

BUILDING FUTURE SECURITY:

LINKING FINANCIAL EDUCATION
TO RETIREMENT OUTCOMES



NATIONAL ENDOWMENT FOR
FINANCIAL EDUCATION

ABOUT THIS EXECUTIVE SUMMARY

This summary presents key findings from Enhancing Retirement Savings with School-Based Financial Education by Annamaria Lusardi, Ph.D., academic director of the Global Financial Literacy Excellence Center and Denit Trust Chair of Economics and Accountancy at the George Washington University School of Business; and Carlo de Bassa Scheresberg, senior research associate at the Global Financial Literacy Excellence Center.

The full report, available at www.nefe.org, documents new research funded by the National Endowment for Financial Education® (NEFE®) to analyze findings from the Organization for Economic Cooperation and Development (OECD)'s 2012 Program for International Student Assessment (PISA) financial literacy data and their implications for the development of sustainable retirement systems.

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Signs of Trouble to Come

YOUNG AMERICAN ADULTS are more vulnerable than previous generations to future retirement insecurity. They are entering a system largely based on defined contribution retirement plans at a time when life expectancy is higher than ever.

Although nearly all Americans receive Social Security in retirement, it is intended to augment personal savings and company pensions, not serve as an equivalent replacement for employment income. The shortfall between Social Security

and preretirement income has grown because most company pensions no longer exist. Individuals are responsible for making up the difference.

To adequately fund a retirement that could last 30 years or more, individuals must start planning and saving as soon as they enter the workforce. But because many young people start their careers with significant debt and low levels of precautionary savings, they are confronted immediately with difficult decisions on how to use their money — to pay down debts or to save for the future.

The very nature of the shift from defined benefit pensions to defined contribution plans has increased the number of complex decisions individuals are responsible for making: when to start saving, how much to contribute, how and where to invest retirement wealth, and how to handle retirement accounts during financial emergencies or job changes.

All of these decisions require a working knowledge of financial concepts, yet research funded by the National Endowment for Financial Education® (NEFE®) shows that 15-year-old Americans do not have an adequate level of financial literacy for the United States to maintain a retirement system that relies so heavily on individual decision making.

In this context, low levels of financial literacy is a problem unique to the United States. Whereas a growing number of countries have developed and implemented a national strategy for financial education in order to improve the financial literacy of their populations, mandates for financial education in the U.S. are determined by the states. Only 17 states require high school students to take a course in personal finance (Council for Economic Education, *2016 Survey of the States*).

Data show financial literacy among American high school students does not match the level that is necessary to be successful in a retirement landscape driven more by individual decisions than societal protection.



Linking Financial Literacy to Retirement Security

Retirement security is dependent on financial literacy, but that is not the only factor. Retirement system generosity, a measure of how effectively a country's retirement system provides income to replace preretirement earnings, plays a critical role. Researchers analyzed both, recognizing that high levels of financial literacy along with high rates of income replacement suggest future retirement security.

Financial Literacy Around the World: A Comparative Analysis

The Program for International Student Assessment (PISA) conducts a triennial international survey to assess 15-year-old students' capability in three key domains: math, reading and science; specifically, the extent to which students near the end of their compulsory education have acquired the knowledge and skills essential for full participation in society.

In 2012, an optional assessment measuring financial literacy was added to the survey. This initiative became the first large-scale international data collection to assess the financial literacy of 15-year-old students. In addition to student performance data, PISA collected background information about students and schools.

As part of the assessment, the Organization for Economic Cooperation and Development (OECD) designed a scale to measure financial literacy and proposed a **new definition of financial literacy**:

The knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.

This definition holds true across countries and conveys why financial literacy is a necessary skill for young adults.

PISA Methodology

The 2012 financial literacy assessment was administered in 18 countries and economies: Australia, the Flemish Community of Belgium, Colombia, Croatia, the Czech Republic, Estonia, France, Israel, Italy, Latvia, New Zealand, Poland, the Russian Federation, Shanghai-China, the Slovak Republic, Slovenia, Spain and the United States.

Approximately 29,000 students completed the financial literacy assessment, representing about 9 million 15-year-olds in the schools of the participating countries and economies.

In the United States, 1,133 students — representing a population of over 3.5 million students — from 158 schools participated in the PISA Financial Literacy Assessment.

PISA Financial Literacy Assessment Proficiency Levels

LEVEL 1: Students display very basic financial literacy and are not able to apply their knowledge to real-life situations.

LEVEL 2: Students begin to apply their knowledge to financial decisions in contexts that are immediately relevant to them.

LEVEL 3: Students start considering the consequences of financial decisions, and they make simple financial plans in common contexts.

LEVEL 4: Students can apply their knowledge of less common financial concepts to contexts that will be relevant to them in the near future.

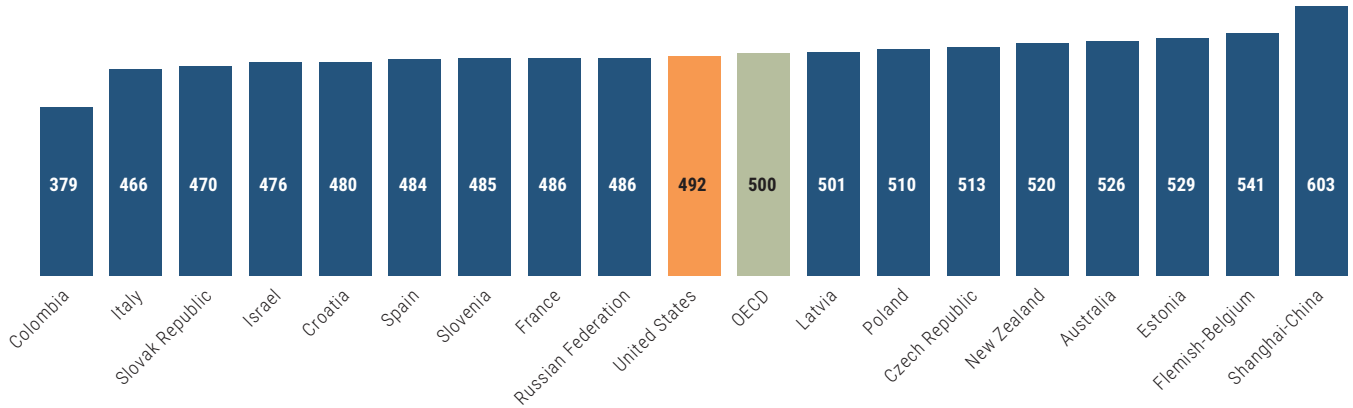
LEVEL 5: Students can apply their understanding of a wide range of financial terms and concepts to contexts that may only become relevant in their future.

Level 1 is the lowest proficiency level, and level 5 is the highest.

Level 2 is considered the baseline level of financial literacy proficiency.

Analysis of the PISA data shows a large variation in the performance of students from different countries on the financial literacy assessment, with the average American student earning a score of 492, just below the OECD average of 500.

Average financial literacy score across participating countries/economies



Source: OECD. (2014). PISA 2012 Results: Students and Money (Volume VI): Financial Literacy Skills for the 21st Century.



Retirement System Generosity Around the World

In addition to measuring student financial literacy through PISA, the OECD also collects and analyzes a range of indicators for comparing pension policies among OECD countries. Its pension generosity index, or income replacement rate, assesses how effectively a country's pension system provides a retirement income to replace earnings. OECD defines the income replacement rate as the individual net retirement benefits divided by net preretirement earnings, taking into account personal income taxes and social security contributions paid by workers and pensioners.

Generally speaking, how close to 100 percent of their working income can people expect to receive from their country's pension system?

Uniquely in Peril

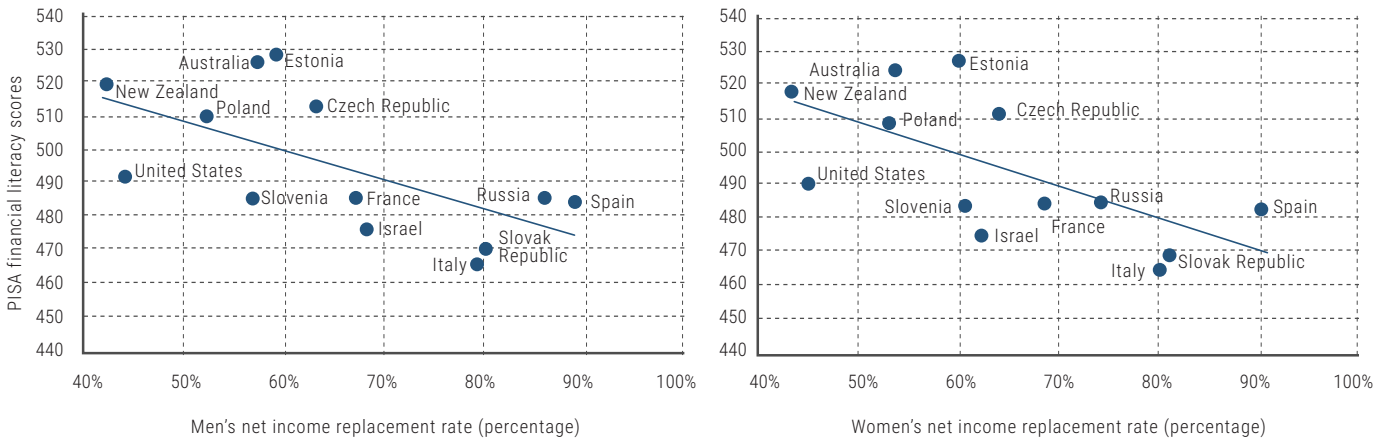
Researchers found that retirement system generosity is linked to students' PISA financial literacy assessment scores for both women and men. Countries with lower income replacement rates tend to perform better in financial literacy, while students in countries with higher income replacement rates score lower in financial literacy. Lower income replacement rates appear to be an incentive for individuals to invest in their own financial education and literacy, with one exception.

The United States has comparatively low retirement replacement rates among the participating countries and economies, but students do not demonstrate above-average proficiency in financial literacy. This could be a sign of trouble to come: The impact of this mediocre performance likely is greater on Americans, who have more individual responsibility to augment Social Security with personal savings.

The United States has low income replacement rates and low levels of financial literacy.

While other countries with low income replacement rates in retirement have made up for it with education, the United States has not.

Net pension replacement rates by gender and PISA financial literacy scores



Source: Researchers' calculations on OECD data.

Retirement Security Scenarios by Country

Country	Financial Literacy ¹	Income Replacement Rate ²	Implications
	HIGHER³	LOWER³	
New Zealand	520	45	
Poland	510	52	
Australia	526	53	
	HIGHER	HIGHER	
Estonia	529	60	Higher financial literacy prepares individuals to cover the shortfall between their working income and their post-retirement income with their own savings. This is critical if their country provides a low income replacement rate.
Czech Republic	513	65	
	LOWER	HIGHER	
Slovenia	485	61	
Israel	476	62	
France	486	67	
Russia	486	74	
Italy	466	80	
Slovak Republic	470	80	Individuals will receive relatively more of their income in retirement, signaling a lower need for individual preparation and financial literacy. Pensions will (in most cases) cover their needs in retirement.
Spain	484	89	
	LOWER	LOWER	
United States	492	45	Extremely worrisome, as individuals receive less income in retirement and are less equipped to plan and invest successfully to cover the shortfall.

1 OECD (2014), PISA 2012 Results: Students and Money (Volume VI): Financial Literacy Skills for the 21st Century.

2 OECD (2014), "Net pension replacement rates" (indicator). DOI: <http://dx.doi.org/10.1787/4b03f028-en>

3 Categorization as "higher" or "lower" is based on NEFE's interpretation of the data on a relative basis when compared to OECD averages.

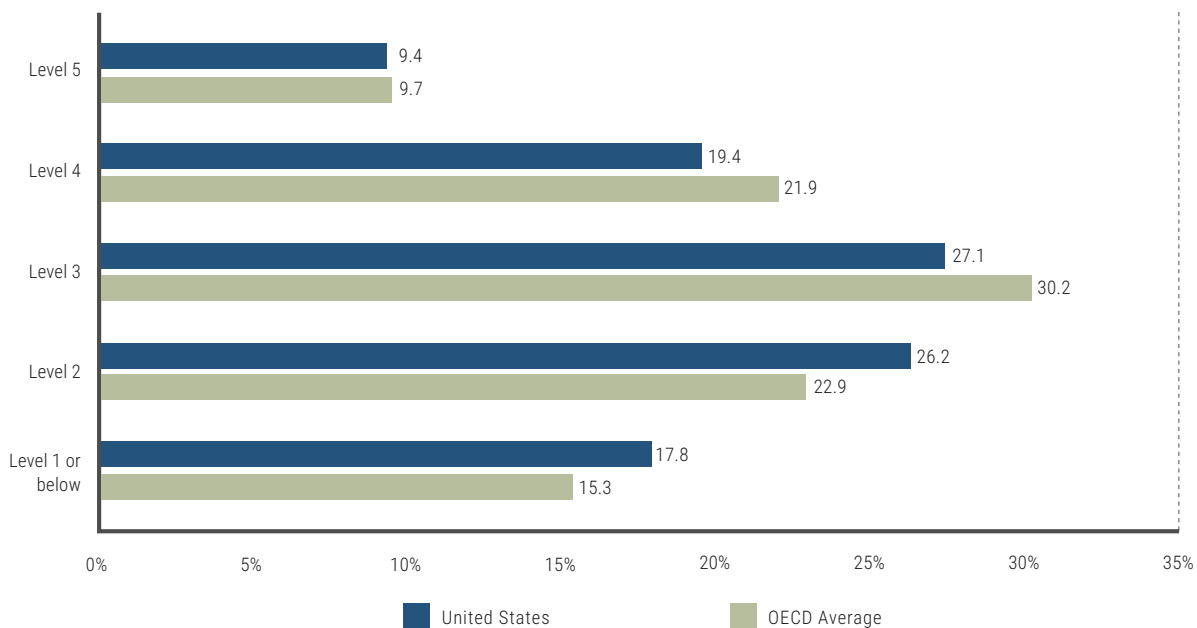




Variations in Financial Literacy by Country

Financial literacy performance within countries varies, and the distribution of scores within the United States underperforms other countries. Not even one in ten students in the United States (9.4 percent) performs at the highest level of proficiency, while almost 18 percent perform below the baseline level.

Percentage of students at each proficiency level in financial literacy: OECD average and U.S.



Source: OECD. (2014). PISA 2012 Results: Students and Money (Volume VI): Financial Literacy Skills for the 21st Century.

Predicting Performance: What Determines Financial Literacy?

To better understand drivers of student performance with an eye to bolstering future retirement security, researchers examined the large financial literacy performance gap in the United States. Predictors of financial literacy performance were assessed on two levels: as part of the international comparative analysis, and as a deeper dive into the U.S. data.

At the international level, student performance on the assessment is not well-explained by macroeconomic characteristics, such as comparatively high gross domestic product (GDP) or the existence of well-developed financial markets. In fact, GDP per capita is only weakly correlated with students' performance in financial literacy. The U.S. ranks first in GDP per capita, but ninth in financial literacy. Also, students in many countries with well-developed financial markets do not earn top scores, indicating that financial literacy is not learned simply through interactions with the economic environment.

GDP per capita only explains 16 percent of country-level variations in financial literacy, indicating that living in a developed country or being exposed to well-developed financial markets alone does not improve financial literacy.

At the U.S. level, researchers used PISA data — including information regarding student, parent, school and teacher characteristics — to look at how financial literacy varies among American students using four variables: student demographics, socioeconomic status, parent characteristics, and school and teacher characteristics. This analysis looks at how variables in each category affect 1) students' financial literacy scores; and 2) a student's probability of scoring in the highest or lowest levels of proficiency.

High performance in the financial literacy assessment among Americans is associated with variables such as high socioeconomic status, parental involvement in a child's school, high parental expectations for children's scholastic achievement, high functionality of the school, and teacher competence and classroom control.



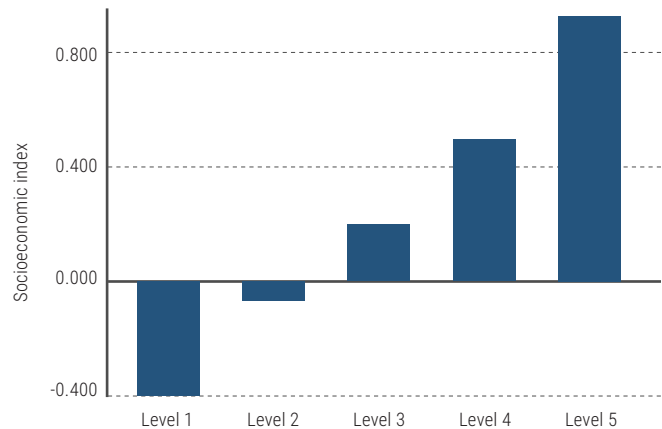
Demographics and Socioeconomic Characteristics

KEY FINDING: Financial literacy depends heavily on socioeconomic status.

A few demographic characteristics — such as speaking Spanish as the main language in the household, and living in a rural environment — appear to be negatively associated with students' probability of scoring in the top two levels of the financial literacy assessment. However, this association is no longer significant when additional variables relating to student socioeconomic status are included.

The analysis shows that students' financial literacy performance is heavily dependent on their household's socioeconomic status. Students who perform at the highest level are more likely to have many books at home, a computer and have parents with high occupational attainment.

Socioeconomic index for each proficiency level



Source: Researchers' calculations on U.S. PISA financial literacy data.

School and Teacher Characteristics

KEY FINDING: Students' performance is influenced by their school and teachers.

Students' financial literacy performance is significantly associated with their schools' and teachers' characteristics, both positive and negative. Students who attend a school with adequate teaching materials and competent teachers — those who demonstrate control over their classroom and try to actively engage with students — are more likely to perform at the two highest levels.

Parent Characteristics

KEY FINDING: Parents' involvement affects students' financial literacy.

Parents' expectations for their children's scholastic achievements is significantly associated with students' financial literacy performance. Specifically, students whose parents have high expectations are less likely to score in the lowest proficiency level and more likely to score in the two highest levels, compared to other 15-year-olds.

Financial Literacy Can't Wait

Young Americans need an understanding of financial concepts to make complex decisions about saving for retirement, investing and paying off debt. In a defined contribution retirement system, future income is determined by decisions made today. Among other complex decisions, saving early is critical.

Previous research has shown that individuals with higher levels of financial literacy are more likely to make a retirement plan, and that developing and

implementing a plan is key to retirement security. Failing to plan has been shown to reduce retirement savings by half — potentially leaving retirees with insufficient income to cover their expenses.

In order to ensure financial security in retirement, young Americans need basic financial literacy to make smart financial decisions as soon as they enter the workforce.

Relevance of Retirement to Teens

Because many financial education concepts have multiple applications and build on each other, students who are exposed to financial education early and repeatedly can achieve financial literacy proficiency that will carry throughout their lifetime. Although retirement education may seem inapplicable to teens, concepts at the heart of attaining retirement security are translatable to school-age young adults, as demonstrated in the following examples.

BALANCING PRIORITIES:

If you go to a movie tonight with friends, will you still have enough money to purchase the birthday gift you wanted to give a family member next week?

UNDERSTANDING ONGOING COSTS:

If you buy a car, what are the types of ongoing costs involved with operating and maintaining the car?

RECOGNIZING FRAUD:

If you're disappointed about losing an online auction but then get an email message stating that the winner backed out and that you can have the item if you send your debit card information via email, what is the best course of action?

INSURING AGAINST FINANCIAL RISKS:

If your backpack and phone were stolen from a car, would homeowners' insurance, auto insurance, or another type of insurance cover the cost of replacing the phone and other contents of the backpack?

UNDERSTANDING CREDIT AND INTEREST RATES:

If you charged \$500 on a credit card and gradually pay it off as you can, paying at least \$10 each month, how long do you think it will take to pay off the amount you borrowed plus 18 percent interest? Are these repayment terms worthwhile for something that might no longer have value by the time it is paid off?

Implications and Recommendations

In today's financial landscape of individual choice and personal responsibility, ensuring income coverage and financial security in retirement can be confusing and complex for anyone. For young Americans with longer-than-ever life expectancies — often funding a 30-year retirement with savings from a 40-year career — the task is even more daunting. It's imperative that young Americans demonstrate basic financial literacy to make the critical decisions they will face upon entering the workforce, but this study shows that they are struggling.

Worldwide, students in countries with low rates of income replacement tend to demonstrate higher financial literacy — potentially due to personal incentives for financial security in retirement. This relationship does not hold true for the United States, where low income replacement rates and low financial literacy could indicate a high risk for financial insecurity later in life.

Within the United States, data show that high socioeconomic status, attending a well-functioning school, and high parental expectations all are correlated with financial literacy assessment performance. Because socioeconomic status greatly influences access to schools with adequate resources, access to rigorous financial education — or lack thereof — may contribute to financial security later in life and the intergenerational transmission of inequality in the United States. Making financial education available to all is critical to future Americans achieving a secure retirement.



Opportunities for Action

NEFE affirms that financial education is key to financial literacy and can improve the chances of achieving financial security in retirement. This study identifies several opportunities the financial education field can take to improve financial literacy. For example:

- Promote the implementation of a coherent set of national standards for teaching financial literacy in middle and high schools.
- Improve teacher preparation and training, both in general skills such as classroom control, and also in specific financial literacy concepts and curricula.
- Encourage parental involvement and develop and make available tools for teaching financial responsibility at home.
- Promote equal access to rigorous financial education nationwide, and encourage equality in education more generally.

- Identify and share approaches that are effective with younger students of financial education, and experiment with and evaluate new and innovative approaches. A good place to start is with NEFE's Five Key Factors of Effective Financial Education:
 - Well-trained educator and/or tested e-learning protocol
 - Vetted/evaluated program materials
 - Timely instruction
 - Relevant subject matter
 - Evidence of impact (evaluation)
- Supplement school-based financial education with financial education in family and community settings. We also can make financial education resources and interventions available online, with access points via search and social media.



Beyond Education

Financial capability is built upon a tripod of financial education, consumer protection and regulation, and choice architecture. Thoughtful improvements in all three legs of the tripod will have the greatest impact on better retirement security for future generations. Thus, policymakers, product developers and others also have opportunities to influence financial capability for consumers through their domains of expertise, including consumer-friendly product design.

STUDY METHODOLOGY

This study analyzed data from the 2012 Program for International Student Assessment (PISA), an international survey conducted triennially by the Organization for Economic Cooperation and Development (OECD) to assess the extent to which students near the end of their compulsory education have acquired the fundamental knowledge and skills for full participation in society. The PISA Financial Literacy Assessment was conducted in 18 countries and economies, with approximately 29,000 students completing the assessment, representing about 9 million 15-year-olds. In the United States, 158 schools participated in the PISA Financial Literacy Assessment and 1,133 students, representing a population of over 3.5 million students, took the assessment.

THE NATIONAL ENDOWMENT FOR FINANCIAL EDUCATION

The National Endowment for Financial Education® (NEFE®) is an independent, nonprofit foundation committed to educating Americans on a broad range of financial topics and inspiring empowered financial decision making for individuals and families through every stage of life. For more than 30 years, NEFE has been providing funding, logistical support and personal finance expertise to develop a variety of materials and programs. Additionally, NEFE funds research and awards research-based development grants that advance innovative thinking and contribute to our understanding of financial behavior. Learn more at www.nefe.org.



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