Financial Literacy and Borrowing Behavior Across Different Age Groups

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Abstract

Financial literacy for younger American adults declined sharply in recent years. Using the 2018 National Financial Capability Study (NFCS) survey data, we examine the differences in financial literacy across various age, gender, and racial groups. We find that younger age groups have a much lower level of financial literacy when compared to older age groups, with apparent gender and racial gaps present in all age groups. Our results also suggest that financial literacy affects borrowing behavior. Specifically, higher levels of financial literacy are associated with a lower percentage of high interest rate borrowing, a lower percentage of paying the minimum monthly credit card payment, and a lower percentage of overdrawing checking accounts.

Motivations

Financial Capability Gaps are Widening

- Despite economic growth and declining unemployment, there are widening divides in those who are struggling and those who are prospering

Financial Literacy Continues to Decline

- Financial literacy rate has declined from 42% to 34% since 2009, despite that 71% of Americans believe they have a high level of financial knowledge

Personal Finances are a Cause of Anxiety and Stress

- Over half of Americans feel that their finances are a source of anxiety and stress

A Sharp Decrease in Financial Literacy Among Younger Adults

- Only 24% of millennials demonstrate basic financial knowledge and only 8% demonstrate high financial literacy

Financial Fragility During the Pandemic

- Younger respondents, those with larger families, minorities, and those with lower income were more financially fragile during the economic shock

Research Questions

Question 1
What are the factors that affect financial literacy?

Question 2
Does financial literacy affect high interest rate borrowing behavior?

Question 3
Does financial literacy affect minimum monthly credit card payment behavior?

Question 4
Does Financial literacy affect checking account overdraft behavior?

If so, what are the gaps among different ages, genders, and racial groups?

Data & Summary Statistics

National Financial Capability Study (NFCS)

Commissioned:
FINRA Investor Education Foundation

Purpose:
Benchmark key indicators of financial capability and evaluate how these indicators vary with underlying demographic, behavioral, attitudinal and financial literacy characteristics

Frequency:
Every three years starting in 2009

2018 NFCS Data:
Most recent, online surveys of 27,091 American adults (approx. 500 individuals per state), weighted to be representative of age, gender, ethnicity, education, and Census Division.

Simple Interest
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?

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?

Compound Interest
Suppose you owe $1,000 on a loan and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?

Bonds and Interest Rates
If interest rates rise, what will typically happen to bond prices?

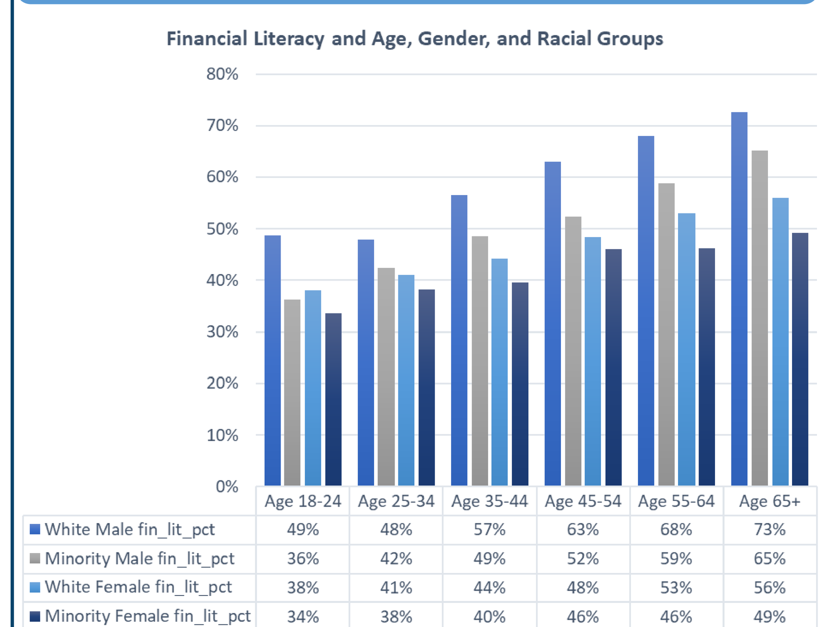
Mortgage
A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. True or False?

Risk Diversification
Buying a single company's stock usually provides a safer return than a stock mutual fund. True or False?

College of
Business Administration

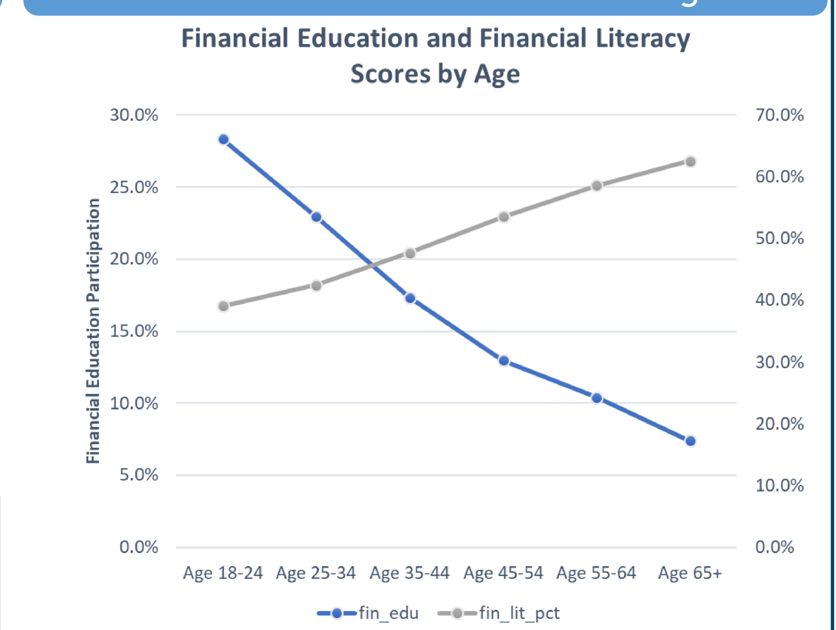
Results

There are Wide Gaps in Financial Literacy

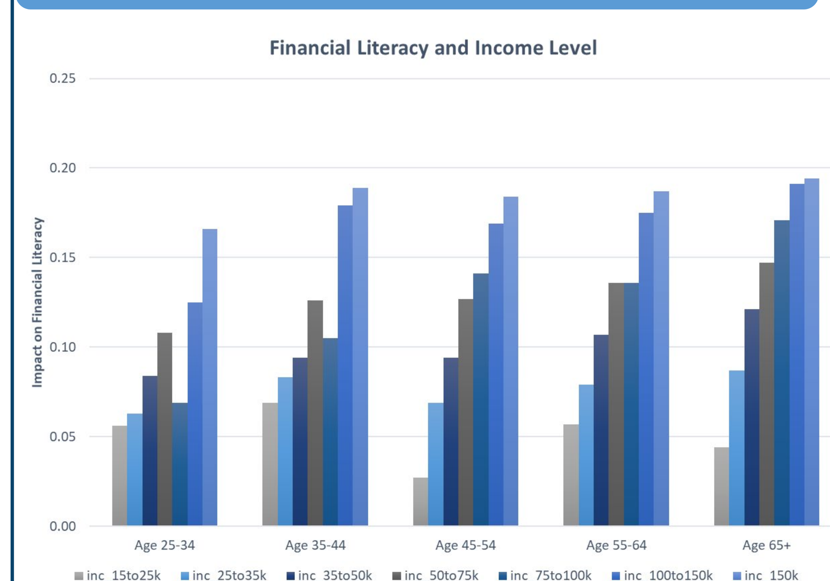


	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
White Male fin_lit_pct	49%	48%	57%	63%	68%	73%
Minority Male fin_lit_pct	36%	42%	49%	52%	59%	65%
White Female fin_lit_pct	38%	41%	44%	48%	53%	56%
Minority Female fin_lit_pct	34%	38%	40%	46%	46%	49%

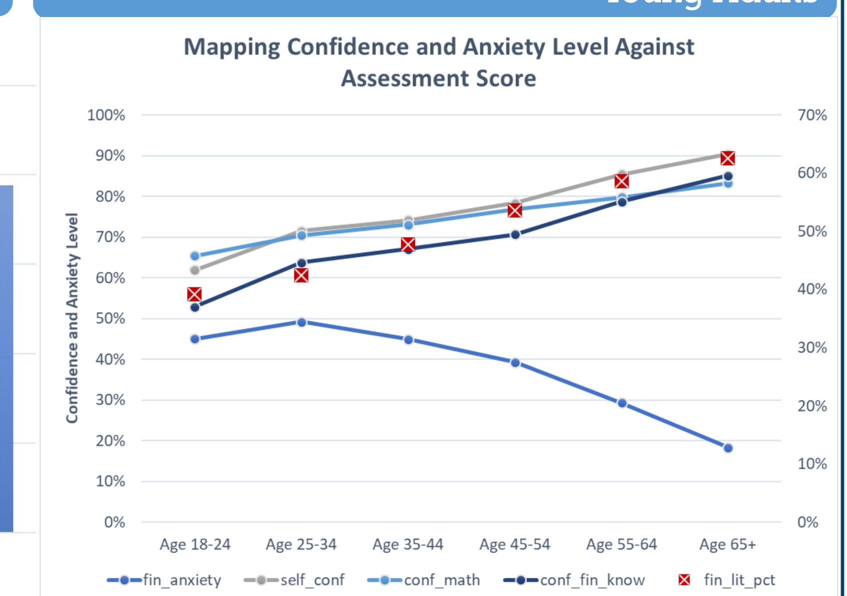
Financial Education May not Play a Large Enough Role



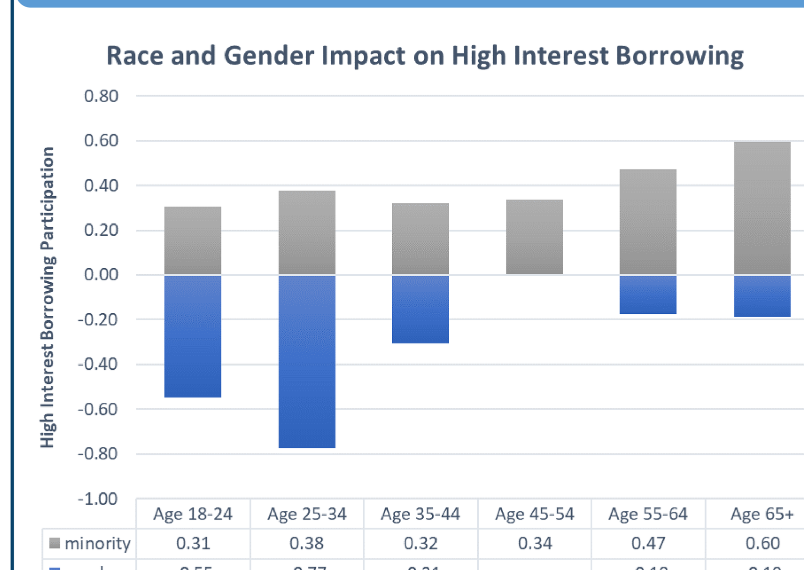
Higher Income, Higher Financial Literacy



Confidence and Anxiety Severely Impact Young Adults

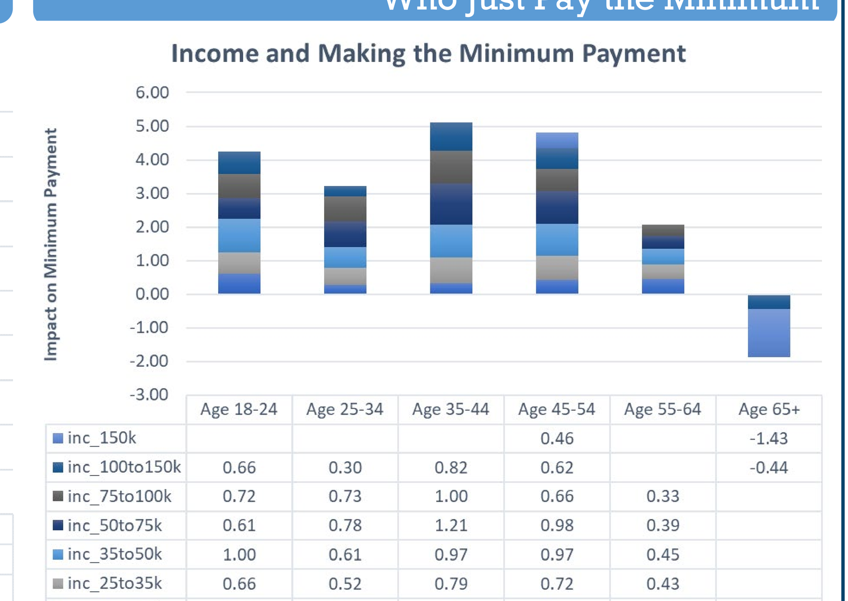


Race and Gender Impact High Interest Rate Borrowing



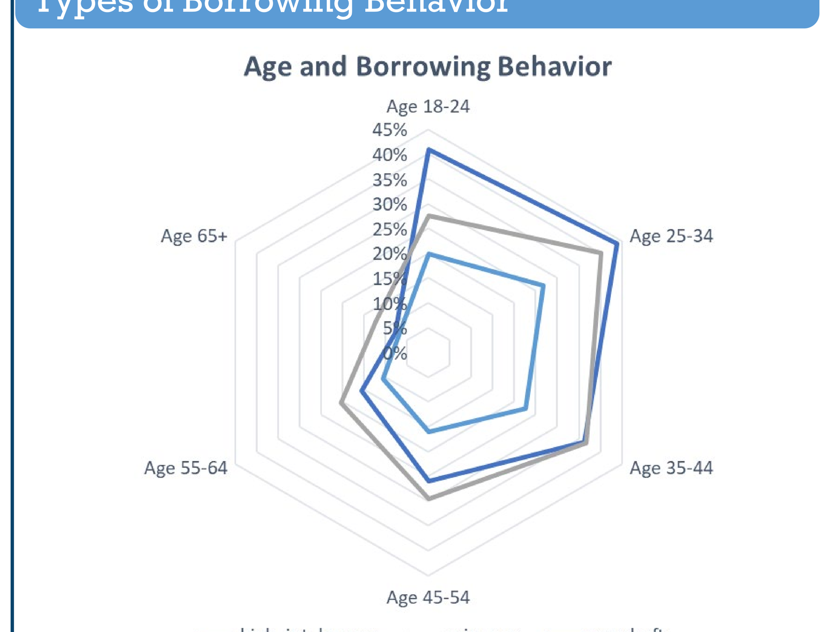
	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
minority	0.31	0.38	0.32	0.34	0.47	0.60
gender	-0.55	-0.77	-0.31		-0.18	-0.19

Lower Income-Earners Aren't the only ones Who Just Pay the Minimum



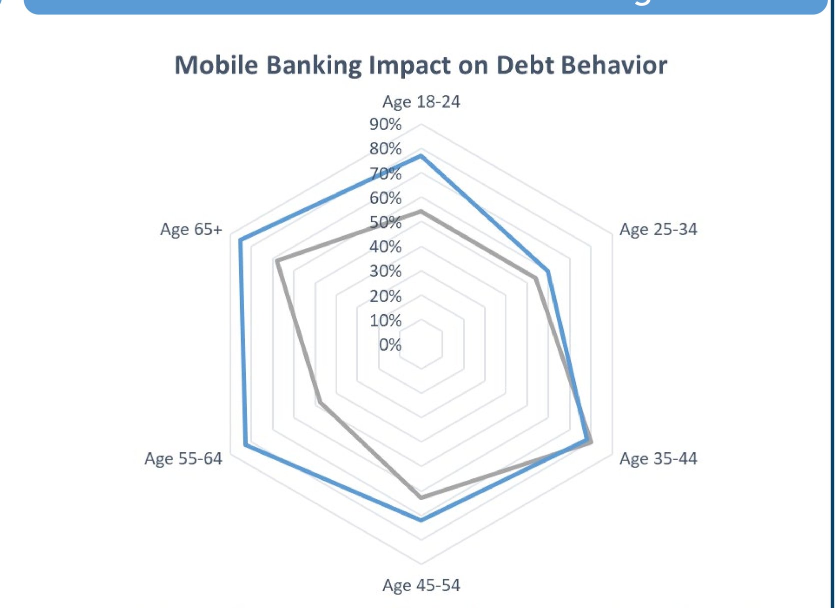
	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
inc_150k				0.46		-1.43
inc_100to150k	0.66	0.30	0.82	0.62		-0.44
inc_75to100k	0.72	0.73	1.00	0.66	0.33	
inc_50to75k	0.61	0.78	1.21	0.98	0.39	
inc_35to50k	1.00	0.61	0.97	0.97	0.45	
inc_25to35k	0.66	0.52	0.79	0.72	0.43	
inc_15to25k	0.60	0.26	0.32	0.42	0.47	

Younger Adults Engage the Most in all Three Types of Borrowing Behavior



Note: all coefficients are mapped at the 10% significance level

More Frequent use of Mobile-Banking is Linked to Poor Borrowing Behavior



Mobile Banking has strong, positive, and significant correlation for all age groups, excluding Age 18-24, where there is a negative coefficient, and Age 25-34, where the coefficient does not show any statistical significance beyond the 10% threshold

Models

Factors Impacting Financial Literacy

$$fin\_lit\_pct_i = \alpha + \beta Education_i + \delta Income_i + \phi Confidence_i + \gamma Gender_i + \Theta Minority_i + \varepsilon_i$$

$fin\_lit\_pct_i$
The percent of correct answers from the financial literacy quiz for individual i

Education
Includes:
- fin_edu
- college_degree
- parent_college

Income
Includes various incomes:
- $10k blocks
- Beginning with $15k
- Ending with $150k+

Confidence
Includes:
- self_conf
- conf_math
- conf_fin_know

Gender
A dummy variable that equals 1 if gender is female, and 0 if male

Minority
A dummy variable that equals 1 if non-white, and 0 otherwise

Factors Impacting Borrowing Behavior

High Interest Rate Borrowing ($high\_int\_borrow_i$)
Alternative Financial Services (AFS) [1]:
- Taking out an auto title loan
- Payday loan
- Obtaining an advance on a tax refund
- Used a pawn shop
- Utilizing a rent-to-own store

Paying the Minimum Monthly Credit Card Payment (min_pay_i)
Paying the minimum credit card payment in some months in the past 12 months

Overdrawing Checking Account ($Overdraft_i$)
Overdrawing from a checking account occasionally

[1] These services have an implied high interest rate

$$Logit(borrowing\_behavior) = \alpha + \lambda Literacy + \beta Education_i + \delta Income_i + \phi Confidence_i + \gamma Gender_i + \Theta Minority_i + \gamma Other + \varepsilon_i$$

Literacy
Includes fin_lit_pct, as a percent of correct answers from the financial literacy quiz

Education
Includes:
- fin_edu
- college_degree
- parent_college

Income
Includes various incomes:
- $10k blocks
- Beginning with $15k
- Ending with $150k+

Confidence
Includes:
- self_conf
- conf_math
- conf_fin_know

Gender
A dummy variable that equals 1 if gender is female, and 0 if male

Minority
A dummy variable that equals 1 if non-white, and 0 otherwise

Logit(borrowing_behavior)
- high_int_borrow
- min_pay
- overdraft

Dummy variables that equal 1 if used any Alternative Financial Services (AFS), paid the minimum credit card balance, or overdrew from personal checking account in the last 12 months, and 0 otherwise

Other
Includes additional variables:
- Employment status
- Dependent
- Financial anxiety
- Mobile banking
- Participation in stock, bonds, mutual funds, or other securities investment

[1] *Logit(borrowing_behavior)* regression was run individually across all age groups

Conclusions

Factors Impacting Financial Literacy

- Younger age groups are less financially literate
- Financial Literacy gaps widen among racial and gender subgroups
- Young adults have higher financial anxiety and lower financial and math confidence, which affect financial literacy
- College education and parents' college education play an important roll in financial literacy

Factors Impacting Borrowing Behavior

- Younger age groups have a higher percentage of all three types of borrowing behaviors
- Higher financial literacy is associated with a lower likelihood of all three types of behavior
- Females are not associated with a higher likelihood of any of the borrowing behaviors
- Minorities are more prone to all three types of borrowing behaviors, across almost all age groups
- Lower income levels are not necessarily associated with the higher likelihood of paying the minimum on their credit cards or overdrawing from a checking account
- Mobile banking is linked to a higher probability of engaging in all three types of borrowing behavior