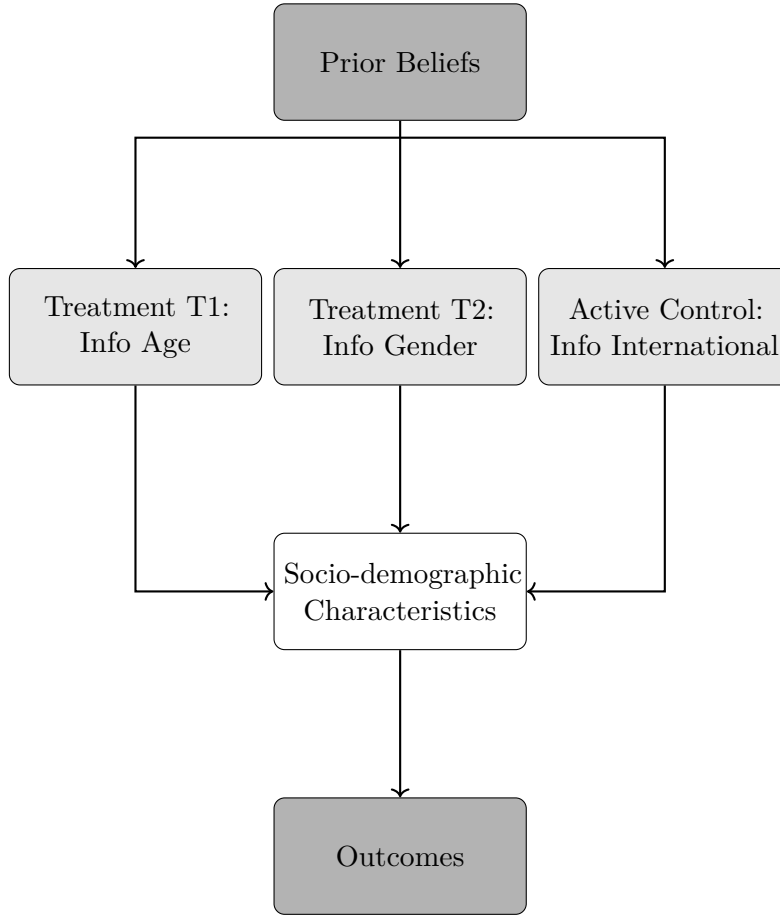
2.2.1 Step 1: Elicitation of prior beliefs

To understand whether stereotypes regarding numeracy skills are salient among respondents, we elicit their prior beliefs about group differences in these skills. We focus on numeracy skills which can be a predictor for financial literacy (Skagerlund et al. 2018), because numeracy includes the ability to understand, use, interpret, and communicate mathematical information and concepts in everyday situations (Rammstedt 2013). Eliciting prior beliefs about numeracy and everyday skills before the treatment allows us to assess whether the treatment confirms respondents' stereotypes or whether it

¹We provide an overview of all variables used for the analysis in Appendix A. Summary statistics are presented in Table C.1.

²We categorize a respondent as conservative, if a respondent says that they would vote for CDU, AfD, Freie Wähler, ÖDP, Die Basis, Die Rechte or Die Heimat, if there was a federal election on the upcoming Sunday. Our measure for the German population is based on the result of the last federal election (Bundeswahlleiterin 2021). However, voters' preferences may have changed in the two years between the election and the survey, which could explain why our sample differs from the general population in this dimension.

Figure 1: Experimental Setup



opposes them. By asking all groups about their beliefs, we ensure that the mechanism through which the treatment operates goes beyond priming.

Specifically, we ask the survey respondents whether they think that younger or older people have higher numeracy skills. We ask a similar question when comparing men and women. In addition, we ask them what they think about how adults in Germany compare internationally in terms of their everyday skills.³ The questions for the prior beliefs can be found in the appendix F.2. We discuss respondents' prior beliefs in Section 4.2.

2.2.2 Step 2: Information treatment

In the second step, respondents are randomly assigned to one of three experimental groups: i) the age treatment group, ii) the gender treatment group, or iii) the active control group.⁴ We provide each experimental group with a different information treatment. The information presented is based on the latest available results of the Programme for the International Assessment of Adult Competencies (PIAAC) at the time of the survey.

³Everyday skills refer to skills needed in everyday life in a modern society. In the Programme for the International Assessment of Adult Competencies (PIAAC), the study on which we base our information treatments, these include numeracy, reading, and technology-based problem solving.

⁴We provide evidence of the integrity of the randomization in Table B.1.

We provide information in the form of a statement, which is accompanied by a figure that is meant to illustrate the comparison, as shown in Figure F.1. Each treatment, including the active control information, is introduced by the following sentence: *“Germany regularly participates in an international survey on the skills and abilities of adults (PIAAC). The latest survey yielded the following results, among others.”* The provided information for each group is as follows:

- *Age Treatment (T1)*: In Germany, young adults have higher numeracy skills than older adults.
- *Gender Treatment (T2)*: In Germany, men have higher numeracy skills than women.
- *Active Control (C)*: In an international comparison, adults in Germany have average everyday skills.

We chose a design in which not only the treatment groups but also the control group received information. This ensures that treatment effects are not just due to receiving some information, but that the specific information matters. The information provided to the control group does inform about our issue of interest (i.e. skill differences) but in a more neutral way, i.e. without highlighting group differences in numeracy skills. We can then isolate the effect of the particular type of information provided from the effect of receiving any information at all. Additionally, receiving information may also increase the attention of respondents (Haaland et al. 2023). At the very end of our survey, we debrief all respondents by informing them about the study on which the information treatments are based. We also explain that the group differences may depend on the way skills are measured.

2.2.3 Step 3: Outcomes

In the third step, we elicit the outcomes of interest. To reduce concerns about experimenter demand effects, we do not elicit them immediately after the information treatment. Instead, we first ask respondents about their demographic and socio-economic characteristics. Only then do we ask about our outcomes.

Our analysis focuses on three sets of outcome variables:

- 1 Financial literacy and confidence
- 2 Hypothetical investment and savings decisions
- 3 Demand for information and education

Financial literacy and confidence Our first set of outcomes captures respondents’ financial literacy and confidence in their own financial literacy skills. This allows us to analyze whether the information treatment has a direct effect on respondents’ task performance when answering a standard set of financial literacy questions and their confidence in answering them. We measure financial literacy using the “Big Three” financial literacy questions established by Lusardi and Mitchell (2008) and calculate the score as the sum of correct answers. The wording to the questions can be found in Appendix F.4. To gain a deep understanding of respondents confidence, we measure confidence in several different ways, as described below.⁵

⁵A correlation matrix for our confidence outcomes can be found in Table C.3.

- *“Don’t know” answers:* Each of the three financial literacy questions comes with an “I don’t know” option. For this outcome we calculate how often a respondent chose this option. Therefore, a higher number indicates a lower level of confidence.
- *Subjective financial literacy:* Respondents are asked how many questions they think they answered correctly. A higher subjective financial literacy indicates higher levels of confidence.
- *Relative position:* Respondents are asked how many respondents in their opinion had more correct answers than they did. We have re-coded this variable in such a way that a higher relative position indicates a higher level of confidence.
- *Confidence in answers:* After each financial literacy question, respondents are asked how confident they feel in their answer. We construct an index by taking the average of the three confidence responses. Accordingly, a higher index indicates a higher level of confidence.

To account for multiple hypothesis testing, we create an index based on the aforementioned confidence outcomes. To build the index, we first standardise the outcomes, and then calculate their average.

Hypothetical investment and saving decisions If information on such group differences affects confidence and financial literacy, it may also have an effect on investment and savings decisions (Preston and Wright 2023). Investing on the stock market requires financial literacy and numeracy skills to understand financial products. A potential stereotype threat, induced by our information treatment, might lead affected respondents to be less willing to invest money in the stock market. Therefore, our second set of outcomes focuses on such (hypothetical) decisions. More precisely, we ask respondents how they would allocate a hypothetical lottery win of 100,000 euros. They can allocate the amount between a savings account, cash savings, private pension, stocks/funds/ETFs, immediate consumption such as a vacation, giving it to relatives or other people, and donating. We then construct two variables that capture the share of money that a respondent wants to allocate to investment or saving options rather than using it for (immediate) consumption. The *Saving* variable captures putting money into a savings account or cash savings, whereas the *Investment* variable captures investing in private pensions or stock options, i.e. shares/funds/ETFs.

Demand for information and education Finally, respondents are asked to indicate their level of agreement with a series of statements about information and education policies. We do this to understand whether informing people about group differences and highlighting possible existing stereotypes affects their demand for education and government intervention. More specifically, we present them with the following statements:

- Even after leaving school, the state should ensure that all citizens are provided with regular information on savings and old-age provision.
- A federal government online platform on financial literacy is a good way to keep up with the financial system.
- Financial literacy courses are a good way to keep up with the financial system.
- I see a great need for me to attend a financial literacy course.

- There should be a greater focus on financial literacy in schools.
- Private old-age provision should be left to each individual and the state should not interfere in this.⁶

We elicit all answers on a 5-point Likert scale with the following answering options: strongly disagree, somewhat disagree, undecided, somewhat agree, and strongly agree. For our main analysis we construct an index on the demand for information and education. To build the index, we first standardize the outcomes, and then calculate their average.

3 Empirical Framework

3.1 Estimation equation

To analyze the causal effect of providing information on group differences in numeracy skills, we use an OLS estimator and estimate the following equations:

$$Y_i = \alpha_1 + \alpha_2 Treat_{ij} + \alpha^T X'_i + \varepsilon_i \quad (1)$$

$$Y_i = \beta_1 + \beta_2 Treat_{ij} \times H_i + \beta_3 Treat_{ij} + \beta_4 H_i + \beta^T X'_i + \varepsilon_i \quad (2)$$

Equation (1) estimates the average treatment effects. Y_i denotes the respective outcome variable. $Treat_{ij}$ is an indicator of whether an individual i is either in the active control group or in the age or gender treatment group (j). With equation (2) we estimate heterogeneous responses to the treatment. H_i denotes the heterogeneity dimension of interest, namely age or gender. Finally, X'_i is a vector of individual controls and ε denotes the error term. In all specifications, we control for age, gender, residence in East or West Germany, education, risk attitude, trust in public institutions and statistics, patience, marital status, employment status, household income, household size, migration background, political affiliation, prior beliefs, self-assessed numeracy skills, self-assessed financial skills, self-assessed reading skills and savings behavior. More information about the control variables can be found in Appendix A.

3.2 Hypotheses

In this section, we introduce our hypotheses as registered in our pre-analysis plan.⁷ We expect the average treatment effect to be close to zero because we expect opposite responses to the treatments from the respective groups. Therefore, our main focus is on analyzing heterogeneity in treatment responses. We base our hypotheses on the idea of stereotype threat.⁸ The groups to which we refer

⁶We have recoded this statement so that a higher number indicates more state involvement, in order to bring it in line with the other statements.

⁷For the pre-registration see AEARCTR-0012432. Note that in order to be consistent throughout the paper, we have changed the wording from “everyday mathematical competencies” to “numeracy skills” in all hypotheses.

⁸Stereotype threat refers to the concept that individuals change their behavior in a negative way according to a particular stereotype (Spencer et al. 1999; Steele et al. 2002; Spencer et al. 2016). Note that we might additionally find evidence for stereotype boost, leading to a change in behavior in a positive way, as our main specification analyses

to in our hypotheses are always compared to the same group in the control group. For example, we compare women in the gender treatment group to women in the control group.

Confidence

Hypothesis Ia – Confidence: Age: Older⁹ respondents will be less confident when learning that their group has lower numeracy skills.

Hypothesis Ib – Confidence: Gender: Women will be less confident when learning that their group has lower numeracy skills.

Hypothetical investment and savings decisions

Hypothesis IIa – Hypothetical investment and saving decisions: Age: Older respondents will allocate money from a hypothetical lottery win more towards less risky and less financially profitable options, when learning that their group has lower numeracy skills.

Hypothesis IIb – Hypothetical investment and saving decisions: Gender: Women will allocate money from a hypothetical lottery win more towards less risky and less financially profitable¹⁰ options, when learning that their group has lower numeracy skills.

Demand for information and education

Hypothesis IIIa – Demand for information and education: Age: Older respondents will have a higher demand for information and education when learning that their group has lower numeracy skills.

Hypothesis IIIb – Demand for information and education: Gender: Women will have a higher demand for information and education when learning that their group has lower numeracy skills.

4 Results

4.1 Age and gender differences in self-reported skills

In this section, we describe respondents' self-reported skills. Before the information treatment, respondents were asked to assess their own skills regarding financial, numeracy, and reading skills.¹¹ Figure 2 shows fitted values of age-specific self-reported skills. For self-reported financial skills in Figure 2a, we see that men report higher financial knowledge than women across all age groups. This gap is largest for younger respondents and decreases – but does not fully vanish – with higher age. With increasing age, women report slightly higher values for their financial skills, while men report lower values. A possible explanation could be that with higher age and more life experience respondents have

treatment effects not only for groups provided with negative information (i.e., women and older individuals) but also for groups provided with positive information (i.e., men and younger individuals). The analysis of a potential stereotype boost is not part of our pre-registered hypotheses and therefore exploratory.

⁹Older respondents are aged 45 years and above.

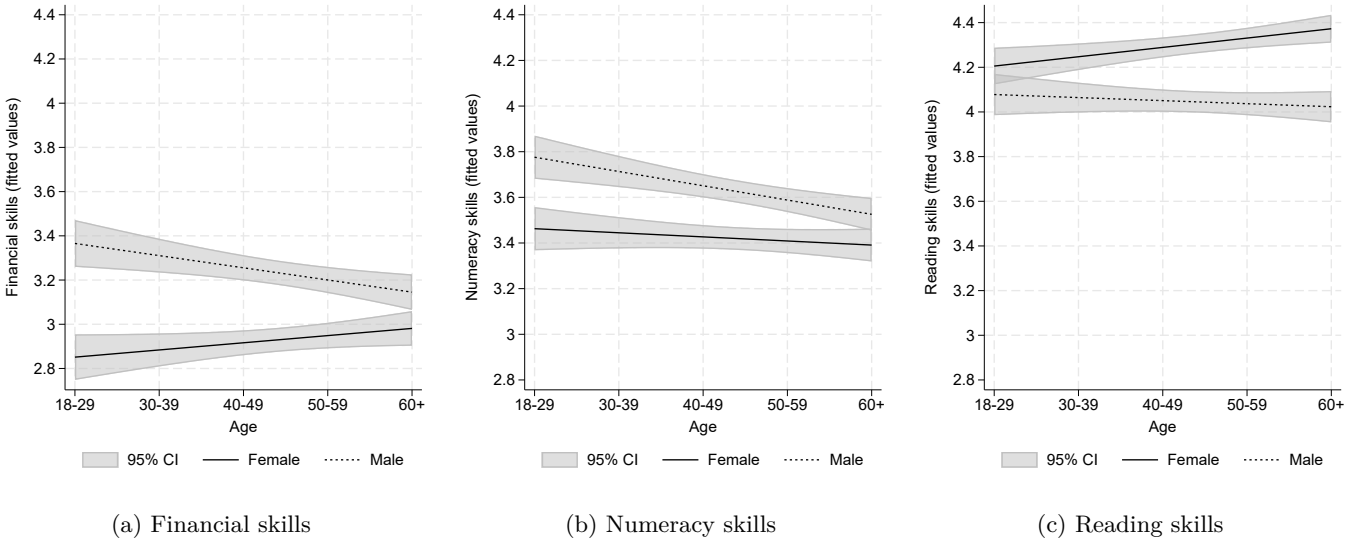
¹⁰The original hypotheses in the pre-analysis plan referred to these as “less relatable” options. This wording was an error and the hypothesis was intended to be formulated in parallel with the age hypothesis.

¹¹We ask respondents how they would rate their respective skills on a scale from very good (1) to poor (5) using the wording typically used for school grades. We then recode these responses such that a higher number implies higher self-assessed skills. Financial skills refer to self-assessed financial knowledge. Numeracy skills refer to self-assessed general mathematical skills for everyday life. The exact wording to these questions can be found in Appendix F.1.

reflected more on their financial knowledge and therefore report values that are different from those of younger respondents. Additionally, different cohorts may evaluate their skills differently. Moreover, we also observe a gender gap in self-reported numeracy skills across age groups in Figure 2b. Again, the gap seems to be largest for younger individuals. Self-reported numeracy skills appear to decline slightly more for men than for women with increasing age, but again the differences do not disappear completely. The opposite can be observed in Figure 2c for self-reported reading skills. In our sample, women report higher reading skills than men. Across age groups, this gap seems to widen in favour of women, with older women reporting slightly higher reading skills than younger women.

Educational patterns may play a role in the persistence of skills gaps. Women may be more likely to pursue fields of study and occupations that require strong reading and verbal skills, while men may be more encouraged to pursue fields that emphasize numeracy skills (Lordan and Pischke 2022). This could lead to a widening of the self-reported skills gap as each gender builds confidence and expertise in different areas over the course of their lives.

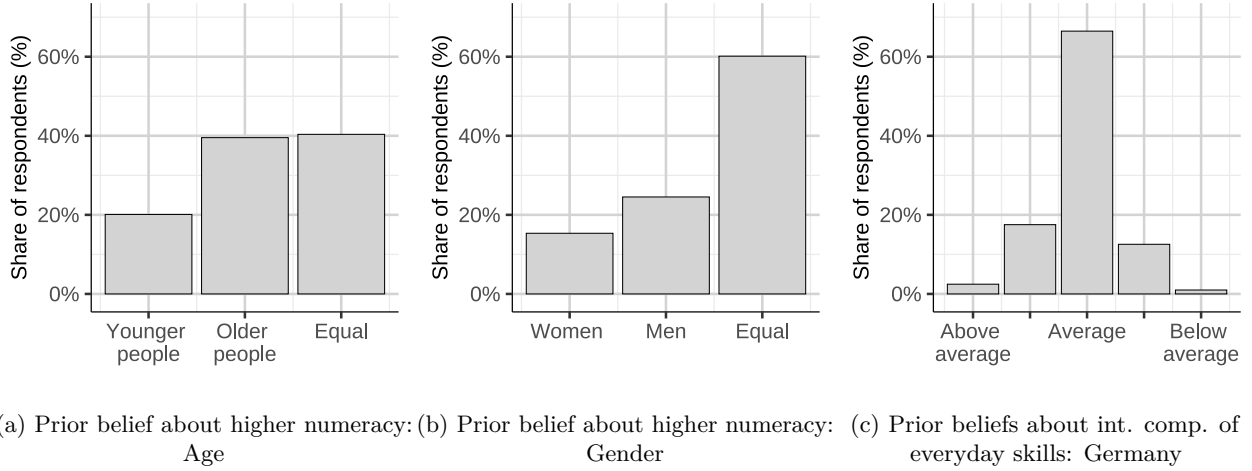
Figure 2: Age-specific self-reported skills



4.2 Prior beliefs about skill differences

In the first step of our experiment, we analyze respondents' prior beliefs about group differences in numeracy skills. We ask respondents about perceived differences between younger and older people, and between men and women. In addition, we ask people how they think Germany compares internationally in tests of everyday skills. Figure 3 shows the responses. In the age comparison in Figure 3a, significantly more respondents believe that older people have higher numeracy skills than younger people. In the gender comparison in Figure 3b, slightly but significantly more respondents believe that men have higher numeracy skills than women. However, many respondents think that there are no age (40 %) or gender (60 %) differences in numeracy skills. In addition, as shown in Figure 3c, most respondents correctly answered that Germany performs about average in international tests of everyday skills (66 %).

Figure 3: Prior beliefs about skill differences

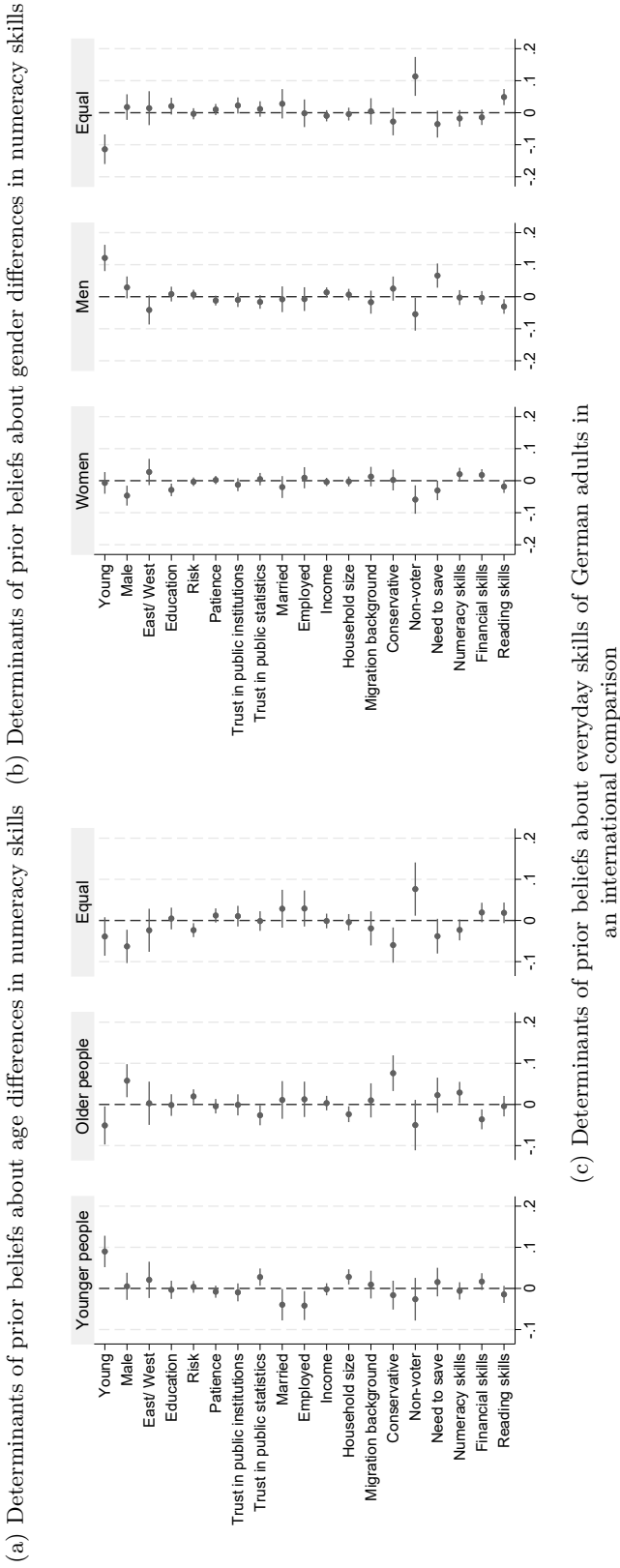


We are also interested in understanding which socio-demographic characteristics correlate with respondents' prior beliefs. Figure 4a shows the determinants of prior beliefs for the question of whether there are age differences in numeracy skills. Our findings indicate that age and gender play a role in shaping perceptions of numeracy skills. Specifically, younger respondents tend to perceive their own age group as having higher numeracy skills and are less likely to believe that older people possess higher skills. In contrast, men are more likely to attribute higher skills to older individuals, and less likely to perceive numeracy skills as equal between younger and older people. Furthermore, our results show that conservative voters and respondents with higher risk preference are more likely to attribute higher numeracy skills to older people, and less likely to consider them equal between the two age groups.

Next, we focus on the determinants of prior beliefs about gender differences in numeracy skills. In Figure 4b we observe different patterns in perceptions of numeracy skills than before: Men are slightly less likely to think that women have higher numeracy skills. However, younger respondents are more likely to think that men have an advantage in numeracy skills, and tend not to see skills as equal between genders. Non-voters tend to avoid attributing higher numeracy skills to either gender, instead considering both as equally skilled.

Finally, we analyze respondents' determinants of prior beliefs about how adults in Germany compare internationally in terms of everyday skills. In Figure 4c we see that younger respondents and men are more likely to think that Germany is doing better than average and less likely to think that Germany is doing about average internationally. In addition, respondents from East Germany and respondents with a higher level of trust in public institutions are less likely to think that Germany is doing worse than average. On the contrary, those with a higher level of education are more likely to say that Germany is doing worse than average.

Figure 4: Prior beliefs about numeracy skills of groups



Notes: This figure shows determinants of prior beliefs about differences in numeracy skills by age (Panel (a)) and gender (Panel (b)). Panel (c) shows determinants of prior beliefs about how adults in Germany compare internationally in terms of everyday skills. This question was measured on a 5-point scale, with 1 indicating clearly below average and 5 indicating clearly above average. The outcome variables were then coded so that respondents who answered 4 or 5 indicate above average, those who answered 1 or 2 indicate below average and those who answered 3 indicates average. The outcomes in all panels are binary variables where 1 indicates that a respondent chose this option and 0 otherwise. The number of observations is 2498. 95 % confidence intervals are displayed.

4.3 Exploring the reasoning behind respondents' prior beliefs

To gain a deeper understanding of respondents’ prior beliefs, our survey includes an open-ended question in which we ask respondents after eliciting their prior beliefs: “*How do you justify your assessments?*”. To analyze their justifications, we follow Schuetz (2026) and Casarico et al. (2024). We use the spaCy model “de_dep_news_trf” for Natural Language Processing. We remove digits and single letters from the response, tokenize and lemmatize the replies, and remove stop words. In addition, we categorize words with very similar meanings into groups, as described in Appendix G. We then create the wordcloud shown in Figure 5. The figure shows that some of the most common replies include ‘experience’ (*erfahrung*) and ‘perception’ (*gefühl*). This suggests that while some people think themselves to be very knowledgeable of the difference in skills due to their experiences, other people seem to have less knowledge about skill differences and rather follow their intuition. When focusing on more specific topics mentioned, we see that, for example, ‘education’ (*bildung*) and ‘school’ (*schule*) are mentioned relatively often. This shows that many respondents consider education, whether in school or elsewhere, as an important factor when thinking about differences in skills. Other factors such as ‘math’ (*rechnen*), ‘calculator’ (*taschenrechner*) and ‘smartphones’ (*smartphone*) seem to underline this finding. Another word that pops up is ‘study’ (*studie*), which signals that several respondents are aware of studies such as the PISA study, which compares education and skills at an international level.

Figure 5: Reasoning of prior beliefs



Notes: This figure shows how respondents justify their assessments of the prior beliefs questions.

4.4 Treatment effects of information provision

In the second step of our analysis, we focus on the causal effects of our information treatments. More precisely, we analyze whether information about age or gender differences in numeracy skills affects respondents' financial literacy and their confidence (Section 4.4.1), their hypothetical investment and

savings decisions as well as their demand for information and education (Section 4.4.2).

4.4.1 Confidence and financial literacy

First, we analyze whether providing information about group differences in numeracy skills affects respondents' financial literacy and their confidence in their own financial literacy (see Table 1). Specifically, we first focus on their financial literacy score (Column 1), which is measured as the sum of correct answers to the “Big Three” financial literacy questions established by Lusardi and Mitchell (2008). The results to our confidence measures are presented in Columns 2 to 5. We measure confidence as the number of “don’t know” responses (Column 2), how many questions respondents think they answered correctly (Column 3), how well they think they do compared to others (Column 4), how confident they are in their responses to the financial literacy questions (Column 5). Column 6 shows the results for the confidence index.

Focusing on the control group, we find that these respondents have an average financial literacy score of approximately 2.1 (Column 1), implying that they on average answered two out of three questions correctly. Respondents say that they do not know the answer to 0.5 questions (Column 2) and believe they answered two out of three questions correctly (Column 3). Respondents in the control group estimate that they perform average compared to other survey respondents, i.e. they think that 40%–60% of survey participants perform better than them or position themselves on average in the third quintile (Column 4). Furthermore, they are relatively confident in their answers (Column 5). More specifically, most respondents are somewhat certain or very certain (on average 64%) that they answered each of the financial literacy questions correctly.¹² Given that the difference between the financial literacy score and the subjective financial literacy is close to zero, respondents in the control groups are neither over- nor underconfident and seem to estimate their own financial literacy quite precisely.

We show the average treatment effects in Panel A of Table 1. We do not find evidence, that the age treatment affects either financial literacy or the confidence respondents have in their financial literacy. For the gender treatment, however, we find suggestive evidence that respondents in this treatment group are more confident in their answers and less confident in their relative position. This result deviates from our pre-analysis plan, in which we anticipated the average treatment effect to be close to zero because subgroups were expected to react in opposite directions. However, the result is not robust to the Westfall Young stepdown correction for multiple hypotheses testing, implying that these results should be interpreted with caution.

For the analysis of heterogeneity in treatment effects, we first focus on age differences (Panel B). Looking at the control group, we can see that, on average, younger respondents, i.e. those below the age of 45¹³, answer fewer questions correctly on average (Column 1).¹⁴ Furthermore, they rightfully

¹²Confidence levels on the three different financial literacy questions are relatively similar. Respondents in the control group are slightly more confident about the question on interest rates, where 68.2% of respondents are somewhat certain or very certain. When asked about inflation and risk, 62.62% and 62.02% of respondents are somewhat or very certain respectively.

¹³This corresponds to the median age of the German population in 2023.

¹⁴Our treatment is based on numeracy results from the PIAAC but in our analysis we measure financial literacy.

think that they answered fewer questions correctly (Column 3) and are less confident in their answers (Column 5). They also assess their relative position compared to others as lower (Column 4). When focusing on treatment effects we observe neither significant effects for either older or younger individuals nor differences in effects between older and younger respondents.¹⁵ Thus, our findings do not support our pre-registered hypothesis that older individuals would show less confidence in response to the information treatment. The information about age differences - and the stereotypes associated with it - might be less straightforward or personally relevant than gender stereotypes when it comes to numeracy skills. As suggested by Aronson and McGlone (2009), stereotype threat may only apply if respondents are aware that they belong to a stereotyped group. Hence, respondents in the age group may not be aware of whether they are considered old or young. There may be some stereotypes regarding cognitive decline with age or the distance to schooling. However, they might not be as strongly internalized as gender stereotypes.

We also analyze heterogeneity by gender (Panel C). Focusing first on the control group, we find that male respondents answer more questions correctly than female respondents (Column 1). They are also less likely to say they do not know the answer (Column 2) and are more confident in their answers (Columns 3 and 5). In response to the treatment, we do not observe any change in confidence among treated women. Hence, our findings do not provide evidence of negative effects of stereotype threat on female respondents' confidence, and therefore do not support our pre-registered hypothesis. However, we show that female respondents may respond less to the treatment than male respondents in terms of subjective financial literacy and confidence in answering the financial literacy questions correctly. Note, however, that this result is not robust to applying Westfall-Young stepdown adjusted p-values to account for multiple hypothesis testing. In additional exploratory analyses, we observe that male respondents are in contrast more confident in their answers once they learn about their on average higher numeracy skills. In particular, treated male respondents report being more confident when answering financial literacy questions and have a higher score on the confidence index, possibly pointing towards a stereotype boost. The treatment may confirm their perceived relative advantage in numeracy skills, which may lead to higher confidence in financial literacy. However, this increase in confidence does not translate into a higher financial literacy score.

While meta-analyses suggest that the impact of stereotype threat on cognitive performance of the affected group is relatively small ($d = 0.24$ or $d = 0.29$, see Picho et al. 2013; Doyle and Voyer 2016, respectively), this cannot explain our null results. Our study is sufficiently powered to detect effects of this magnitude within the relevant subgroups (women and older individuals).¹⁶ However, we provide respondents with information about numeracy skills but examine financial literacy. It is therefore

Hence, older individuals may have lower numeracy skills but still perform better in financial literacy compared to younger individuals.

¹⁵As a robustness check we conduct our analysis also with different age cut-offs (see Table D.1) and with age as a continuous variable (see Table D.2). The results remain unchanged.

¹⁶To detect an effect size of 0.24 among respondents affected by stereotype threat, we would need around 274 affected individuals per experimental group. Given that we have about 837 individuals per experimental group, with roughly half of them being women (around 418 per group) and around 60 percent belonging to the older age group (around 500 per group), our analysis is therefore well powered to detect effects of the magnitude reported in the meta-studies within the subsamples exposed to stereotype threat.

possible that stereotype threat does not translate across these domains, or does so only weakly, which may help explain the null effects we observe.

Table 1: Treatment effects on financial literacy and confidence

	FinLit	Confidence				
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index
<i>Panel A: Treatment effects of information provision</i>						
Treat Age	-0.006 (0.042)	0.028 (0.035) [0.891]	0.004 (0.041) [0.912]	-0.063 (0.062) [0.851]	-0.032 (0.048) [0.891]	-0.005 (0.026)
Treat Gender	0.005 (0.042)	-0.018 (0.033) [0.891]	0.033 (0.040) [0.891]	-0.107* (0.061) [0.389]	0.089* (0.046) [0.307]	0.025 (0.025)
Mean Control Group	2.097	0.521	2.012	2.952	3.875	0.010
Observations	2498	2498	2498	2395	2498	2395
<i>Panel B: Treatment effects by age</i>						
T1:Age	0.021 (0.052)	0.005 (0.043) [0.971]	0.039 (0.052) [0.883]	-0.106 (0.084) [0.755]	0.012 (0.060) [0.971]	-0.001 (0.033)
Young	-0.211*** (0.068)	0.079 (0.056) [0.673]	-0.282*** (0.066) [0.001]	-0.213** (0.095) [0.199]	-0.281*** (0.078) [0.004]	-0.182*** (0.041)
T1:Age × Young	-0.068 (0.088)	0.059 (0.073) [0.883]	-0.081 (0.085) [0.875]	0.103 (0.123) [0.883]	-0.105 (0.099) [0.856]	-0.007 (0.053)
T1:Age + T1:Age x Young	-0.048 (0.070)	0.064 (0.059)	-0.042 (0.068)	-0.003 (0.090)	-0.093 (0.080)	-0.009 (0.042)
Mean Old	2.174	0.519	2.108	3.038	3.982	0.083
Observations	1653	1653	1653	1582	1653	1582
<i>Panel C: Treatment effects by gender</i>						
T2:Gender	-0.005 (0.060)	-0.031 (0.050) [0.985]	-0.030 (0.059) [0.990]	-0.131 (0.082) [0.492]	-0.008 (0.066) [0.997]	-0.021 (0.037)
Male	0.257*** (0.063)	-0.211*** (0.051) [0.000]	0.342*** (0.061) [0.000]	0.014 (0.090) [0.997]	0.275*** (0.069) [0.000]	0.140*** (0.038)
T2:Gender × Male	0.028 (0.084)	0.014 (0.066) [0.997]	0.135* (0.081) [0.457]	0.050 (0.123) [0.994]	0.204** (0.091) [0.171]	0.094* (0.050)
T2:Gender + T2:Gender x Male	0.023 (0.058)	-0.017 (0.043)	0.106* (0.055)	-0.081 (0.091)	0.197*** (0.064)	0.074** (0.034)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057
Observations	1666	1666	1666	1606	1666	1606

Notes: Robust standard errors in parenthesis. Westfall-Young stepdown adjusted p-values in square brackets. Due to missing values the outcome variable “Relative position” has 2395 instead of 2498 observations. All specifications include the following control variables: old, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, conservative, non-voter, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.4.2 Investment and saving decisions and demand for information and education

Next, we analyze whether the treatments affect hypothetical investment or saving decisions and demand for information and education, as shown in Table 2. To elicit hypothetical investment and saving decisions, we use a lottery question that asks people how they would allocate 100,000 euros if they won the lottery. They can distribute the 100,000 euros between a savings account or cash savings, a private pension, shares/funds/ETFs, immediate consumption, gifting money to relatives or other people, or donating money. With this question, we aim to determine if there is a difference in allocating money to more profitable versus less profitable options between treated and untreated respondents. To this end, we create a variable that describes how much of the hypothetical lottery win is allocated towards saving options (*Saving*), i.e. putting money into a savings account or cash savings. A second variable describes how much money is allocated towards investment options (*Investment*), i.e. a private pension or shares/funds/ETFs.¹⁷ Focusing on the control group, we see that respondents allocate about 39% of their hypothetical lottery win toward saving options and around 28% are allocated toward investment options. Correspondingly, respondents would spend or donate about one-third of their lottery win. With respect to the average treatment effect (Panel A), we do not observe significant changes due to the information treatments. Furthermore, we do not find significant differences in treatment effects between older and younger respondents (Panel B). In Panel C we report that men in the control group put slightly less money towards saving options compared to women. Table D.3 in the appendix reveals that this is offset by higher stock investments by men. This finding is in line with the results of previous studies showing that women seem to be less likely to invest money in riskier financial options (Barber and Odean 2001; Beckmann and Menkhoff 2008). In response to the gender treatment, treated men allocate more money to savings options than treated women, but this difference is no longer statistically significant when applying Westfall–Young stepdown adjusted p-values to account for multiple hypothesis testing.

Finally, we analyze whether receiving information about group differences in numeracy skills affects the demand for information and education policies aimed at reducing these differences. Using our information demand outcomes from Section 2.2.3, we construct an information index that increases if respondents are more in favor of the measures. Focusing on the effect of our information treatments, we do not observe any changes in the demand for information and education due to either treatment (Panel A). Furthermore, we do not observe heterogeneity in response to the treatments between older and younger respondents (Panel B) or between male and female respondents (Panel C).¹⁸

The results presented in this subsection are not in line with our hypotheses: We do not find evidence for a stereotype threat, expressed by the choice of less risky and less financially profitable options, for either older respondents or women. We also do not observe a higher demand for information and education among respondents exposed to stereotype threat. However, in light of our earlier finding that neither of the treatments negatively affects confidence, these results are not surprising.

¹⁷The treatment effects for the individual options are shown in Table D.3.

¹⁸We show the results for the individual demand for information and education outcomes in Table D.4.

Table 2: Treatment effects on investment and saving decisions and demand for information and education

	(1) Saving	(2) Investment	(3) Info index
<i>Panel A: Treatment effects of information provision</i>			
Treat Age	-1.488 (1.494) [0.702]	1.286 (1.293) [0.702]	0.013 (0.028)
Treat Gender	-0.388 (1.500) [0.950]	0.274 (1.310) [0.950]	0.013 (0.028)
Mean Control Group	39.470	28.038	0.000
Observations	2498	2498	2498
<i>Panel B: Treatment effects by age</i>			
T1:Age	-1.225 (2.025) [0.954]	1.241 (1.701) [0.932]	0.017 (0.037)
Young	0.179 (2.304) [0.997]	0.716 (2.062) [0.987]	0.031 (0.045)
T1:Age $\times$ Young	-0.521 (2.961) [0.995]	-0.022 (2.623) [0.997]	-0.016 (0.057)
T1:Age + T1:Age $\times$ Young	-1.746 (2.166)	1.219 (1.989)	0.001 (0.043)
Mean Young	40.594	25.734	-0.037
Observations	1653	1653	1653
<i>Panel C: Treatment effects by gender</i>			
T2:Gender	-3.137 (2.053) [0.336]	0.687 (1.805) [0.889]	-0.026 (0.040)
Male	-3.660* (2.218) [0.335]	2.905 (1.912) [0.336]	-0.042 (0.041)
T2:Gender $\times$ Male	5.404* (3.000) [0.278]	-0.783 (2.642) [0.889]	0.081 (0.056)
T2:Gender + T2:Gender $\times$ Male	2.267 (2.195)	-0.096 (1.916)	0.055 (0.039)
Mean Female	41.514	26.037	0.022
Observations	1666	1666	1666

Notes: Robust standard errors in parenthesis. Westfall-Young stepdown adjusted p-values in square brackets. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.5 Mechanisms

In the following subsection, we discuss mechanisms that may drive the response to our treatment. This analysis is exploratory and not part of our pre-analysis plan. For the analysis, we focus on subsamples,

but we acknowledge that the resulting reduced sample size requires some caution in interpreting the results. We focus on the following mechanisms: prior beliefs about differences in numeracy skills, education, and risk preference.

Prior beliefs about skill differences Despite the null average treatment effects, there may be heterogeneity in treatment effects by prior beliefs about the group differences in numeracy skills. We split our sample into respondents who gave the correct answer (i.e. men or younger individuals have higher numeracy skills) and respondents who gave the wrong answer.¹⁹ Respondents may intrinsically already have a perception or a stereotype on the numeracy skills of groups. Therefore, the treatment may reinforce stereotypes for those who are aware of them, or contradict respondents' existing beliefs.

The treatment effects regarding age are shown in Table E.1. We do not observe any average treatment effects, apart from a significant decrease in the demand for information and education among respondents who hold the correct prior beliefs (Panel A1, Column 9). There are no significant differences in treatment effects for either subgroup, with one exception: the allocation of a hypothetical lottery win toward the savings option (Column 7). In the subgroup of respondents with correct prior beliefs, younger respondents increase their allocation toward saving in response to the treatment more than older respondents (Panel A2), but the effect is only marginally significant and the treatment effects are insignificant for both subgroups. For the subgroup of respondents with incorrect prior beliefs, we find suggestive evidence that young individuals in the treatment group allocate less money to the saving option (Panel B2).

Table E.2 shows the results for prior beliefs about gender differences in numeracy skills. Panel A shows respondents who have indicated that men have higher numeracy skills. Hence, their prior beliefs are in line with the information given in the gender treatment. For this group we do not observe average treatment effects for our outcome measures. When we look at treatment effects by gender, we see that neither men nor women in the treatment group react to the treatment. Although the interaction term reveals that men in this group react somewhat more to the treatment than treated women in terms of subjective financial literacy, this does not translate into a significant treatment effect. Panel B presents respondents who did not say that men have higher numeracy skills, i.e. who answered that either women have higher numeracy skills or that both groups are equal in their skills. For this group the gender treatment presents information that differs from respondents' prior beliefs. For these respondents we observe an overall increase in confidence in answers, which is driven by male respondents. Moreover, men in the treatment group increase their subjective financial literacy and show an increase in the information index. Hence, we may observe a stereotype boost for men when the treatment contradicts their prior beliefs.

Education Education is a key driver of financial literacy. People with higher levels of education

¹⁹We show that prior beliefs correlate to some extent with our outcomes in Table C.2. However, it is important to keep in mind that our treatment is designed to make stereotypes salient rather than to shift beliefs.

typically have a better understanding of financial concepts, feel more confident when answering financial literacy questions, and are more confident in making investment decisions (Bucher-Koenen et al. 2023; Bucher-Koenen et al. 2024; Lusardi and Mitchell 2014). In our sample, the level of education is correlated with respondents' prior beliefs: respondents with a higher level of education attribute higher numeracy skills to older people, lower numeracy skills to women and estimate that adults in Germany perform rather worse in international comparisons of everyday skills. In addition, education and school are mentioned by respondents as reasons for these prior beliefs (see Figure 5). Hence, we take a closer look at how education shapes the responses to our treatment.

To analyze treatment responses by education, we split our sample into two groups: Higher educated individuals, who have completed ten or more years of schooling, and low educated individuals, who have completed less than ten years of schooling, left school without a degree or are still in school. We show treatment effects regarding age in Table E.3. We observe neither a significant average treatment effect nor differences in treatment response between older and younger respondents.

Table E.4 shows how different levels of education are related to the response to the gender treatment. Panel A shows respondents with high education. We find an average treatment effect for our confidence measures: Respondents who are informed about gender differences in numeracy skills rank their own financial literacy higher and they are more confident in their answers. However, when they assess their own position, they rank slightly themselves lower. These effects seem to be driven by male respondents who might experience stereotype boost and thereby become more confident. However, this does not explain the lower ranking for the relative position. It might be that when it comes to the direct comparison with others they think about their immediate peers who are likely also highly educated and this may affect their assessment. Panel B shows the results for respondents with low education. Being informed that women have lower numeracy skills than men reduces the confidence of low educated female respondents in their own financial literacy significantly. These results suggest that low-educated women respond to the treatment in a way that is consistent with stereotype threat. However, this does not translate into changes in investment and savings decisions or in the demand for information and education.

Risk preference Another mechanism could be risk preference, because financial literacy is associated with higher risk taking. This is especially important when it comes to stock market participation (Hermansson and Jonsson 2021; Rooij et al. 2011). Moreover, women are often reported to be more risk averse and with age the willingness to take risks decreases (Dohmen et al. 2011). Therefore, we split our sample into respondents with higher and lower risk preference. We do this based on their self-reported response to the question whether they consider themselves to be a generally risk-taking person, which respondents answer on a scale of 1 to 5, with higher values indicating a greater willingness to take risks. Thus, respondents who answered 3 or higher are coded as having a high risk preference.

The results for the age treatment are reported in Table E.5. For the control group we find that younger individuals with a higher risk preference are not only less confident in their financial literacy, they also

have a lower financial literacy score. When it comes to treatment effects, older respondents with a higher risk preference seem to rank themselves somewhat lower relative to other individuals (Panel A, Column 4), while we observe no significant treatment effects in other outcomes.

Table E.6 shows how different levels of risk preference are related to the response to the gender treatment. Panel A shows the sub-sample for individuals with a higher risk preference and Panel B shows the sub-sample for individuals with a lower risk preference. Treated women with a higher risk preference show a somewhat higher confidence in their answers but also a lower relative position. Women with a lower risk preference report a lower confidence in their answers after they have received the gender treatment. Men, on the other hand, still exhibit higher confidence levels in their answers, irrespective of having higher or lower risk preference. Focusing on investment and savings decisions, we find that treated men with a higher risk preference allocate somewhat more money to savings options, while treated women with a lower risk preference allocate less money to these options. The allocation to investment options remains unaffected, as does the demand for information and education. Overall, our results regarding risk preference seem to suggest that risk preference plays only a minor role in how respondents react to the information treatments.

The analysis of potential mechanisms suggests that men may experience a stereotype boost in response to the gender treatment, particularly in their confidence in their answers and other dimensions of confidence, regardless of the characteristic considered. Conversely, women, especially those from vulnerable groups—such as individuals with lower education—tend to show decreases in confidence across multiple dimensions. These women may be more susceptible to stereotype threat. When they are reminded of the negative stereotype about their group’s numeracy skills, it may lead to anxiety and self-doubt, ultimately reducing their confidence. Moreover, individuals in these vulnerable groups may already have lower self-perceptions of their abilities. When confronted with information that their group performs poorly in numeracy, this may reinforce their negative self-assessment and lead to a further decline in confidence. This effect is less pronounced or absent when we look at younger and older respondents, who may not have internalized age stereotypes as strongly.

5 Discussion and concluding remarks

In this paper, we investigated whether stereotype salience, in the form of information about age and gender differences in numeracy skills, affects financial literacy, confidence, hypothetical investment and saving decisions, and demand for information and education.

We hypothesized that informing respondents that their group had lower numeracy skills would cause them to experience stereotype threat. We show that neither information about gender differences nor information about age differences has an overall effect on respondents. Focusing on heterogeneity in treatment effects, we do not observe significant differences by age. This finding is not in line with our hypotheses that treated older respondents will be less confident, will allocate more money from a hypothetical lottery win to less risky and less profitable options, and will have a higher demand for information and education. As we do not specify an age cutoff in the treatment, this may explain why there is no effect: Respondents may not be aware of whether they are considered old or young in our setting. Stereotype threat only affects respondents if they know that they are in a stereotyped group

(Aronson and McGlone 2009).

When focusing on gender, we show that women do not react to the treatment. However, exploratory analysis suggests that male respondents become significantly more confident in their own financial literacy when they learn that men have higher numeracy skills than women. We interpret this finding as consistent with stereotype boost experienced by male respondents. This increase in male respondents' self-confidence does not translate into differences in hypothetical investment and savings decisions. It is important to consider the hypothetical nature of the investment and savings decisions. Respondents may treat a lottery win differently than actual money. Finally, the differential response to information on gender differences in numeracy skills on confidence does not lead to heterogeneous treatment effects in the demand for information and education. Although these results are not in line with our hypotheses, as they do not provide evidence of stereotype threat, they do indicate that men respond differently to treatment than women in terms of confidence.

Upon further exploratory investigation into what moderates group-specific responses to the treatment, we show that the increase in confidence among treated male respondents is driven by those who were not aware of the higher numeracy skills of men prior to the treatment. In addition, we find that women with lower education become less confident when made aware that their group has lower numeracy skills. This pattern is not observed among different age groups. The absence of heterogeneity in response to the age treatment may be explained by respondents not being able to place themselves confidently in one group or the other. After all, it might not be clear to the respondents which age was regarded as young or old in our setting. In addition, respondents may have a more nuanced view about age differences in numeracy skills than about gender differences. They may be aware that, for example, older respondents have a higher level of knowledge about pensions (Elinder et al. 2022), which could be seen as closely related to numeracy, and therefore respond less strongly to the treatment. This may be different when it comes to gender differences, as many studies on different numeracy aspects, such as financial literacy (Bucher-Koenen et al. 2024; Bucher-Koenen et al. 2017) and pension knowledge (Elinder et al. 2022), all come to the same conclusion as the PIAAC results: that women appear to be less knowledgeable.

At first glance, providing information about group differences in numeracy skills has a limited impact on respondents. There are no differences in treatment effects between age groups, and women do not seem to respond to the treatment. Male respondents, however, seem to experience a stereotype boost, particularly when we contradict their prior beliefs and reinforce stereotypes about gender and numeracy in favor of men. Nevertheless, stereotypes seem to have a greater negative impact on women with less education. It seems therefore important to target financial literacy interventions toward specific groups. In addition, it appears to be important to avoid reinforcing existing stereotypes. Overall, understanding these dynamics can help educators and policymakers design more effective financial literacy initiatives that not only convey knowledge but also empower individuals, particularly those from vulnerable groups, to confidently manage their finances.

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Appendix A Variable description

Table A.1: Variable description

Variable Name	Type	Description
Prior beliefs:		
Prior Belief: Age	Categorical	“Which of these groups do you think has a higher level of numeracy skills?” Answer options: Younger people, older people, both the same
Prior Belief: Gender	Categorical	“Which of these groups do you think has a higher level of numeracy skills?” Answer options: Women, men, both the same
Prior Belief: International	Categorical	“How do you think adults in Germany perform in an international comparison of everyday skills?”
Outcomes:		
FinLit score	Numerical (0–3)	Sum of correct answers to the three financial literacy questions.
FinLit don’t know	Numerical (0–3)	Sum of “Don’t know” answer option.
FinLit subject	Numerical (0–3)	“What do you think, how many of the three questions did you answer correctly?”
Rel. position	Numerical (1–5)	“What do you think, how many people who also took part in this survey answered more questions correctly than you did?”
Conf. index	Numerical	Index of confidence outcomes
Overconf.	Numerical (–3–3)	Measure of overconfidence as the difference between actual (<i>FinLit score</i>) and subjective (<i>FinLit subject</i>) financial literacy
Saving	Numerical	Share of hypothetical lottery winnings allocated to savings options (savings account or cash savings), based on the following question: “Suppose you win 100,000 Euro in a lottery tomorrow. How would you distribute this as a percentage among the following options?” Answer options: Savings account or cash savings, private pension, shares/funds/ETFs, immediate consumption, gifting money to relatives, gifting money to other people, donating money
Investment	Numerical	Share of hypothetical lottery winnings allocated to investment options (private pension or shares/funds/ETFs), based on the following question: “Suppose you win 100,000 Euro in a lottery tomorrow. How would you distribute this as a percentage among the following options?” Answer options: Savings account or cash savings, private pension, shares/funds/ETFs, immediate consumption, gifting money to relatives, gifting money to other people, donating money
Info. index	Numerical	Index of demand for information and education

Variable Name	Type	Description
Control variables:		
Old	Binary	Indicator that takes the value 1 for individuals over the age of 45
Female	Binary	Indicator that takes the value 1 for individuals who are female
East Germany	Binary	Indicator that takes the value 1 for individuals who live in East Germany (excluding Berlin)
Education	Categorical	Respondent's education based on highest school-leaving certificate according to the ranges: low (≤ 9 years of schooling), medium (10 years of schooling), high (≥ 12 years of schooling).
Risk	Numerical (1-5)	Agreement with the statement: "I'm generally a risk-taking person."
Patience	Numerical (1-5)	Agreement with the statement: "I'm generally a patient person."
Trust in public institutions	Numerical (1-5)	Agreement with the statement: "Most public institutions in Germany can be trusted."
Trust in public statistics	Numerical (1-5)	Agreement with the statement: "Most statistics and scientific findings in Germany can be trusted."
Married	Binary	Indicator that takes the value 1 for individuals who are married.
Employed	Binary	Indicator that takes the value 1 for individuals who are employed.
Income	Categorical	Respondent's household net income in Euro according to the ranges: Below 1000, 1000–2000, 2000–3000, 3000–4000, 4000–5000, 5000 and above.
Household size	Numerical	Number of persons living in a respondent's household
Migration Background	Binary	Indicator that takes the value 1 if an individual or one of their parents was born outside of Germany.
Conservative	Binary	Indicator that takes the value 1 for individuals who would vote for a conservative party if there would be a federal election next Sunday.
Non-voter	Binary	Indicator that takes the value 1 for individuals who would not go to vote if there would be a federal election next Sunday.
Numeracy skills	Numerical (1-5)	"How would you rate your personal everyday numeracy skills?"
Fin. skills	Numerical (1-5)	"How would you rate your overall financial skills?"
Reading skills	Numerical (1-5)	"How would you rate your personal reading skills?"

Appendix B Balance tests and representativity

Table B.1: Balance

	Mean				Mean difference		
	All	C	T1	T2	C vs T1	C vs T2	T1 vs T2
Young	0.40	0.40	0.39	0.41	0.01	-0.01	-0.02
Male	0.49	0.47	0.49	0.50	-0.02	-0.03	-0.01
East/ West	0.16	0.14	0.18	0.16	-0.04 *	-0.01	0.02
Education	1.98	2.01	1.95	1.98	0.06	0.03	-0.03
Risk	2.59	2.58	2.58	2.61	0.00	-0.02	-0.03
Patience	3.58	3.58	3.52	3.65	0.07	-0.07	-0.13 **
Trust in public institutions	3.32	3.32	3.32	3.31	-0.01	0.01	0.02
Trust in public statistics	3.26	3.24	3.26	3.29	-0.02	-0.05	-0.03
Married	0.44	0.44	0.43	0.46	0.01	-0.02	-0.03
Employed	0.55	0.54	0.56	0.56	-0.02	-0.02	-0.00
Income	3.20	3.21	3.08	3.31	0.13 *	-0.10	-0.23 ***
Household size	2.15	2.19	2.10	2.16	0.08	0.02	-0.06
Migration background	0.32	0.33	0.32	0.32	0.01	0.01	-0.01
Conservative	0.44	0.43	0.45	0.44	-0.02	-0.01	0.01
Non-voter	0.13	0.15	0.13	0.11	0.03 *	0.04 **	0.01
Need to save	0.34	0.33	0.34	0.36	-0.01	-0.03	-0.02
Numeracy skills	3.52	3.49	3.51	3.56	-0.02	-0.06	-0.05
Financial skills	3.08	3.02	3.06	3.16	-0.04	-0.14 ***	-0.10 **
Reading skills	4.18	4.19	4.16	4.18	0.03	0.01	-0.03
Observations	2498	821	832	845	1653	1666	1677

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.2: Comparison to German population

	Mean	
	Population	Sample
Age: 18-29	0.16	0.16
Age: 30-39	0.16	0.16
Age: 40-49	0.14	0.14
Age: 50-59	0.19	0.19
Age: 60+	0.35	0.36
Male	0.49	0.49
East/ West	0.15	0.16
Low education	0.36	0.36
Medium education	0.30	0.30
High education	0.34	0.34
Married	0.50	0.44
Employed	0.51	0.55
Household size	2.02	2.15
Conservative	0.31	0.44
Observations		2498

Notes: The means for the German population are calculated using data from the Federal Statistical Office (2022b; 2022c; 2022a; 2022d; 2022e; 2021) and Bundeswahlleiterin (2021).

Appendix C Descriptives

Table C.1: Summary statistics

	Mean	SD	Minimum	Maximum
Outcomes				
FinLit score	2.11	0.96	0.00	3.00
FinLit don't know	0.51	0.77	0.00	3.00
FinLit subject.	2.04	0.95	0.00	3.00
Rel. position	2.90	1.24	1.00	5.00
Conf. answers	3.90	1.05	1.00	5.00
Conf. index	0.02	0.55	-1.68	1.44
Saving	38.75	30.98	0.00	100.00
Investment	28.80	28.34	0.00	100.00
Info index	0.01	0.62	-2.38	1.49
Controls				
Prior Belief: Age	2.20	0.75	1.00	3.00
Prior Belief: Gender	2.45	0.74	1.00	3.00
Prior Belief: International	2.92	0.66	1.00	5.00
Young	0.40	0.49	0.00	1.00
Male	0.49	0.50	0.00	1.00
East/ West	0.16	0.37	0.00	1.00
<i>Education</i>				
Low education	0.36	0.48	0.00	1.00
Medium education	0.30	0.46	0.00	1.00
High education	0.34	0.47	0.00	1.00
Risk	2.59	1.16	1.00	5.00
Patience	3.58	1.14	1.00	5.00
Trust in public institutions	3.32	1.03	1.00	5.00
Trust in public statistics	3.26	1.08	1.00	5.00
Married	0.44	0.50	0.00	1.00
Employed	0.55	0.50	0.00	1.00
<i>Income</i>				
Below 1000 EUR	0.10	0.31	0.00	1.00
1000–2000 EUR	0.25	0.43	0.00	1.00
2000–3000 EUR	0.26	0.44	0.00	1.00
3000–4000 EUR	0.19	0.39	0.00	1.00
4000–5000 EUR	0.11	0.32	0.00	1.00
5000 EUR and above	0.08	0.27	0.00	1.00
Household size	2.15	1.15	0.00	11.00
Migration background	0.32	0.47	0.00	1.00
Conservative	0.44	0.50	0.00	1.00
Non-voter	0.13	0.34	0.00	1.00
Need to save	0.34	0.47	0.00	1.00
Numeracy skills	3.52	0.90	1.00	5.00
Financial skills	3.08	1.00	1.00	5.00
Reading skills	4.18	0.83	1.00	5.00
Observations	2498			

Table C.2: Correlation of prior beliefs with outcome variables

Panel A: Prior beliefs about age differences in numeracy skills

	(1) Higher comp.: Young	(2) Higher comp.: Old	(3) Equal comp.
FinLit score	0.001	0.072***	-0.072***
FinLit don't know	-0.053***	-0.083***	0.126***
FinLit subject.	-0.007	0.045**	-0.039**
Rel. position	-0.009	0.016	-0.008
Conf. answers	-0.053***	0.034*	0.009
Conf. index	-0.055***	0.023	0.022
Saving	-0.054***	0.015	0.029
Investment	0.042**	0.012	-0.046**
Info index	0.026	-0.016	-0.005
Observations	2498	2498	2498

Panel B: Prior beliefs about gender differences in numeracy skills

	Higher comp.: Women	Higher comp.: Men	Equal comp.
FinLit score	-0.027	0.015	0.007
FinLit don't know	-0.044**	-0.068***	0.092***
FinLit subject.	-0.055***	0.021	0.022
Rel. position	-0.011	-0.005	0.012
Conf. answers	-0.066***	-0.011	0.058***
Conf. index	-0.071***	-0.029	0.077***
Saving	-0.007	-0.029	0.031
Investment	-0.015	0.048**	-0.031
Info index	-0.026	-0.025	0.041**
Observations	2498	2498	2498

Panel C: Prior beliefs about international differences in skills

	Int. comp.: Better	Int. comp.: Average	Int. comp.: Worse
FinLit score	-0.036*	-0.009	0.054***
FinLit don't know	-0.093***	0.103***	-0.034*
FinLit subject.	0.023	-0.032	0.017
Rel. position	-0.074***	0.041**	0.029
Conf. answers	-0.011	-0.037*	0.064***
Conf. index	-0.044**	0.004	0.045**
Saving	-0.050**	0.037*	0.006
Investment	0.057***	-0.047**	-0.001
Info index	0.003	-0.004	0.003
Observations	2498	2498	2498

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.3: Correlation of confidence outcome variables

	FinLit don't know	FinLit subject.	Rel. position	Conf. answers
FinLit don't know	1.000			
FinLit subject.	-0.520***	1.000		
Rel. position	-0.060***	0.107***	1.000	
Conf. answers	-0.302***	0.636***	0.157***	1.000

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix D Additional results

Table D.1: Treatment effects: Different age cut-off

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
T1:Age	-0.049 (0.107)	0.060 (0.091)	-0.103 (0.095)	-0.058 (0.134)	-0.004 (0.120)	0.003 (0.063)	-0.494 (3.242)	2.575 (3.084)	-0.032 (0.066)
Middle age	-0.004 (0.097)	-0.030 (0.081)	0.190** (0.088)	0.277** (0.127)	0.147 (0.106)	0.129** (0.054)	0.165 (3.031)	-2.408 (2.812)	-0.119* (0.062)
Old age	0.131 (0.114)	-0.109 (0.093)	0.295*** (0.103)	0.288* (0.159)	0.048 (0.127)	0.081 (0.066)	0.176 (3.766)	-3.651 (3.439)	-0.123 (0.075)
T1:Age $\times$ Middle age	0.052 (0.123)	-0.030 (0.103)	0.070 (0.113)	0.035 (0.160)	-0.114 (0.137)	-0.043 (0.073)	0.781 (3.905)	-2.041 (3.591)	0.034 (0.078)
T1:Age $\times$ Old age	0.054 (0.129)	-0.050 (0.107)	0.212* (0.117)	-0.089 (0.178)	0.082 (0.145)	0.033 (0.077)	-4.252 (4.211)	-0.954 (3.866)	0.083 (0.082)
Observations	1628	1628	1628	1558	1628	1558	1628	1628	1628

Notes: Young age is defined as respondents aged under 31, middle age is defined as respondents aged between 31 and 60 and old age is defined as respondents aged over 60. Robust standard errors in parenthesis. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D.2: Treatment effects: Age as a continuous variable

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
T1:Age	-0.080 (0.139)	0.105 (0.116)	-0.157 (0.129)	0.176 (0.189)	-0.205 (0.157)	-0.039 (0.083)	1.014 (4.457)	-0.202 (4.127)	-0.068 (0.087)
Age	0.006* (0.003)	-0.004 (0.003)	0.010*** (0.003)	0.011** (0.004)	-0.000 (0.004)	0.002 (0.002)	-0.038 (0.107)	-0.093 (0.096)	-0.002 (0.002)
T1:Age $\times$ Age	0.001 (0.003)	-0.002 (0.002)	0.003 (0.002)	-0.005 (0.004)	0.004 (0.003)	0.001 (0.002)	-0.049 (0.088)	0.029 (0.080)	0.002 (0.002)
Observations	1653	1653	1653	1582	1653	1582	1653	1653	1653

Notes: In this regression age is included as a continuous variable. Robust standard errors in parenthesis. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D.3: Treatment effects on investment and saving decisions

	(1) Saving	(2) Privat pension	(3) Stocks	(4) Consume	(5) Gift relatives	(6) Gift others	(7) Donate
<i>Panel A: Treatment effects of information provision</i>							
Treat Age	-1.488 (1.494) [0.982]	0.881 (0.742) [0.956]	0.405 (1.136) [1.000]	-0.367 (1.038) [1.000]	0.492 (0.642) [0.998]	-0.083 (0.319) [1.000]	-0.314 (0.378) [0.996]
Treat Gender	-0.388 (1.500) [1.000]	0.285 (0.734) [1.000]	-0.011 (1.160) [1.000]	-0.104 (0.986) [1.000]	0.078 (0.620) [1.000]	-0.038 (0.343) [1.000]	-0.171 (0.375) [1.000]
Mean Control Group	39.470	9.429	18.609	18.308	7.931	2.289	3.222
Observations	2498	2498	2498	2498	2498	2498	2498
<i>Panel B: Treatment effects by age</i>							
T1:Age	-1.225 (2.025) [1.000]	0.287 (0.986) [1.000]	0.954 (1.488) [1.000]	-0.479 (1.450) [1.000]	0.765 (0.960) [1.000]	-0.127 (0.386) [1.000]	-0.383 (0.462) [1.000]
Young	0.179 (2.304) [1.000]	0.799 (1.152) [1.000]	-0.084 (1.797) [1.000]	-1.705 (1.573) [0.984]	-1.122 (0.922) [0.970]	0.316 (0.505) [1.000]	0.932 (0.630) [0.901]
T1:Age $\times$ Young	-0.521 (2.961) [1.000]	1.256 (1.501) [0.999]	-1.278 (2.296) [1.000]	0.419 (2.015) [1.000]	-0.903 (1.194) [1.000]	0.179 (0.671) [1.000]	0.200 (0.796) [1.000]
T1:Age + T1:Age $\times$ Young	-1.746 (2.166) [1.000]	1.543 (1.127) [1.000]	-0.324 (1.754) [1.000]	-0.060 (1.417) [1.000]	-0.138 (0.709) [1.000]	0.052 (0.549) [1.000]	-0.183 (0.656) [1.000]
Mean Old	40.594	8.170	17.564	19.355	8.830	1.935	2.943
Observations	1653	1653	1653	1653	1653	1653	1653
<i>Panel C: Treatment effects by gender</i>							
T2:Gender	-3.137 (2.053) [0.832]	0.984 (1.111) [0.989]	-0.296 (1.524) [0.998]	0.585 (1.263) [0.991]	0.680 (0.997) [0.991]	-0.024 (0.391) [0.998]	0.670 (0.463) [0.868]
Male	-3.660* (2.218) [0.764]	-1.479 (1.051) [0.869]	4.385*** (1.675) [0.158]	1.187 (1.560) [0.991]	-1.251 (0.911) [0.874]	0.449 (0.558) [0.991]	0.440 (0.557) [0.991]
T2:Gender $\times$ Male	5.404* (3.000) [0.654]	-1.285 (1.457) [0.989]	0.502 (2.353) [0.998]	-1.326 (2.004) [0.991]	-1.172 (1.274) [0.989]	0.001 (0.710) [1.000]	-1.715** (0.750) [0.323]
T2:Gender + T2:Gender $\times$ Male	2.267 (2.195) [1.000]	-0.301 (0.951) [1.000]	0.206 (1.777) [1.000]	-0.741 (1.543) [1.000]	-0.492 (0.760) [1.000]	-0.023 (0.578) [1.000]	-1.044* (0.596) [0.996]
Mean Female	41.514	10.428	15.609	17.988	8.764	2.046	2.933
Observations	1666	1666	1666	1666	1666	1666	1666

Notes: Robust standard errors in parenthesis. Westfall-Young stepdown adjusted p-values in square brackets. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D.4: Treatment effects on information and education outcomes

	(1) Information	(2) Online platform	(3) Courses	(4) Necessity	(5) Schools	(6) Private provision
<i>Panel A: Treatment effects of information provision</i>						
Treat Age	-0.030 (0.047) [0.994]	-0.046 (0.047) [0.954]	0.007 (0.046) [0.999]	0.047 (0.054) [0.972]	0.022 (0.043) [0.994]	0.099* (0.059) [0.625]
Treat Gender	-0.033 (0.045) [0.992]	0.002 (0.046) [0.999]	0.029 (0.045) [0.994]	0.007 (0.055) [0.999]	0.013 (0.042) [0.999]	0.070 (0.059) [0.902]
Mean Control Group	3.909	3.373	3.605	2.609	4.105	2.806
Observations	2498	2498	2498	2498	2498	2498
<i>Panel B: Treatment effects by age</i>						
T1:Age	-0.038 (0.059) [0.998]	-0.034 (0.060) [0.999]	0.060 (0.059) [0.982]	0.027 (0.070) [1.000]	0.006 (0.053) [1.000]	0.099 (0.080) [0.939]
Young	-0.140* (0.071) [0.480]	0.071 (0.070) [0.982]	0.037 (0.071) [0.999]	0.285*** (0.089) [0.021]	-0.065 (0.072) [0.987]	0.062 (0.091) [0.998]
T1:Age × Young	0.007 (0.095) [1.000]	-0.038 (0.094) [1.000]	-0.142 (0.094) [0.810]	0.054 (0.111) [1.000]	0.041 (0.091) [1.000]	-0.013 (0.119) [1.000]
T1:Age + T1:Age x Young	-0.030 (0.075)	-0.072 (0.073)	-0.083 (0.073)	0.081 (0.087)	0.047 (0.074)	0.087 (0.088)
Mean Old	3.955	3.323	3.584	2.398	4.124	2.757
Observations	1653	1653	1653	1653	1653	1653
<i>Panel C: Treatment effects by gender</i>						
T2:Gender	-0.099 (0.065) [0.766]	0.021 (0.063) [0.994]	-0.031 (0.062) [0.994]	-0.034 (0.077) [0.994]	-0.054 (0.058) [0.970]	0.057 (0.082) [0.991]
Male	-0.009 (0.066) [0.994]	-0.041 (0.068) [0.993]	-0.108 (0.067) [0.720]	-0.099 (0.081) [0.899]	-0.113* (0.063) [0.608]	0.142* (0.085) [0.697]
T2:Gender × Male	0.136 (0.090) [0.766]	-0.037 (0.092) [0.994]	0.134 (0.090) [0.766]	0.080 (0.110) [0.990]	0.139* (0.084) [0.699]	0.031 (0.118) [0.994]
T2:Gender + T2:Gender x Male	0.037 (0.063)	-0.016 (0.068)	0.103 (0.065)	0.046 (0.078)	0.085 (0.061)	0.088 (0.084)
Mean Female	3.919	3.375	3.657	2.648	4.160	2.775
Observations	1666	1666	1666	1666	1666	1666

Notes: Robust standard errors in parenthesis. Westfall-Young stepdown adjusted p-values in square brackets. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix E Mechanisms

Table E.1: Mechanism for the age treatment: Prior beliefs about age differences in numeracy skills

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: Prior Belief: Younger people have higher numeracy skills</i>									
<i>A1: Average treatment effects</i>									
T1:Age	-0.074 (0.099)	0.108 (0.083)	-0.083 (0.096)	-0.129 (0.142)	-0.140 (0.111)	-0.042 (0.056)	0.353 (3.414)	1.126 (2.995)	-0.134** (0.067)
<i>A2: Treatment effects by age</i>									
T1:Age	-0.103 (0.133)	0.138 (0.114)	-0.112 (0.138)	-0.016 (0.211)	-0.137 (0.145)	-0.053 (0.078)	-6.146 (5.309)	5.894 (4.667)	-0.116 (0.093)
Young	-0.339** (0.162)	0.250* (0.132)	-0.383** (0.150)	-0.036 (0.217)	-0.143 (0.160)	-0.069 (0.084)	-9.247* (5.089)	6.770 (5.261)	0.050 (0.107)
T1:Age $\times$ Young	0.057 (0.195)	-0.058 (0.158)	0.057 (0.190)	-0.228 (0.278)	-0.007 (0.220)	0.023 (0.113)	12.575* (6.455)	-9.224 (6.162)	-0.034 (0.126)
T2:Age + T2:Age $\times$ Young	-0.047 (0.144)	0.080 (0.116)	-0.055 (0.133)	-0.243 (0.186)	-0.144 (0.166)	-0.030 (0.081)	6.428 (4.007)	-3.330 (3.899)	-0.150* (0.090)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	331	331	331	317	331	317	331	331	331

Panel B: Prior Belief: Younger people do not have higher numeracy skills

<i>B1: Average treatment effects</i>									
T1:Age	0.006 (0.047)	0.007 (0.039)	0.018 (0.047)	-0.060 (0.070)	-0.007 (0.054)	-0.000 (0.029)	-1.677 (1.683)	0.905 (1.436)	0.047 (0.031)
<i>B2: Treatment effects by age</i>									
T1:Age	0.044 (0.058)	-0.018 (0.046)	0.067 (0.057)	-0.134 (0.092)	0.049 (0.066)	0.011 (0.036)	-0.046 (2.198)	-0.112 (1.823)	0.051 (0.041)
Young	-0.162** (0.076)	0.037 (0.063)	-0.235*** (0.074)	-0.255** (0.107)	-0.304*** (0.089)	-0.207*** (0.047)	2.777 (2.629)	-1.025 (2.268)	0.027 (0.049)
T1:Age $\times$ Young	-0.103 (0.101)	0.070 (0.085)	-0.134 (0.098)	0.202 (0.138)	-0.153 (0.113)	-0.029 (0.061)	-4.448 (3.393)	2.776 (2.962)	-0.009 (0.064)
T2:Age + T2:Age $\times$ Young	-0.059 (0.082)	0.051 (0.070)	-0.066 (0.080)	0.068 (0.104)	-0.104 (0.092)	-0.019 (0.050)	-4.495* (2.584)	2.664 (2.334)	0.042 (0.049)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	1322	1322	1322	1265	1322	1265	1322	1322	1322

Notes: Robust standard errors in parenthesis. In this sample we have 423 old respondents who said that older people have higher numeracy skills. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.2: Mechanism for the gender treatment: Prior beliefs about gender differences in numeracy skills

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: Prior Belief: Men have higher numeracy skills</i>									
<i>A1: Average treatment effects</i>									
T2:Gender	-0.067 (0.087)	0.035 (0.063)	-0.047 (0.083)	-0.121 (0.131)	0.022 (0.098)	-0.012 (0.054)	0.417 (3.209)	2.117 (2.863)	-0.052 (0.056)
<i>A2: Treatment effects by gender</i>									
T2:Gender	-0.042 (0.126)	0.014 (0.104)	-0.190 (0.125)	-0.088 (0.167)	-0.099 (0.142)	-0.087 (0.078)	-2.218 (4.417)	4.462 (3.950)	-0.062 (0.079)
Male	0.265** (0.130)	-0.262*** (0.087)	0.277** (0.121)	-0.050 (0.181)	0.280** (0.141)	0.093 (0.076)	-2.785 (4.549)	2.900 (4.059)	-0.090 (0.083)
T2:Gender × Male	-0.049 (0.169)	0.041 (0.122)	0.281* (0.153)	-0.066 (0.239)	0.237 (0.184)	0.149 (0.101)	5.172 (6.188)	-4.601 (5.526)	0.020 (0.109)
T2:Gender + T2:Gender x Male	-0.091 (0.117)	0.055 (0.068)	0.091 (0.100)	-0.154 (0.188)	0.139 (0.127)	0.062 (0.069)	2.954 (4.496)	-0.139 (4.005)	-0.042 (0.078)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	415	415	415	402	415	402	415	415	415

Panel B: Prior Belief: Men do not have higher numeracy skills

<i>B1: Average treatment effects</i>									
T2:Gender	0.025 (0.049)	-0.057 (0.039)	0.069 (0.047)	-0.110 (0.072)	0.121** (0.054)	0.036 (0.030)	-0.892 (1.742)	-0.012 (1.506)	0.034 (0.033)
<i>B2: Treatment effects by gender</i>									
T2:Gender	-0.002 (0.070)	-0.053 (0.059)	0.021 (0.067)	-0.148 (0.097)	0.019 (0.076)	-0.003 (0.043)	-3.453 (2.385)	-0.293 (2.060)	-0.019 (0.047)
Male	0.251*** (0.073)	-0.189*** (0.061)	0.360*** (0.071)	0.059 (0.104)	0.274*** (0.080)	0.159*** (0.044)	-3.836 (2.568)	2.975 (2.204)	-0.031 (0.049)
T2:Gender × Male	0.056 (0.098)	-0.007 (0.079)	0.100 (0.095)	0.078 (0.143)	0.210** (0.106)	0.081 (0.058)	5.299 (3.471)	0.580 (3.027)	0.110* (0.065)
T2:Gender + T2:Gender x Male	0.054 (0.069)	-0.060 (0.052)	0.121* (0.067)	-0.070 (0.107)	0.229*** (0.075)	0.078* (0.040)	1.845 (2.532)	0.287 (2.211)	0.091** (0.045)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	1251	1251	1251	1204	1251	1204	1251	1251	1251

Notes: Robust standard errors in parenthesis. In this sample we have 151 women who said that women have higher numeracy skills. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.3: Mechanism for the age treatment: Education

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: High education</i>									
<i>A1: Average treatment effects</i>									
T1:Age	0.026 (0.052)	0.037 (0.040)	0.021 (0.050)	-0.080 (0.080)	-0.027 (0.059)	0.004 (0.031)	-1.555 (1.806)	0.548 (1.710)	0.009 (0.036)
<i>A2: Treatment effects by age</i>									
T1:Age	0.048 (0.066)	0.031 (0.051)	0.069 (0.066)	-0.175 (0.115)	0.020 (0.076)	0.009 (0.041)	-1.366 (2.553)	0.011 (2.327)	0.025 (0.049)
Young	-0.222*** (0.080)	0.117* (0.062)	-0.270*** (0.076)	-0.334*** (0.123)	-0.270*** (0.090)	-0.185*** (0.047)	2.557 (2.730)	0.038 (2.685)	0.052 (0.056)
T1:Age × Young	-0.049 (0.105)	0.013 (0.081)	-0.104 (0.100)	0.211 (0.158)	-0.102 (0.117)	-0.011 (0.062)	-0.411 (3.588)	1.170 (3.408)	-0.035 (0.070)
T2:Age + T2:Age x Young	-0.000 (0.081)	0.044 (0.062)	-0.036 (0.076)	0.036 (0.108)	-0.082 (0.091)	-0.002 (0.047)	-1.777 (2.529)	1.181 (2.506)	-0.009 (0.051)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	1047	1047	1047	1013	1047	1013	1047	1047	1047
<i>Panel B: Low education</i>									
<i>B1: Average treatment effects</i>									
T1:Age	-0.045 (0.073)	0.008 (0.066)	-0.013 (0.075)	-0.059 (0.099)	-0.040 (0.084)	-0.022 (0.046)	-1.009 (2.689)	2.655 (1.997)	0.030 (0.048)
<i>B2: Treatment effects by age</i>									
T1:Age	0.004 (0.085)	-0.035 (0.074)	0.013 (0.087)	-0.017 (0.122)	0.010 (0.098)	-0.008 (0.054)	-0.838 (3.324)	2.975 (2.512)	0.033 (0.059)
Young	-0.209 (0.133)	0.015 (0.122)	-0.306** (0.132)	0.021 (0.162)	-0.257* (0.149)	-0.152* (0.083)	-4.585 (4.430)	1.067 (3.069)	0.006 (0.083)
T1:Age × Young	-0.168 (0.169)	0.147 (0.151)	-0.091 (0.168)	-0.146 (0.206)	-0.171 (0.190)	-0.049 (0.106)	-0.581 (5.457)	-1.087 (4.030)	-0.010 (0.103)
T2:Age + T2:Age x Young	-0.164 (0.145)	0.112 (0.133)	-0.078 (0.143)	-0.163 (0.167)	-0.161 (0.162)	-0.057 (0.090)	-1.419 (4.374)	1.889 (3.147)	0.023 (0.084)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	606	606	606	569	606	569	606	606	606

Notes: Robust standard errors in parenthesis. In this sample we have 433 old respondents with low education. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.4: Mechanism for the gender treatment: Education

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: High education</i>									
<i>A1: Average treatment effects</i>									
T2:Gender	0.053 (0.050)	-0.019 (0.037)	0.087* (0.047)	-0.140* (0.078)	0.146*** (0.054)	0.058** (0.029)	0.253 (1.777)	-0.039 (1.688)	0.002 (0.035)
<i>A2: Treatment effects by gender</i>									
T2:Gender	0.063 (0.070)	-0.039 (0.057)	0.073 (0.068)	-0.082 (0.102)	0.112 (0.076)	0.060 (0.042)	-2.062 (2.352)	0.852 (2.282)	-0.019 (0.048)
Male	0.240*** (0.077)	-0.197*** (0.059)	0.343*** (0.073)	0.127 (0.117)	0.310*** (0.082)	0.177*** (0.044)	-2.775 (2.702)	2.492 (2.507)	-0.066 (0.052)
T2:Gender × Male	-0.022 (0.100)	0.043 (0.075)	0.032 (0.096)	-0.127 (0.157)	0.074 (0.107)	-0.005 (0.058)	5.115 (3.580)	-1.970 (3.390)	0.046 (0.068)
T2:Gender + T2:Gender x Male	0.041 (0.070)	0.004 (0.046)	0.105 (0.066)	-0.209* (0.120)	0.186** (0.076)	0.055 (0.041)	3.054 (2.701)	-1.118 (2.509)	0.028 (0.049)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	1079	1079	1079	1052	1079	1052	1079	1079	1079
<i>Panel B: Low education</i>									
<i>B1: Average treatment effects</i>									
T2:Gender	-0.066 (0.076)	-0.036 (0.065)	-0.028 (0.075)	-0.055 (0.100)	0.004 (0.087)	-0.032 (0.048)	-2.512 (2.813)	1.855 (2.084)	0.036 (0.050)
<i>B2: Treatment effects by gender</i>									
T2:Gender	-0.147 (0.118)	-0.028 (0.103)	-0.237** (0.113)	-0.277** (0.135)	-0.277** (0.130)	-0.212*** (0.074)	-4.354 (4.167)	-0.740 (2.862)	-0.043 (0.076)
Male	0.242** (0.111)	-0.255*** (0.096)	0.311*** (0.106)	-0.080 (0.145)	0.177 (0.121)	0.063 (0.069)	-3.797 (3.899)	1.957 (2.861)	-0.015 (0.070)
T2:Gender × Male	0.148 (0.155)	-0.014 (0.129)	0.381** (0.148)	0.404** (0.194)	0.513*** (0.167)	0.330*** (0.094)	3.359 (5.627)	4.734 (4.192)	0.145 (0.101)
T2:Gender + T2:Gender x Male	0.000 (0.100)	-0.042 (0.080)	0.144 (0.097)	0.128 (0.143)	0.236** (0.111)	0.117* (0.060)	-0.995 (3.798)	3.994 (3.019)	0.102 (0.067)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	587	587	587	554	587	554	587	587	587

Notes: Robust standard errors in parenthesis. Low education is defined as having a lower secondary degree or no educational degree. In this sample we have 264 women with low education. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.5: Mechanism for the age treatment: Risk preferences

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: High risk preference</i>									
<i>A1: Average treatment effects</i>									
T1:Age	0.062 (0.061)	0.001 (0.049)	0.013 (0.059)	-0.135 (0.088)	0.008 (0.070)	-0.003 (0.038)	0.505 (2.102)	0.845 (1.897)	0.043 (0.040)
<i>A2: Treatment effects by age</i>									
T1:Age	0.073 (0.079)	-0.007 (0.060)	0.056 (0.076)	-0.245* (0.129)	0.051 (0.092)	-0.005 (0.051)	1.989 (3.031)	1.852 (2.665)	0.059 (0.055)
Young	-0.305*** (0.101)	0.130 (0.082)	-0.329*** (0.095)	-0.177 (0.139)	-0.373*** (0.115)	-0.214*** (0.061)	2.384 (3.221)	0.250 (3.023)	-0.022 (0.063)
T1:Age × Young	-0.026 (0.126)	0.019 (0.101)	-0.094 (0.119)	0.245 (0.177)	-0.093 (0.141)	0.006 (0.076)	-3.271 (4.089)	-2.219 (3.805)	-0.036 (0.078)
T2:Age + T2:Age x Young	0.048 (0.098)	0.011 (0.080)	-0.039 (0.092)	-0.000 (0.119)	-0.043 (0.107)	0.000 (0.056)	-1.282 (2.795)	-0.367 (2.702)	0.024 (0.057)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	834	834	834	782	834	782	834	834	834

*Panel B: Low risk preference**B1: Average treatment effects*

T1:Age	-0.056 (0.058)	0.044 (0.051)	0.003 (0.060)	-0.006 (0.088)	-0.059 (0.068)	-0.003 (0.036)	-3.480 (2.192)	1.944 (1.787)	-0.011 (0.042)
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B2: Treatment effects by age

T1:Age	-0.016 (0.072)	0.017 (0.061)	0.028 (0.073)	0.003 (0.111)	-0.015 (0.081)	0.007 (0.043)	-3.779 (2.760)	0.452 (2.202)	-0.009 (0.053)
Young	-0.134 (0.092)	0.064 (0.077)	-0.229** (0.092)	-0.223* (0.133)	-0.182* (0.107)	-0.134** (0.057)	-1.930 (3.381)	0.854 (2.886)	0.075 (0.065)
T1:Age × Young	-0.119 (0.124)	0.081 (0.108)	-0.074 (0.127)	-0.026 (0.177)	-0.132 (0.146)	-0.032 (0.078)	0.882 (4.474)	4.397 (3.746)	-0.006 (0.085)
T2:Age + T2:Age x Young	-0.135 (0.100)	0.098 (0.090)	-0.046 (0.103)	-0.023 (0.139)	-0.146 (0.122)	-0.024 (0.066)	-2.898 (3.547)	4.849 (3.041)	-0.015 (0.067)
Mean Old	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	819	819	819	800	819	800	819	819	819

Notes: Robust standard errors in parenthesis. In this sample we have 543 old respondents with low risk preferences. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.6: Mechanism for the gender treatment: Risk preference

	FinLit	Confidence					Save. & Invest.		Info
	(1) FinLit score	(2) FinLit don't know	(3) FinLit subject.	(4) Rel. position	(5) Conf. answers	(6) Conf. index	(7) Saving	(8) Investment	(9) Info index
<i>Panel A: High risk preference</i>									
<i>A1: Average treatment effects</i>									
T2:Gender	0.063 (0.059)	-0.025 (0.045)	0.066 (0.056)	-0.214** (0.089)	0.172** (0.067)	0.050 (0.036)	3.155 (2.062)	-1.315 (1.908)	0.043 (0.040)
<i>A2: Treatment effects by gender</i>									
T2:Gender	0.093 (0.092)	-0.022 (0.072)	0.054 (0.086)	-0.220* (0.126)	0.196* (0.105)	0.083 (0.057)	0.707 (3.172)	-0.960 (2.894)	0.017 (0.065)
Male	0.269*** (0.091)	-0.138* (0.071)	0.389*** (0.086)	0.029 (0.132)	0.305*** (0.104)	0.196*** (0.058)	-5.184* (3.065)	3.470 (2.797)	-0.048 (0.058)
T2:Gender × Male	-0.053 (0.122)	-0.005 (0.092)	0.021 (0.115)	0.009 (0.174)	-0.041 (0.137)	-0.058 (0.074)	4.268 (4.187)	-0.619 (3.822)	0.046 (0.082)
T2:Gender + T2:Gender x Male	0.040 (0.078)	-0.027 (0.057)	0.075 (0.074)	-0.211* (0.122)	0.154* (0.088)	0.025 (0.046)	4.976* (2.721)	-1.579 (2.522)	0.063 (0.050)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	838	838	838	798	838	798	838	838	838
<i>Panel B: Low risk preference</i>									
<i>B1: Average treatment effects</i>									
T2:Gender	-0.030 (0.060)	-0.022 (0.049)	0.000 (0.058)	-0.001 (0.086)	0.018 (0.063)	0.003 (0.035)	-3.490 (2.223)	1.441 (1.813)	-0.004 (0.040)
<i>B2: Treatment effects by gender</i>									
T2:Gender	-0.059 (0.080)	-0.035 (0.070)	-0.096 (0.080)	-0.093 (0.111)	-0.161* (0.085)	-0.097** (0.048)	-5.143* (2.752)	1.128 (2.337)	-0.054 (0.050)
Male	0.259*** (0.088)	-0.292*** (0.072)	0.300*** (0.086)	-0.041 (0.126)	0.268*** (0.094)	0.094* (0.051)	-0.132 (3.359)	0.714 (2.692)	-0.007 (0.060)
T2:Gender × Male	0.073 (0.119)	0.031 (0.096)	0.234** (0.117)	0.224 (0.179)	0.435*** (0.123)	0.244*** (0.069)	4.033 (4.566)	0.764 (3.831)	0.122 (0.081)
T2:Gender + T2:Gender x Male	0.013 (0.090)	-0.004 (0.065)	0.139 (0.084)	0.131 (0.139)	0.274*** (0.090)	0.147*** (0.049)	-1.110 (3.670)	1.892 (2.970)	0.068 (0.064)
Mean Female	1.965	0.650	1.826	2.947	3.736	-0.057	41.514	26.037	0.022
Observations	828	828	828	808	828	808	828	828	828

Notes: Robust standard errors in parenthesis. In this sample we have 494 women with low risk preference. All specifications include the following control variables: age, male, East/West Germany, education, risk, patience, trust in public institutions, trust in public statistics, married, employed, income, household size, migration background, political affiliation, need to save for retirement, self-assessed numeracy, self-assessed financial knowledge, self-assessed reading skills and prior beliefs about numeracy skills of gender, age, and international comparison; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix F Wording

This section presents the wording of the questions most central to our analysis: self-assessed skills, prior beliefs, the information treatments and the financial literacy questions.

F.1 Self-assessed skills

Self-assessed numeracy skills

Question: How would you rate your personal everyday numeracy skills?

Answer options: very good, good, satisfactory, sufficient, insufficient

Self-assessed financial skills

Question: How would you rate your overall financial knowledge?

Answer options: very good, good, satisfactory, sufficient, insufficient

Self-assessed reading skills

Question: How would you rate your personal reading skills?

Answer options: very good, good, satisfactory, sufficient, insufficient

F.2 Prior beliefs

Prior beliefs about age differences

Question: In your opinion, which of these groups has a higher level of numeracy?

Answer options: Younger people, older people, both equal

Prior beliefs about gender differences

Question: In your opinion, which of these groups has a higher level of numeracy?

Answer options: Women, men, both equal

Prior beliefs about international comparison

Question: How do you think adults in Germany compare internationally in terms of everyday skills?

Answer options: Much better, better, average, worse, much worse

F.3 Information treatment

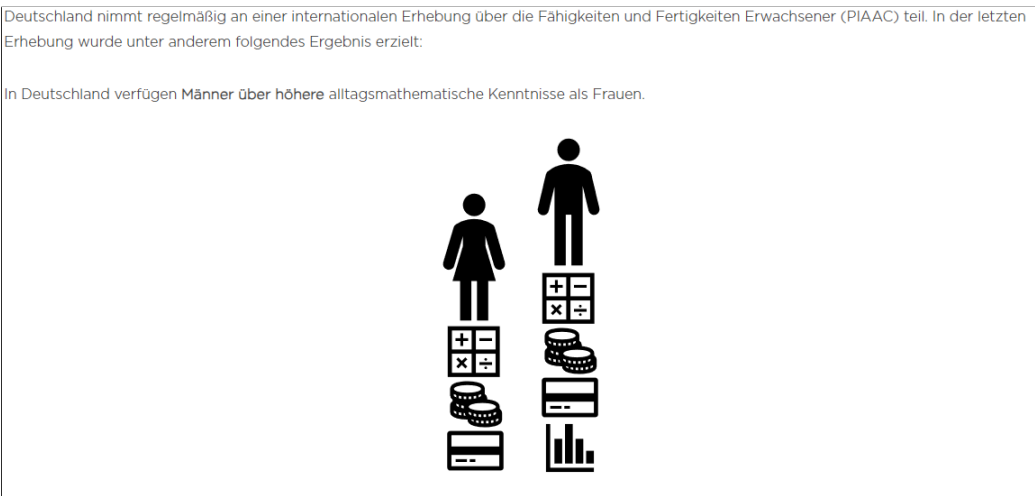
Figure F.1: Information treatments



(a) Active Control Group



(b) Treatment Age



(c) Treatment Gender

F.4 Financial literacy

These questions were established by Lusardi and Mitchell (2008). Correct answers are shown in bold.

Interest rate

Suppose you had 100 EUR in a savings account and the interest rate was 2 % per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- **More than 102 EUR**
- Exactly 102 EUR
- Less than 102 EUR
- I don't know

Inflation

Imagine that the interest rate on your savings account was 1 % per year and inflation was 2 % per year. After 1 year, would you be able to buy with the money in this account

- More than today
- Exactly the same as today
- **Less than today**
- I don't know

Risk

Do you think that the following statement is true or false? Buying a single company stock usually provides a safer return than a stock mutual fund.

- Agree
- **Disagree**
- I don't know

Appendix G Text analysis

We used the following grouping of words to analyze the reasoning behind respondents' prior beliefs.

- experience = “erfahrung”, “lebenserfahrung”, “erfahrungswert”, “erfahrungswerte”, “beobachtung”
- perception = “gefühl”, “bauchgefühl”, “bauch”, “vermutung”, “intuition”, “spekulation”, “eindruck”
- school = “schule”, “schulbildung”, “schulsystem”, “schulwesen”, “lehrer”, “schulausbildung”, “schüler”
- german = “deutsch”, “deutsche”, “deutschen”
- guess = “einschätzung”, “schätzung”
- education = “bildung”, “bildungssystem”, “bildungsstand”, “allgemeinbildung”, “bildungswesen”, “bildungsniveau”, “wissen”, “allgemeinwissen”
- maths = “rechnen”, “kopfrechnen”, “mathematik”, “zinsrechnung”
- society = “gesellschaft”, “bevölkerung”, “volk”
- media = “medium”, “bericht”, “tv”, “berichterstattung”, “medien”, “radio”
- smartphone = “smartphone”, “handy”
- study = “studie”, “umfrage”, “ranking”, “pisastudie”