How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness

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This paper reports on several self-assessed and objective measures of financial literacy newly added to the American Life Panel (ALP), and it links these performance measures to efforts consumers make to plan for retirement. We evaluate the causal relationship between financial literacy and retirement planning by exploiting information about respondents’ financial knowledge acquired in school - before entering the labor market and certainly before starting to plan for retirement. Results show that those with more advanced financial knowledge are those more likely to be retirement-ready.

CONTRIBUTIONS OF THIS PAPER

• We designed questions for the Rand American Life Panel (ALP) to measure financial literacy in a representative sample of the population. Our financial literacy questions are more extensive than those in previously available datasets. We measure both basic financial literacy and sophisticated financial literacy.

• We evaluate the quality of the financial literacy data. For instance, we randomize the wording in three questions to determine whether some respondents are guessing or are confused by the questions.

• We ask respondents for a self-assessment of financial knowledge and are able to compare this self-reported knowledge to actual financial knowledge.

• We disentangle the nexus of causality between financial literacy and retirement planning.

DATA AND METHODOLOGY

The Rand American Life Panel (ALP) is an Internet-based survey of respondents age 18+ recruited by the University of Michigan’s Survey Research Center. For the empirical analysis we have 989 observations. The average respondent age is 45, 60% of respondents are married, 48% are male, 29% of the sample has a high school or lower degree, and 16% are fully retired.

Basic Financial Literacy Questions

1. Numeracy
   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? (i) More than $102; (ii) Exactly $102; (iii) Less than $102; (iv) Do not know (DK); (v) Refuse.
2. **Compound Interest**
Suppose you had $100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have on this account in total? (i) More than $200; (ii) Exactly $200; (iii) Less than $200; (iv) DK; (v) Refuse.

3. **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? (i) More than today; (ii) Exactly the same; (iii) Less than today; (iv) DK; (v) Refuse.

4. **Time Value of Money**
Assume a friend inherits $10,000 today and his sibling inherits $10,000 3 years from now. Who is richer because of the inheritance? (i) My friend; (ii) His sibling; (iii) They are equally rich; (iv) DK; (v) Refuse.

5. **Inflation/Money Illusion**
Suppose that in the year 2010, your income has doubled and prices of all goods have doubled too. In 2010, how much will you be able to buy with your income? (i) More than today; (ii) The same; (iii) Less than today; (iv) DK; (v) Refuse.

**Sophisticated Financial Literacy Questions**

1. **Stock Market Functioning**
Which of the following statements describes the main function of the stock market? (i) The stock market helps to predict stock earnings; (ii) The stock market results in an increase in the price of stocks; (iii) The stock market brings people who want to buy stocks together with those who want to sell stocks; (iv) None of the above; (v) DK; (vi) Refuse.

2. **Knowledge of Mutual Funds**
Which of the following statements is correct? (i) Once one invests in a mutual fund, one cannot withdraw the money in the first year; (ii) Mutual funds can invest in several assets, for example invest in both stocks and bonds; (iii) Mutual funds pay a guaranteed rate of return which depends on their past performance; (iv) None of the above; (v) DK; (vi) Refuse.

3. **Interest Rate/Bond Prices Link**
If the interest rate falls, what should happen to bond prices? (i) Rise; (ii) Fall; (iii) Stay the same; (iv) None of the above; (v) DK; (vi) Refuse.

4. **Safer: Company Stock or Mutual Fund**
True or false? Buying a company stock usually provides a safer return than a stock mutual fund. (i) True; (ii) False; (iii) DK; (iv) Refuse.

5. **Riskier: Stocks or Bonds**
True or false? Stocks are normally riskier than bonds. (i) True; (ii) False; (iii) DK; (iv) Refuse.
6. Long Period Returns
Considering a long time period (for example 10 or 20 years), which asset normally gives the highest return? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) DK; (v) Refuse.

7. Highest Fluctuation/Volatility
Normally, which asset displays the highest fluctuations over time? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) DK; (v) Refuse.

8. Risk Diversification
When an investor spreads his money among different assets, does the risk of losing money: (i) Increase; (ii) Decrease; (iii) Stay the same; (iv) DK; (v) Refuse.

Other Important Questions

- Self-reported financial knowledge:
  On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your understanding of economics?

- Exposure to financial education at school:
  How much of your school’s education (high school, college or higher degrees) was devoted to economics? A lot, some, little, or hardly at all?

- Exposure to financial education in the workplace:
  Did any of the firms you worked for offer financial education programs, for example retirement seminars? i)Yes, ii) No, iii) Not applicable.

- Retirement planning:
  How much have you thought about retirement? A lot, some, little, or hardly at all?

Some Descriptive Findings

Who Knows the Least?
- Women exhibit much lower levels of financial literacy than men.
- Better educated respondents are more knowledgeable than their less educated counterparts.
- Younger respondents know less than middle-age and older respondents.

Do People Know What They Do Not Know?
- Many respondents give themselves high scores with regard to their knowledge of economics.
- Subjective and objective financial knowledge are highly correlated.
How Is Financial Knowledge Acquired?

- Those who took courses in finance and economics have higher financial literacy later in life.
- Those who were exposed to employer-provided financial education have higher literacy.

**Multivariate Analysis: Does Financial Knowledge Matter? The Relationship between Financial Literacy and Retirement Planning**

- First we use OLS regression to establish a strong positive relationship between financial literacy and retirement planning.
- Next evaluate whether financial literacy may be endogenous.
- One instrumental variable model uses a variable indicating a respondent lived in a state with mandated financial education at age 17 as an instrument; this we interact with the amount the state spent on education (measured by the educational expenses per pupil when the respondent was 17). The model also adds additional interactions to take into account nonlinear exposure to this financial literacy training (age and sex). We show that the impact of the financial literacy index on retirement planning is positive, statistically significant, and larger than the OLS estimate.
- A second instrumental variable model includes company-based financial education programs as the instrument for financial literacy. Here the estimates again show that improved financial literacy due to employers’ financial education programs does lead workers to plan more for their retirement.

**Summary of Findings:**

- Financial illiteracy is widespread. Many respondents are not familiar with financial and economic concepts that are critical to make saving and investment decisions.
- Financial illiteracy is particularly severe among some demographic groups, such as women, the young, and those with low education.
- Irrespective of low scores on financial literacy questions, many respondents think they have high knowledge of economics.
- Financial literacy matters: Those who have low literacy are less likely to plan for retirement and thus to accumulate retirement wealth.