Financial Literacy and Financial Decision-Making

Annamaria Lusardi

Stanford Institute for Economic Policy Research (SIEPR) and Graduate School of Business (GSB) Faculty Director, Initiative for Financial Decision-Making

Overview & Research Ideas (O&R) Session, FMA Meetings Texas, October 18, 2024



JEP paper summarizes the research in the past 20 years

Annamaria Lusardi and Olivia S. Mitchell

Journal of Economic Perspectives Fall 2023 Journal of Economic Perspectives-Volume 37, Number 4-Fall 2023-Pages 137-154

The Importance of Financial Literacy: Opening a New Field

Annamaria Lusardi and Olivia S. Mitchell

People face complex financial decisions with potentially long-lasting consequences at all stages of life. As young people grow into adulthood, they make decisions about loans for college tuition, cars, and houses, along with how to manage credit cards, health and other kinds of insurance, and living within a budget. The shift from defined benefit to defined contribution retirement plans implies that ordinary people must now shoulder decisions about saving, investing, and more. Older people face decisions about how to manage risks and costs of aging, as well as drawing down their retirement assets. These decisions have only become more complex with the advent of new financial products (which, with the help of technology, one can access with a click), novel ways to make payments ("buy now, pay later"), risky instruments such as crypto assets, and most recently the rise of inflation. According to Google Trends, searches for how to budget or save for retirement have increased fourfold since 2004.

For these reasons and others, *financial literacy*, by which we mean people's knowledge of and ability to use fundamental financial concepts in their economic decision-making, matters and is more important than ever. The fact that so many people lack financial knowledge not only limits their ability to utilize their resources to the fullest, but also contributes to macroeconomic problems. Recent economic crises related to the subprime mortgage debacle and the COVID-19 pandemic

Annamaria Lusardi is Senior Fellow at the Stanford Institute for Economic Policy Research (SIEPR) and the Director of the Financial Freedom Initiative, a collaboration between the Graduate School of Business (CSB), SIEPR, and the Economics Department, Stanford University, Stanford, California. Olivia Mitchell is Professor of Insurance/Risk Management and Business Economics/Policy, and Executive Director of the Pension Research Council, at The Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania. Their email addresses are alusardi@Stanford.edu and mitchelo@wharton.upenn.edu.

For supplementary materials such as appendices, datasets, and author disclosure statements, see the article page at https://doi.org/10.1257/jep.37.4.137.

A new academic field

MERICAN Membership About AEA Log In ECONOMI Journals Annual Meeting Careers Resources EconLit EconSpark Q Home > Resources > JEL Guide Resources JEL Classification Codes Guide Data Sources For Students The guide provides JEL Code application guidelines, keywords, and example of items within each classification. For Educators The "JEL" classification system originated with the Journal of Economic **Online Seminars** Literature and is a standard method of classifying scholarly literature in the Meetings & Conferences field of economics. It is used in many of the AEA's published research materials. JEL Codes Guide Use the guide to gain insight on how JEL Codes are used to classify articles, dissertations, books, book reviews, and working papers. You will also find it is helpful when adding classification codes to your own work. Funding & Grants **G53** Financial Literacy



Academic events devoted to financial literacy

- Cherry Blossom
 Financial Education
 Institute, USA
- Bootcamp for students, Stanford University
- Financial literacy conference, Turin, Italy
- MIFE conference, Fall, Germany

Motivation: Change in the economy requires people to have new skills

- Changes in the pension system: people are more in charge of their financial security after retirement
- Changes in the labor market: gig economy and STEM
- Changes in financial markets: Complexity of financial instruments, including new ones (crypto assets), and easy access to credit, buy now pay later
- Fintech and Al
- Increase in risk and inflation



Research questions from a personal finance approach:

- Do people have the knowledge of the fundamental concepts at the basis of financial decision-making?
- Can people use their financial literacy in an effective way?
- Do people search and compare terms and conditions when making financial decisions?
- Do people engage in behavior conducive to financial resilience/wellbeing?



The importance of data and measurement



Measuring financial literacy: The ABCs of personal finance

These are the questions I designed jointly with Olivia Mitchell, known as the "Big Three." One question is about inflation:

The Big Three

- "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?"
- 2. "Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, with the money in this account, would you be able to buy..."
- 3. "Do you think the following statement is true or false? Buying a single company stock usually provides a safer return than a stock mutual fund."

More than \$102
 Exactly \$102
 Less than \$102
 Don't know
 Refuse to answer

- More than today
- Exactly the same as today
- 🗹 Less than today
- Don't know
- Refuse to answer
- True
 False
 Don't know
 Refuse to answer

Financial Literacy around the World (FLat World)

Initial evidence from 15 countries :

- USA
- ✤ Germany
- The Netherlands
- Italy
- Russia
- Sweden
- New Zealand
- Japan

- ✤ Australia
- France
- Switzerland
- Romania
- ✤ Chile
- ✤ Finland
- ✤ Canada



Published in special issue of the Journal of Pension Economics and Finance, 2011

First global survey on financial literacy

- The S&P Global Finlit Survey.
- The largest, most comprehensive, global measure of financial literacy
- Interviewed more than 150,000 adults age 15+ in more than 148 countries in 2014
- The measure has to be applicable to every country, irrespective of economic structure and financial market development
- The survey covers again the Big Three topics:
 - Numeracy
 - Interest compounding
 - Inflation
 - Risk diversification

Being financially literate: Able to answer 3 out of these 4

 Able to answer 3 out of these 4 topics correctly



Pearson Prizes for the Best Papers in Financial Management

Every two years, *Financial Management*'s Editors, Associate Editors, and Advisory Editors choose the best papers from all of the journal articles published during the past two years through a double ranking procedure. Thanks to the generous support of Pearson, the winner is awarded a cash prize of \$7,500 and the runner-up paper is awarded a cash prize of \$2,500.



Congratulations to the 2022 award winners!

Winner

Financial literacy and financial resilience: Evidence from around the world (Fall 2020, Volume 49, Issue 3)

Leora Klapper, The World Bank and Annamaria Lusardi, George Washington University

We measure financial literacy using questions assessing basic knowledge of four fundamental concepts in financial decision making: knowledge of interest rates, interest compounding, inflation, and risk diversification. Worldwide, just one in three adults are financially literate—that is, they know at least three out of the four financial concepts. Women, poor adults, and lower educated respondents are more likely to suffer from gaps in financial knowledge. This is true not only in developing countries but also in countries with well-developed financial markets. Relatively low financial literacy levels exacerbate consumer and financial market risks as increasingly complex financial instruments enter the market. Credit products, many of which carry high interest rates and complex terms and conditions, are becoming more readily available. Yet only around half of adults in major emerging countries who use a credit card or borrow from a financial institution are financially literate. We discuss policies to protect borrowers against risks and encourage account holders to save.

Financial Literacy around the World (FLat World), cont.

Evidence from other countries and updating the evidence <u>with a focus on</u> <u>inflation</u> (special issue of the *Journal of Financial Literacy and Wellbeing*, 2023)

- USA
- Latin America (Peru and Uruguay)
- Eastern Europe (9 countries)
- ✤ Singapore
- Finland
- Italy
- Japan
- ✤ Germany
- Canada



Main findings

Strikingly similar and low levels of financial literacy around the world, even in advanced economies with well developed financial markets

Some groups are particularly vulnerable: the young, women, etc. Again, very similar findings across countries.

Little improvement over time

Across countries, improvements in financial literacy are small

New research projects

Validation of the measurement

Kaiser, Lusardi, Mitchell, and Oberrauch, "Measuring financial literacy with the Big Three: Why it works." Working paper.

Teaching these basic topics via stories

Clark, Lin, Lusardi, Mitchell, and Sticha (2024), "Evaluating the effects of a low cost, online financial education program." GFLEC and Wharton PRC working paper, 2024.

Measuring personal finance knowledge

- The TIAA-Institute-GFLEC Personal Finance Index (P-Fin Index) is an annual measure of knowledge and understanding which enable sound financial decision-making and effective management of personal finances among U.S. adults.
- The P-Fin Index relates to common financial situations that individuals encounter and can be viewed as a gauge of "working knowledge."
- In addition to personal finance knowledge, it provides information on financial well-being indicators.
- Data is now collected on a representative sample of about 3,500 respondents (age 18+).
- Data collection started at the end of 2016.



Eight years of P-Fin Index data (2017-2024)

Yearly data collection of P-Fin Index questions and financial well-being indicators and release of data findings during Financial Literacy Month (April).



Yearly oversample of specific demographic subgroups and insight reports on specific topics.

What is unique: 8 functional areas of personal finance

The index is based on responses to **28 questions**, with three or four questions for each of the eight functional areas (from the National Standards for Financial Literacy).

The P-Fin Index's 28 questions cover eight functional areas:

1. Earning

2. Saving

3. Consuming

4. Investing

5. Borrowing

6. Insuring

7. Comprehending risk

8. Go-to information sources

An example question

Paula saves \$500 each year for 10 years and then stops saving additional money. At the same time, Charlie saves nothing for 10 years but then receives a \$5,000 gift which he decides to save. If both Paula and Charlie earn a 5% return each year, who will have more money in savings after 20 years?



- Charlie
- Paula and Charlie will have the same amount
- Don't know
- Refuse to answer

Results:	
Correct	51%
Incorrect	23%
Don't Know	25%
No Answer	0%

Source: TIAAInstitute-GFLEC Personal Finance Index (2024).

Financial (il)literacy is holding steady: 2017-2024



Source: TIAA Institute-GFLEC Personal Finance Index (2017-2024).

Distribution of correct answers to *P*-Fin Index

What do people know the most and the least



Source: TIAAInstitute-GFLEC Personal Finance Index (2024).

Gaps in financial knowledge: Age groups/cohorts

% of P-Fin Index questions answered correctly



Distribution of correct answers to P-Fin Index questions



Source: TIAA Institute-GFLEC Personal Finance Index (2024).

Gaps in financial knowledge: Women and men

% of P-Fin Index questions answered correctly

Distribution of correct answers to P-Fin Index questions



Financial literacy gender gap in each topic...

% of P-Fin Index questions answered correctly



Source: TIAA Institute-GFLEC Personal Finance Index (2024).

...and in answering "Do not know"

% of P-Fin questions answered "Don't know"



Men Women

Source: TIAAInstitute-GFLEC Personal Finance Index (2024).

Focusing on gender differences

What happens if we take away the "do not know" option?

This is what we did in a project with data from the Dutch Central Bank using the Big Three.

- The gender difference shrinks but does not go away
- Women know more than they think they do, but they are not confident about their knowledge
- Both knowledge and confidence matter for financial behavior (investing in the stock market)

Bucher-Koenen, Alessie, Lusardi and van Rooij, 2024, "Fearless woman: Financial literacy, confidence and stock market participation." Forthcoming *Management Science*

Findings from an experiment using Dutch Central Bank Data

Fearless Woman: Financial Literacy and Stock Market Participation

Tabea Bucher-Koenen (ZEW, U of Mannheim Rob Alessie (U of Groningen)

Maarten van Roof (Dutch Central Bank and ECB

Annamaria Lusardi (Stanford Univer

Stanford Graduate School of Business

Where changes happened over time: Toward an unequal path

% point change in P-Fin questions answered correctly, 2017 to 2023





Source: TIAA Institute-GFLEC Personal Finance Index (2017, 2023).

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A simple measure of the cost of financial illiteracy

Average hours per week spent thinking about and dealing with issues and problems related to personal finance



People spend an average of 8h per week thinking about and dealing with financial issues and problems. An average of 4h per week occur at work.

Source: TIAA Institute-GFLEC Personal Finance Index (2024).

Measuring financial fragility (Lusardi, Schneider and Tufano, BPEA, 2011)

How **confident** are you that you could come up with **\$2000** if an unexpected need arose **within the next month**?

- I am certain I could come up with the full \$2,000.
- I could probably come up with \$2,000.
- I could probably not come up with \$2,000.
- I am certain I could not come up with \$2,000.
- Don't know.
- Prefer not to say.



Respondents are classified as financially fragile.

Financial fragility: what does it measure?

Is a symptom of lack of assets Indicates lack of borrowing capacity of highly leveraged households

Financial fragility before and after the pandemic

Financial fragility over time



Source: 2009 TNS data; 2012, 2015 and 2018 NFCS data; 2020, 2023, 2024 P-Fin data.

The relationship between financial resilience (being able to cope) and financial literacy

	Model 1 Financial Resilience	Model 2 Financial Resilience	Model 3 Financial Resilience
	Restlichee	Resilience	Restlience
>50% of P-Fin questions correct	0.095*** (0.018)		
Total # of P-Fin questions correct		0.007***	
-		(0.001)	
Was offered financial education			0.052***
			(0.015)
Demographic Controls	Yes	Yes	Yes
Observations	3,687	3,687	3,687
R-squared	0.173	0.175	0.168

Source: TIAA Institute-GFLEC Personal Finance Index (2024).



Full length article

Resilience and wellbeing in the midst of the COVID-19 pandemic: The role of financial literacy



Andrea Hasler^a, Annamaria Lusardi^{b,*}, Nikhil Yagnik^{c,1}, Paul Yakoboski^d

^a GFLEC, The George Washington University, School of Business, United States

^b The George Washington University, United States

^c Cornerstone Research, United States

^d TIAA Institute, United States

ARTICLE INFO

ABSTRACT

Article history: Available online 30 March 2023

JEL classifications: G53 D14 Using the 2021 wave of the TIAA Institute-GFLEC Personal Finance Index (*P-Fin Index*), this paper provides an in-depth examination of the financial literacy of U.S. adults in the midst of the COVID-19 pandemic. Knowledge is troublingly low, with U.S. adults averaging a score of 50 percent on the twenty-eight questions that compose the *P-Fin Index*. Even more disturbingly, only 28 percent of U.S. adults correctly answered a question testing their ability to comprehend and compare probabilities. Financial literacy matters. Lower financial literacy is associated with increased time spent worrying about personal finances. After controlling for income, education, and key demographic information, the more financially literate are found to be more likely to be financially resilient, to plan for retirement, and to feel unconstrained by debt. These findings highlight the importance of financial knowledge, in particular in a time of crisis, and raise concerns about the public's ability to comprehend complex messages about risk during the pandemic.

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Financial literacy matters

Who is financially literate:

- is better prepared to cope with shocks
- is more likely to plan for retirement
- is more likely to save
- is better at managing debt

The findings in the P-Fin Index confirm the results in other studies using other measures of financial literacy.

Source: Lusardi and Mitchell (JEP 2023)





Can people use financial literacy in an effective way?



Consumer Expectations Survey (CES)

- Internet panel; DE, FR, ES, IT, BE, NL; ~ 10,000 households; pilot started January 2020 (January 2021: +5 euro-area countries; 19,000 households)
- Unique data and information, combines data on financial literacy with data on household perceptions, expectations and behavior (incl. consumption, saving/ investing, borrowing)
- Mixed-frequency modular approach (monthly, quarterly, annual topical modules; special-purpose ad hoc surveys)
- For a description see: ECB Evaluation Report (OP, 2021) and Georgarakos and Kenny (JME, 2022)

Financial literacy – summary statistics

Share of consumers with high financial literacy (percentage of consumers)



Risk taking behavior

High FL: more willing to take up (modest) risks

Willingness to take financial risk (percentage of consumers, by literacy)



Source: ECB Consumer Expectations Survey, authors' calculations.

Notes: Which of the following statements comes closest to the amount of financial risk you are willing to take when you save or make investments? Weighted estimates. Pooled Nov. 2022 and Nov. 2023 data.

Good time to save and borrow

High FL: better sense of good timing; more aligned with interest rates (IR) developments



Source: ECB Consumer Expectations Survey, latest data: Feb. 24. Authors' calculations.

Notes: Each month in the CES Consumers are asked "Generally speaking, do you think now is a good time or a bad time to ...?" (i) "Save money in savings accounts" (ii) "Borrow money from a bank" on a 5-point-scale from "very bad" to "very good". Weighted estimates.

Shopping for best debt products

High FL: more shopping for best debt products

Shopping around for debt products (in percent of consumers, by literacy)



Source: ECB Consumer Expectations Survey, authors' calculations.

Notes: Consumers are asked "When making major decisions about borrowing money or obtaining credit, some people search for the very best terms while others don't. What best describes you and your household?" on a 11-point-scale from 0 (no searching) to 10 (A great deal of searching). Answers are grouped to a little (0 to 3), medium (4 to 6) and a lot (7 to 10) of searching. Weighted estimates. Pooled Nov. 2022 and Nov. 2023 data.

FRMs vs ARMs across IR environments

Low FL: favor FRMs in a high IR environment



Source: ECB Consumer Expectations Survey, latest data: Feb. 2024, authors' calculations.

Notes: On ad-hoc basis the CES asks consumers "Suppose you have to take out a mortgage to finance the purchase of a house/apartment today. Which one of the following types would you choose?" Respondents can choose from: "An adjustable rate mortgage", "A fixed rate mortgage" or "A mixed mortgage loan" with short explainers on the types of mortgages. Weighted estimates. Data depicted is pooled from Belgium, Germany, Spain, France, Italy, and the Netherlands.

Consumer attention to interest rate developments

Low FL: limited attention to IRs, even among ARM holders



Source: ECB Consumer Expectations Survey, authors' calculations.

Notes: Consumers are asked: "Thinking about yourself, how much attention do you currently pay to interest rates in the country you currently live in?". Weighted estimates based on December 2023 data.

Debt and debt management

✤ High FL: less likely to have difficulty making payments on time

			E	xpected lat	e payments	3		
	R	ent	Mort	gage	Lo	an	Utility	/ bills
Mean (share of resp.)	0.	09	0.	07	0.	08	0.0	09
Big-3 (correct)	-0.04*** (0.003)	-0.06*** (0.004)	-0.04*** (0.003)	-0.05*** (0.003)	-0.02*** (0.003)	-0.05*** (0.003)	-0.02*** (0.003)	-0.06*** (0.003)
Country and wave dummies	X	X	X	X	X	X	X	X
Demographic controls R-2	0.06	X 0.02	0.05	X 0.03	0.06	X 0.03	0.10	X 0.04
Ν	113,402	113,402	105,857	105,857	110,042	110,042	190,683	190,683

Source: ECB Consumer Expectations Survey, authors' calculations.

Notes: Consumers are asked each quarter in the CES: "Looking ahead over the next 3 months, do you expect that your household is likely to have difficulty making any of the following payments on time? Rent/ mortgage/ other loans/ utility bills". The table depicts marginal effects from a linear probability model with expected late payments of the respective item as dependent variable. Demographic controls include age, gender, income, education, household size, financial fragility indicator, and all regressions include country and wave dummies. Weighted estimates. Pooled quarterly data from April 2020 to March 2024.

Stock market participation

High FL: significantly higher stock market participation

	Stocks	(direct)	Mutual fur	nds / ETFs	Stocks (Mutual Fu	direct) or nds /ETFs	Pension	Products
Mean (share of resp.)	0.2	22	0.2	24	0.3	33	0.2	23
Big-3 (correct)	0.15*** (0.006)	0.15*** (0.006)	0.20*** (0.006)	0.20*** (0.006)	0.24*** (0.007)	0.24*** (0.007)	0.10*** (0.006)	0.10*** (0.006)
Country and wave dummies	X	X	X	X	X	X	X	X
Demographic controls R-2	0.04	X 0.04	0.09	X 0.09	0.09	X 0.09	0.03	X 0.03
N	52,633	52,633	52,638	52,638	52,540	52,540	52,708	52,708

Source: ECB Consumer Expectations Survey, authors' calculations.

Notes: The table depicts marginal effects from a **linear probability model with ownership of the respective asset** as dependent variable. Demographic controls include *age, gender, income, education, household size, financial fragility indicator,* and all regressions include *country* and *wave* dummies. Weighted estimates. Pooled data from Nov. 2021, Nov. 2022 and Nov. 2023.

Trust in euro and the ECB

High FL: higher support for the euro/ higher ECB credibility



Source: ECB Consumer Expectations Survey. Left panel: "Generally speaking, do you think having the euro is a good or a bad thing for the country you currently live in? (i) A good thing (ii) A bad thing (iii) Can't decide (iv) Don't Know"; Right panel: "How likely do you think it is that the European Central Bank (ECB) will maintain price stability in the euro area economy over the next 3 years?" (slider 0 to 100)

Information about the ECB

General public hard to reach, but high FL more likely to receive news about the ECB, mainly via traditional channels

Information about the ECB: channels by literacy (percentage of respondents, by literacy)



Source: ECB Consumer Expectations Survey (CES).

Notes: In the past month, have you seen or heard information about the European Central Bank (ECB) from any of the following sources? Apart from "No info", all other options are not mutually exclusive, leading to a total sum higher than 100% of the respondents. Weighted estimates.

Using research and data for teaching and policy





From research to teaching



- Personal Finance courses for undergraduate and graduate students since 2012
- Extensive coverage of risk and risk management
- Paying attention to gender and other differences in financial literacy
- Use the P-Fin Index data in every class to motivate and illustrate the topic
- A lot of applications

Personal finance courses at Stanford University

- When the course first opened in 2020, 362 students signed up. It became one of the most popular courses in Economics
- This academic year, we taught 3 courses on Personal Finance targeting different students, including during the summer term
- We have a Personal Finance Lab devoted to peer learning, and a monthly Financial Literacy Colloquia
- We can share our material (lectures, applications, exams, etc.)



Stanford Graduate School of Business

Annual teaching personal finance conference



Teaching Personal Finance conference

Conference Organizers



- We have been holding a conference on teaching personal finance yearly since 2022
- Our aim is to promote personal finance in every university and college
- We plan to extend the courses to create programs for alumni and other groups as well

Initiative for Financial Decision-Making

Collaboration among:

Stanford | Institute for Economic | Policy Research (SIEPR)



Stanford | Department of Economics

Our aim is to transform personal finance education We are very open to collaboration and offer short visits as well

From research to policy

- Governments are increasingly focusing on financial literacy: one example is national strategies for financial literacy
- Central banks are also focusing on financial literacy due to the increase in inflation and their interest in the stability and resilience of the financial system.



Designing the national strategy for financial literacy in Italy



I chaired the Italian Committee for Financial Education in charge of the national strategy for financial literacy

Supported a law mandating financial education in school

See also "Evaluating a Financial Education National Campaign: Experimental Evidence from Italy" with Alessia Sconti et al, 2024.

Summary and remarks

- Very low levels of financial literacy: People do not know the basic concepts
- Large differences across individuals and striking similarities across countries
- Financial literacy influences financial decision-making in many ways, including searching and comparing terms and taking advantage of changes in interest rates
- Personal finance education, starting in school and college, can address some of these problems

A meta-analysis of the effects of financial education



Journal of Financial Economics Available online 3 October 2021 In Press, Corrected Proof 3



Financial education affects financial knowledge and downstream behaviors

Tim Kaiser * 쯔, Annamaria Lusardi ^b 옷 쯔, Lukas Menkhoff ^c 쯔, Carly Urban ^d 쯔

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https://doi.org/10.1016/j.jfineco.2021.09.022

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Abstract

We study the rapidly growing literature on the causal effects of financial education programs in a meta-analysis of 76 randomized experiments with a total sample size of over 160,000 individuals. Many of these experiments are published in top economics and finance journals. The evidence shows that financial education programs have, on average, positive causal <u>treatment effects</u> on financial knowledge and downstream financial behaviors. Treatment effects are economically meaningful in size, similar to those realized by educational interventions in other domains, and robust to accounting for publication bias in the literature. We also discuss the cost-effectiveness of financial education interventions.



GFLEC.org/metaanalysis

Number of articles on 'financial literacy' per year in the Web of Science



-	100	05	tan.
3	92		84
9	94		2
1	E.S	51	L
	SP.		FR

Journal of Financial Economics Available online 3 October 2021 In Press, Connected Final (1)



Financial education affects financial knowledge and downstream behaviors

Tim Kaiser 198, Annamaria Lusardi 1 A. B, Lukas Merikhoff 198, Carly Urban 198

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Abstract

We study the rapidly growing literature on the causal effects of financial education programs in a meta-analysis of 76 randomized experiments with a total sample size of over 160,000 individuals. Many of these experiments are published in top economics and finance journals. The evidence shows that financial education programs have, on average, positive causal <u>treatment effects</u> on financial knowledge and downstream financial behaviors. Treatment effects are economically meaningful in size, similar to those realized by educational interventions in other domains, and robust to accounting for publication bias in the literature. We also discuss the cost-effectiveness of financial education interventions.

Introduction

The economic importance of financial literacy is documented in a large and growing empirical literature (e.g., Collins and O'Rourke, 2010; Xu and Zia, 2012; Hastings et al., 2013; Lusardi and Mitchell, 2014; Lusardi, 2019). Consequently, the implementation of national strategies promoting financial literacy and the design of financial education oplicies and school mandates have become a high priority for policymakers around the



If you have any questions, please send them to <u>alusardi@stanford.edu</u>.