



Precautionary Savings, Retirement Planning and Misperceptions of Financial Literacy

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Research Strategy

- Administer a standard financial literacy test to 4,896 LinkedIn Subscribers in the ages between 25 to 64 (via two omnibus surveys)
- Augment the test to gauge beliefs and confidence about performance
 - Following Moore and Healy (2008), distinguish between two types of “overconfidence”:
 - Overestimation (Difference of perceived and actual test score)
 - Precision (How sure you are of your test score)
 - Previous methods fail to keep the domain of financial knowledge constant
- Assess attitudes/outcomes
 - “Have you set aside emergency or rainy day funds that would cover your expenses in the event . . .”.
 - “Have you ever tried to figure out how much you need to save for your retirement?”
- Decision making
 - Who takes decisions?
 - Willingness and propensity to accept financial advice

The Demographics of LinkedIn Respondents

	Wave 1	Wave 2	Total	U.S. Pop.
Gender				
Male	0.66	0.64	0.65	0.49
Female	0.34	0.36	0.35	0.51
Age				
18-24	0.07	0.06	0.06	0.05
25-34	0.18	0.18	0.18	0.16
35-44	0.18	0.20	0.19	0.18
45-54	0.26	0.23	0.24	0.20
55-64	0.21	0.23	0.22	0.19
65 or Older	0.09	0.10	0.10	0.22
Education				
Bachelors	0.32	0.32	0.32	0.19
Masters	0.33	0.34	0.33	0.12

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The Demographics of LinkedIn Respondents

	Wave 1	Wave 2	Total	U.S. Pop.
Income				
Less than 15K	0.03	0.02	0.02	0.14
15K-24K	0.03	0.02	0.02	0.12
25K-34K	0.03	0.03	0.03	0.11
35K-49K	0.07	0.07	0.07	0.14
50K-74K	0.14	0.13	0.13	0.18
75K-99K	0.13	0.14	0.14	0.12
100K-149K	0.20	0.21	0.20	0.12
More than 150K	0.23	0.24	0.24	0.09
Profession				
Finance	0.12	0.12	0.12	-
Entrepreneur	0.17	0.17	0.17	-

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15K-24K	0.03	0.02	0.02	0.12
25K-34K	0.03	0.03	0.03	0.11
35K-49K	0.07	0.07	0.07	0.14
50K-74K	0.14	0.13	0.13	0.18
75K-99K	0.13	0.14	0.14	0.12
100K-149K	0.20	0.21	0.20	0.12
More than 150K	0.23	0.24	0.24	0.09
Profession				
Finance	0.12	0.12	0.12	-
Entrepreneur	0.17	0.17	0.17	-

The “Big 5” Financial Literacy questions (NFCS)

- 1. Compounding.** Suppose you had \$100 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? Please select one.
 - More than \$102
 - Exactly \$102
 - Less than \$102
 - Don't know
- 2. Inflation.** Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? Please select one.
 - More than today
 - Exactly the same as today
 - Less than today
 - Don't know
- 3. Diversification.** Buying a single company's stock usually provides a safer return than a stock mutual fund. Please select one.
 - True
 - False
 - Don't know
- 4. Mortgage.** A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. Please select one.
 - True
 - False
 - Don't know
- 5. Bond Pricing.** If interest rates fall, what should happen to bond prices? Please select one.
 - They will rise
 - They will fall
 - They will stay the same
 - There is not relationship between bond prices and the interest rate
 - Don't know

Measuring Miscalibration



51%

For the previous five multiple choice questions, you could have answered between zero and five correctly. We would like to know how many you think you got correct. Please assign a probability for each possible outcome below.

Enter whole numbers and total should add to 100.

	Total
Probability that I have all five correct	<input type="text" value="0"/> %
Probability that I have exactly four correct	<input type="text" value="0"/> %
Probability that I have exactly three correct	<input type="text" value="0"/> %
Probability that I have exactly two correct	<input type="text" value="0"/> %
Probability that I have exactly one correct	<input type="text" value="0"/> %
Probability that I have no correct answers	<input type="text" value="0"/> %
Don't know	<input type="checkbox"/>
Prefer not to answer	<input type="checkbox"/>
	Total: 0 %

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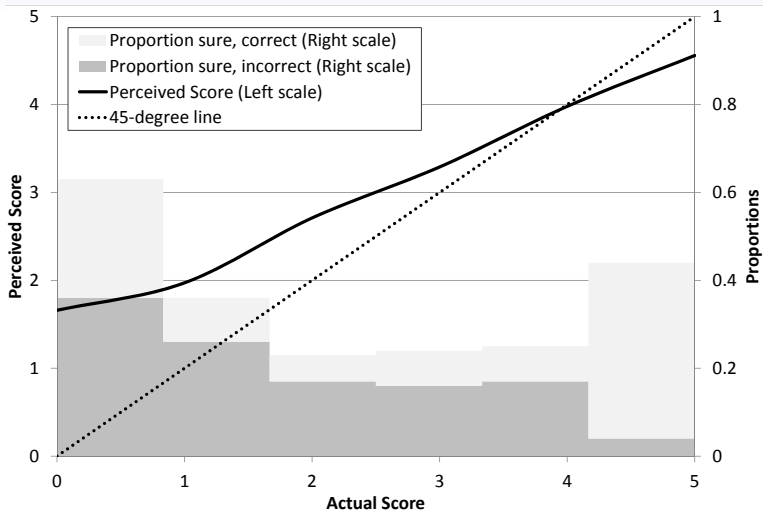
Three sets of results

1. Financial literacy is high, but calibration varies systematically across scores
 - Are they really that literate? Only a third of the CEOs, CFOs and COOs have full scores, fewer than half of all Directors
 - Low literacy individuals overestimate their score
 - Meta cognition: “Knowing what you don’t know”, Kruger and Dunning (1999)
2. Beliefs drive out knowledge when explaining engagement
 - More so for low literacy types
 - Knocks out gender differences
3. Is Optimism (Overestimation) of your own knowledge good or bad?
 - More likely to be decision-makers
 - Less likely to accept financial advice
 - Increases likelihood of thinking you know, but getting it wrong

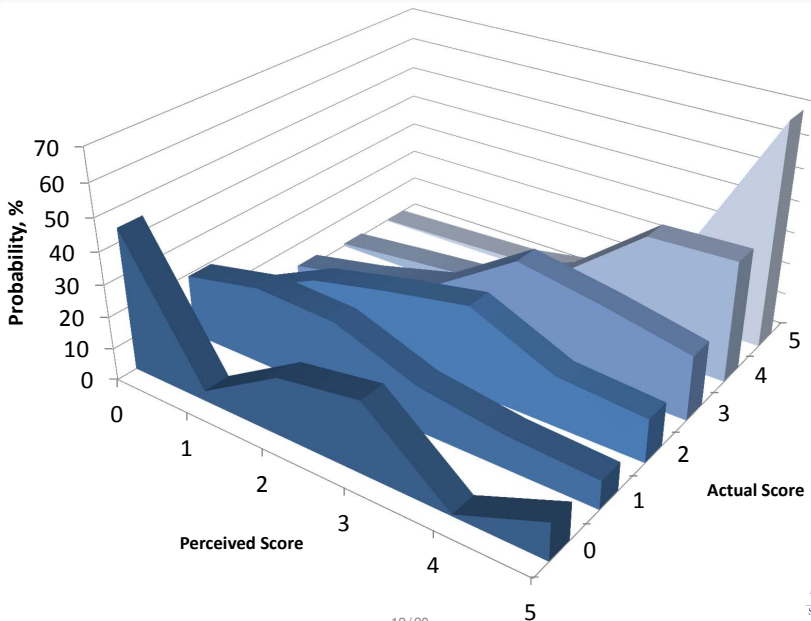
Fraction of correct answers

	LinkedIn		NFCS	
	Big 3	Big 5	Big 3	Big 5
Overall	0.76	0.38	0.37	0.16
Gender				
Male	0.83	0.45	0.49	0.22
Female	0.63	0.25	0.28	0.10
Education				
Bachelors	0.77	0.39	0.48	0.23
Masters	0.79	0.44	0.62	0.33
Income				
Less than 15K	0.55	0.19	0.16	0.04
More than 150K	0.87	0.52	0.66	0.39
Profession				
Finance	0.81	0.52	-	-
Entrepreneur	0.79	0.44	0.45	0.20

Actual vs. Perceived scores



Measuring Beliefs



Financial Literacy and Seniority

	Literacy Score			Precision
	% Big 5	Actual	Perceived	
Senior individual contributor	0.36	4.14	4.04	0.69
Manager or equivalent	0.35	4.02	3.95	0.68
Senior Manager or equivalent	0.38	4.16	4.01	0.69
Director or equivalent	0.43	4.2	4.07	0.70
Dept. Head, VP or Equiv	0.48	4.3	4.27	0.75
Pres., Man. Dir., or Equiv	0.48	4.31	4.36	0.79
C-Level Exec. or Equiv	0.59	4.44	4.35	0.79
Small Business Owner	0.46	4.31	4.32	0.75
Self-employed	0.39	4.07	4.09	0.71
Total	0.38	4.09	4.00	0.69

Meta-cognition

	Averages				Proportion Sure (Precision=1)			N
	Actual	Per- ceived	Over- estimation	Pre- cision	All	Right	Wrong	
Overall Mean	4.09	4.00	-0.08	0.69	0.32	0.20	0.12	4,896

Panel A: Means by Actual Answers Correct

All Five Correct	4.56	-0.44	0.79	0.44	0.40	0.04	1,847
Four Questions Correct	3.98	-0.02	0.65	0.25	0.08	0.17	2,022
Three Questions Correct	3.29	0.29	0.59	0.24	0.08	0.16	713
Two or Fewer Correct	2.53	0.79	0.58	0.27	0.07	0.19	314

Retirement Planning and Financial Literacy

Have you ever tried to figure out how much you need to save for retirement?

Columns (1)-(3): Full sample, Columns (4)-(6): Low literacy sample (Scores<4)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Actual Score	0.082*** (0.007)	0.044*** (0.008)		0.070*** (0.024)	0.037 (0.026)	
Perceived Score		0.069*** (0.008)			0.062*** (0.016)	
Precision		0.014 (0.026)			-0.002 (0.056)	
Overestimation			0.072*** (0.008)			0.064*** (0.016)
Age	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.009*** (0.002)	0.009*** (0.002)	0.009*** (0.002)
Female	-0.010 (0.013)	0.019 (0.013)	0.019 (0.013)	-0.027 (0.033)	0.003 (0.033)	0.000 (0.034)
ln(Income)	0.028*** (0.005)	0.026*** (0.005)	0.026*** (0.005)	0.059*** (0.015)	0.062*** (0.015)	0.060*** (0.015)
Finance Career	0.062*** (0.018)	0.053*** (0.018)	0.051*** (0.018)	0.120** (0.053)	0.114** (0.053)	0.104* (0.054)
Degree	0.049*** (0.014)	0.043*** (0.014)	0.042*** (0.014)	0.050 (0.033)	0.047 (0.034)	0.047 (0.034)
Entrepreneur	0.006 (0.017)	-0.004 (0.017)	-0.003 (0.017)	-0.030 (0.047)	-0.038 (0.047)	-0.039 (0.047)
Observations	4,896	4,896	4,896	1,027	1,027	1,027
Literacy dummies	No	No	Yes	No	No	Yes
Pseudo R ²	0.0762	0.0933	0.0952	0.0531	0.0644	0.0697

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Precautionary Savings and Financial Literacy

Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?

Columns (1)-(3): Full sample, Columns (4)-(6): Low literacy sample (Scores<4)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Actual Score	0.084*** (0.008)	0.044*** (0.009)		0.048* (0.026)	0.040 (0.027)	
Perceived Score		0.065*** (0.010)			0.020 (0.016)	
Precision		0.108*** (0.030)			0.104* (0.057)	
Overestimation			0.080*** (0.009)			0.025 (0.016)
Age	0.006*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.008*** (0.002)	0.007*** (0.002)	0.007*** (0.002)
Female	-0.059*** (0.015)	-0.027* (0.015)	-0.027* (0.015)	-0.068** (0.033)	-0.057* (0.034)	-0.055 (0.034)
ln(Income)	0.035*** (0.006)	0.033*** (0.006)	0.034*** (0.006)	0.058*** (0.016)	0.059*** (0.016)	0.060*** (0.016)
Finance Career	0.077*** (0.020)	0.062*** (0.020)	0.063*** (0.020)	0.054 (0.056)	0.049 (0.057)	0.052 (0.057)
Degree	0.086*** (0.016)	0.081*** (0.016)	0.078*** (0.016)	0.122*** (0.034)	0.124*** (0.034)	0.122*** (0.034)
Entrepreneur	-0.025 (0.019)	-0.037* (0.019)	-0.036* (0.019)	-0.018 (0.047)	-0.019 (0.047)	-0.020 (0.047)
Observations	4,896	4,896	4,896	1,027	1,027	1,027
Literacy dummies	No	No	Yes	No	No	Yes
Pseudo R ²	0.0647	0.0809	0.0799	0.0427	0.0469	0.0450

Robust standard errors in parentheses

*** p<0.01, **p<0.05, * p<0.1

Decision-Making and Financial Literacy

Who is primary responsible for household financial decisions?

Columns (1)-(3): Full sample, Columns (4)-(6): Low literacy sample (Scores<4)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Actual Score	0.043*** (0.011)	0.013 (0.012)		0.057* (0.032)	0.035 (0.034)	
Perceived Score		0.050*** (0.013)			0.044** (0.020)	
Precision		0.049 (0.040)			-0.000 (0.072)	
Overestimation			0.057*** (0.012)			0.044** (0.020)
Age	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	0.001 (0.002)	0.000 (0.002)	0.000 (0.002)
Female	-0.126*** (0.020)	-0.105*** (0.021)	-0.105*** (0.021)	-0.001 (0.041)	0.022 (0.043)	0.021 (0.043)
ln(Income)	-0.030*** (0.009)	-0.032*** (0.009)	-0.032*** (0.009)	-0.073*** (0.020)	-0.072*** (0.021)	-0.073*** (0.021)
Finance Career	0.097*** (0.027)	0.090*** (0.028)	0.093*** (0.028)	0.143** (0.069)	0.139** (0.069)	0.146** (0.070)
Degree	-0.005 (0.021)	-0.011 (0.021)	-0.011 (0.021)	-0.002 (0.042)	-0.007 (0.043)	-0.007 (0.042)
Entrepreneur	-0.017 (0.026)	-0.024 (0.026)	-0.024 (0.026)	-0.056 (0.058)	-0.060 (0.058)	-0.062 (0.058)
Observations	2,882	2,882	2,882	650	650	650
Literacy dummies	No	No	Yes	No	No	Yes
Pseudo R ²	0.0244	0.0312	0.0310	0.0215	0.0270	0.0280

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Implications for the uptake of financial advice

- Test how literacy and beliefs are related to the uptake of advice.
- “When considering mutual funds, it is more important to pay attention to past performance than to consider the management fees.”

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- Test how literacy and beliefs are related to the uptake of advice.
- “When considering mutual funds, it is more important to pay attention to past performance than to consider the management fees.”
- Mirrors the language that policymakers use in attempts to make investors aware of the implication of fees and how to invest wisely (available on the SEC website)
- Responses
 - (a) Agree [$n=1,188$]
 - (b) Disagree [$n=967$]
 - (c) Don't know [$n=659$]
 - (d) Prefer not to say [$n=68$]

3. Is this behavior good or bad?

Overestimation (Perceived minus Actual score)

(1) & (2) "When considering mutual funds, it is more important to pay attention to past performance than to consider the management fees."

(3) "How satisfied or dissatisfied would you be if financial planning advice or information were offered to you . . ."

(4) "Which of the following best describes your role in making financial investment decisions?" Answers are "I am the primary . . .", "I share responsibility", and "Someone else in the family makes financial investment decisions."

VARIABLES	(1) Don't know	(2) Wrong answer	(3) No Advice
Overestimation	-0.0633*** (0.009)	0.0225* (0.012)	0.0142** (0.006)
Observations	2,882	2,882	4,896
Demographic controls	Yes	Yes	Yes
Literacy dummies	Yes	Yes	Yes
Pseudo R ²	0.161	0.0201	0.0140

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conclusions

- LinkedIn subjects are on average financially literate, but also a good deal wealthier and better educated than average Americans.
 - Our results are stronger for the smaller group who know less.
 - Important group on a participation-weighted scale.
- Engagement is primarily driven by perceived, not actual, literacy.
 - Gender differences vanishes when controlling for self-perceptions.
- Is this behavior harmful?
 - More likely to be decision-makers.
 - Mistaken beliefs discourages advice-taking.
 - Increases the propensity of thinking you know, but actually getting it wrong.
- Challenge for thinking about policies aimed at increasing participation
 - The interplay between self-confidence, knowledge and engagement may be much more complicated than we first thought.