

# Relationships Between Financial Capability and Education Attainment: An Analysis of Survey Data From the 2015 National Financial Capability Study

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## Introduction

- Large ( $N = 27,564$ ), national online/phone survey
- Present study compared **educational attainment** and **financial capability** (also known as financial literacy) in 2015 NFCS State-by-State survey
- This has not been done with NFCS data before
- May inform educators; encourage discussion

## Research Questions

- Is educational attainment related to **perceived** financial capability?
- Is educational attainment related to **actual** financial capability?

## Literature Review (Abridged)

- Birkenmaier & Fu (2016)** – Unbanked and alternative financial services usage, NFCS 2012
- De Bassa Scheresberg (2013)** – Young adults lack financial knowledge, NFCS 2009
- Lin et al. (2016)** – Report by the FINRA Investor Education Foundation, administrator of NFCS—note that it uses only descriptive statistics
- Lusardi & Mitchell (2011)** – Financial capability and retirement planning in minorities, NFCS 2009
- Lusardi & Mitchell (2014)** – Evidence why financial capability is important to economics
- Lusardi, Oggero, & Yakoboski (2017)** – New 28-item *P-Fin Index* builds on questions about actual financial capability used in NFCS
- Willis (2008, 2009, 2011, 2017)** – Argues that financial education is pointless; favors regulation

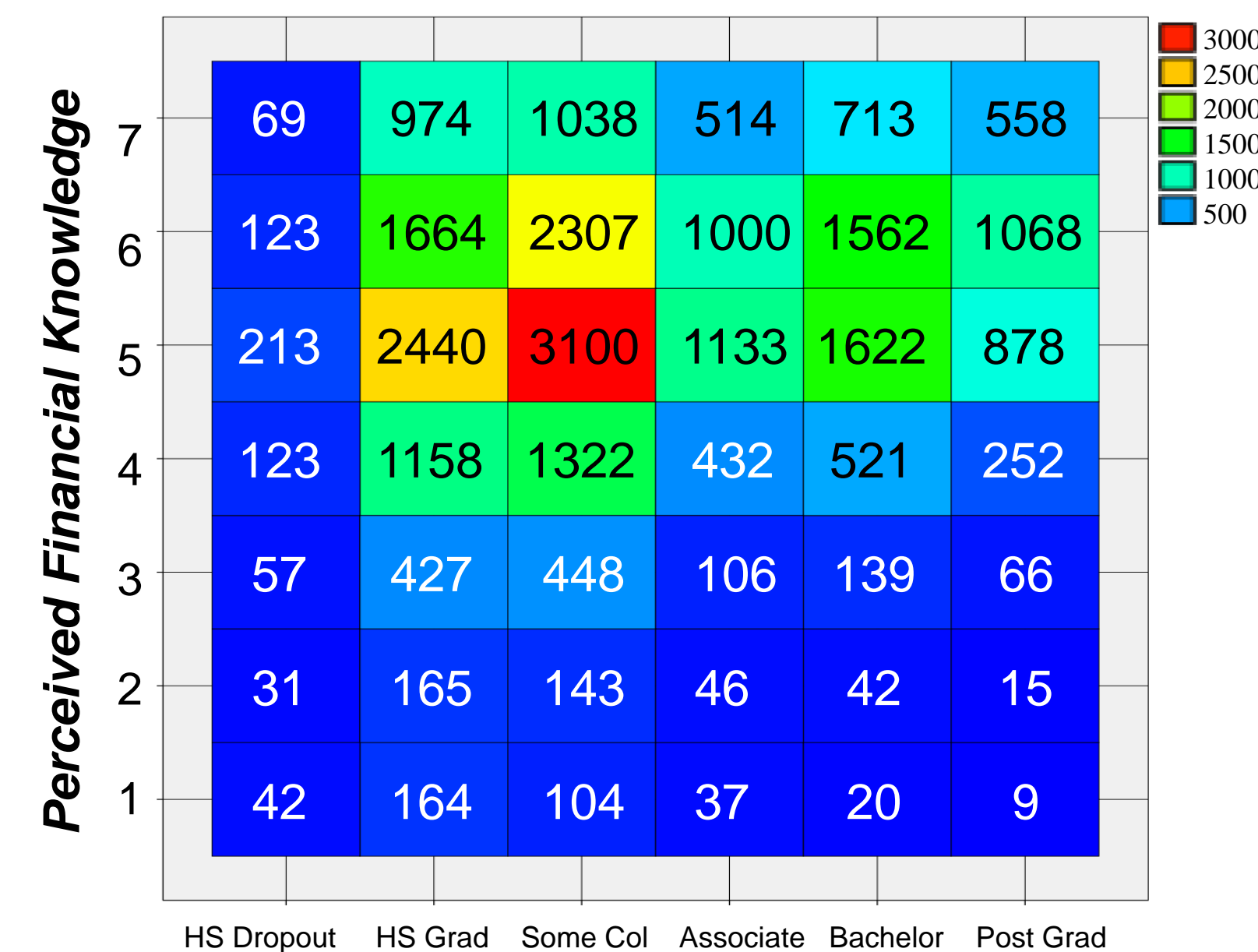


Figure 1. Binned, color-coded scatterplot with counts per cell shows roughly **monotonic** relationship between educational attainment (x-axis) and self-ratings of financial knowledge (y-axis) on 7-point Likert-type scale, justifying the use of Spearman's correlation. Scatterplots for day-to-day finances and math skills were similar.

Education	Day-to-Day Finances	Math Skills	Financial Knowledge
$r_s$	.138	.148	.144

Figure 2. Spearman's correlations between educational attainment and perceived financial capability show weak effect sizes ( $p < .01$ ).

Mean (SD)	Day-to-Day Finances	Math Skills	Financial Knowledge
HS Dropout	4.95 (1.81)	4.53 (1.95)	4.64 (1.57)
HS Grad	5.59 (1.55)	5.39 (1.68)	5.07 (1.33)
Some Col	5.78 (1.42)	5.66 (1.56)	5.16 (1.20)
Associate	5.89 (1.39)	5.74 (1.50)	5.34 (1.18)
Bachelor	6.01 (1.25)	5.90 (1.37)	5.43 (1.07)
Post Grad	6.20 (1.12)	6.08 (1.27)	5.60 (1.04)

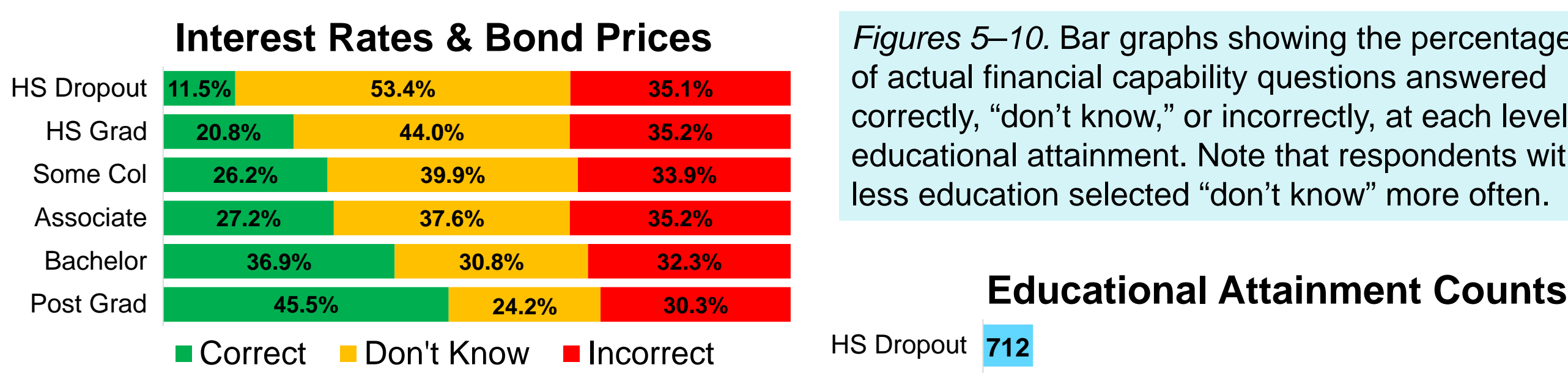
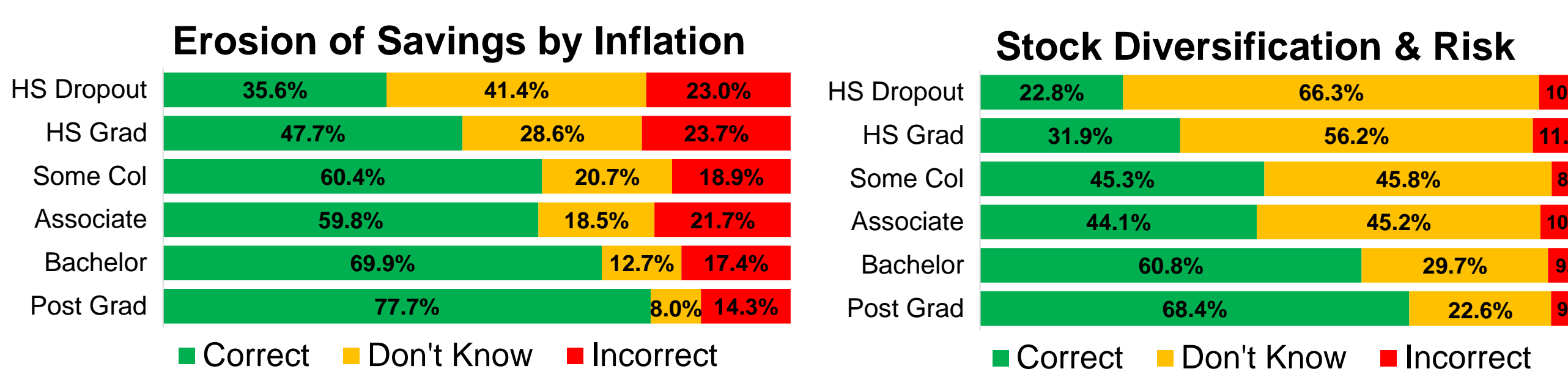
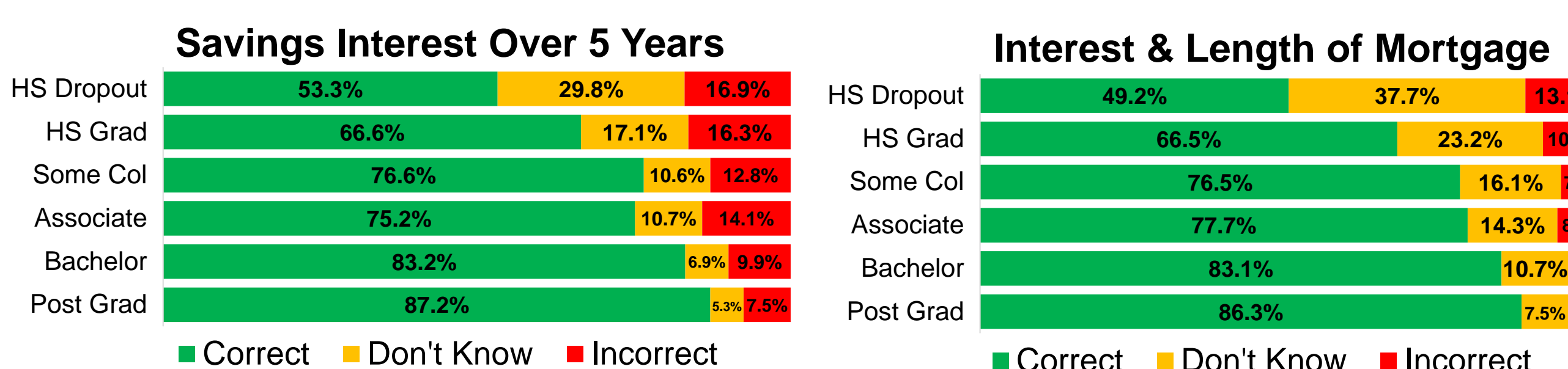
Figure 3. Means and standard deviations for educational attainment and perceived financial capability (7-point Likert scales). Data was non-normal and had heterogeneous variance. Interpret with caution.

## Results (Perceived Capability)

- Weak** monotonic relationships
- More education → **Higher** self-ratings
- Self-ratings of financial knowledge increase **less** than other questions

Question ( $\chi^2$ , $df$ , $V$ for association with education)	$\chi^2$	$df$	Cramer's $V$	Overall % Correct
Savings Interest Over 5 Years	970.25	15	.109	75.4%
Erosion of Savings by Inflation	1356.81	15	.129	59.8%
Interest Rates & Bond Prices	1125.08	20	.101	28.4%
Compound Interest on Loan	1214.97	20	.106	33.0%
Interest & Length of Mortgage	968.49	10	.133	75.5%
Stock Diversification & Risk	1832.26	10	.183	46.1%

Figure 4. Chi-square associations between educational attainment and actual financial capability show weak effect sizes ( $p < .01$ ). Overall percentage correct is for the whole sample, without considering education. See the "NFCS Questions" panel in bottom-left of poster for the text of all questions and choices.



Figures 5–10. Bar graphs showing the percentages of actual financial capability questions answered correctly, "don't know," or incorrectly, at each level of educational attainment. Note that respondents with less education selected "don't know" more often.

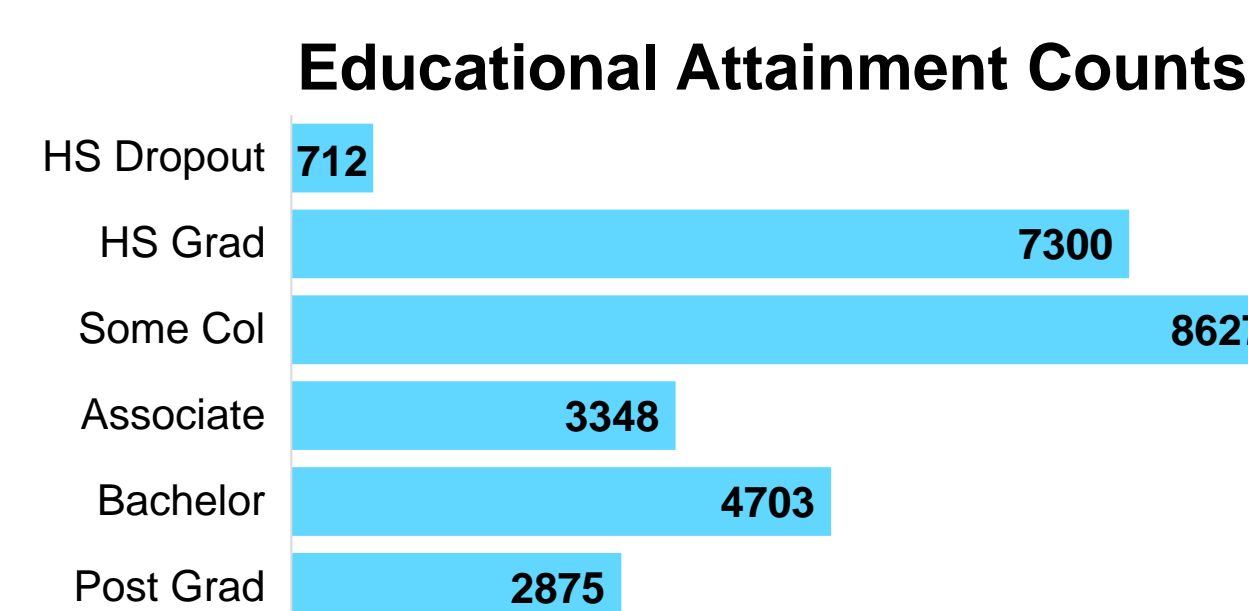


Figure 11. Bar graph of the number of respondents in the 2015 NFCS State-by-State survey at each level of educational attainment ( $N = 27,564$ ).

## Results (Actual Capability)

- Weak** nominal associations
- More **education** → **Higher** proportion of correctness
- But, even post-graduate degree holders perform **badly** on several **basic** financial questions
- Those with **less education** perform **abysmally** on questions about stocks, bonds, and interest
- However, **less educated respondents** select "**don't know**" more often, perhaps implying they are **aware** of knowledge gaps—they do **not** select wrong answers much more often than highly educated respondents
- All groups tended to **believe** they were financially capable, but this is **contradicted** by these results
- Must** refrain from causal interpretations

## Conclusions

- Greater educational attainment **weakly correlates** with higher perceived and actual financial capability
- But, even highly educated people have **poor** knowledge of stocks, bonds, and interest rates
- On actual financial capability questions, those with less education often selected "**don't know**"
- Americans have **inflated** perceptions of their abilities
- Cannot** infer causality—many spurious factors
- Financial capability needs improvement at **all** levels
- How?** Required courses? Just-in-time education? Government regulation of deceptive practices?
- A **multi-pronged approach** may be required

## Next Steps

- Compare to NFCS questions on financial **behaviors**
- Compare 2015 to 2012 and 2009 NFCS surveys
- Compare to NFCS investor and military surveys
- Analyze questions **together** rather than separately

## NFCS Questions

What was the highest level of education that you completed?

- Did not complete high school (1)
- \*High school graduate (2)
- Some college, no degree (3)
- Associate's degree (4)
- Bachelor's degree (5)
- Post graduate degree (6)

## Perceived Financial Capability

How strongly do you agree or disagree with the following statements? (1–7 Likert scale)

- I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses
- I am pretty good at math
- On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?

## Actual Financial Capability

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?

- More than \$102
- Exactly \$102
- Less than \$102
- Don't know

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?

- More than today
- Exactly the same
- Less than today
- Don't know

If interest rates rise, what will typically happen to bond prices?

- They will rise
- They will fall
- They will stay the same
- There is no relationship
- Don't know

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?

- Less than 2 years
- At least 2 years but less than 5 years
- At least 5 years but less than 10 years
- At least 10 years
- Don't know

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
- False
- Don't know

Buying a single company's stock usually provides a safer return than a stock mutual fund.

- True
- False
- Don't know

\* Collapsed category; see Method

## Method

- Used NFCS national weighting variable
- IV = Educational attainment;  $\alpha = .05$
- Collapsed "Regular high school diploma" and "GED or alternative credential"

## Operational Definitions

- Perceived** FC based on three self-assessment Q's with seven-point Likert-type response (ordinal)
- Actual** FC based on six multiple-choice content-knowledge Q's (nominal), each with one correct answer

## Perceived Financial Capability

- Hypothesis:** Perceived financial capability **increases** with education
- Assumptions of **normality** and **homogeneity** of variances **violated** for all financial questions at all levels of IV
- Roughly **monotonic** relationships
- Spearman's** rank-order correlation used

## Actual Financial Capability

- Hypothesis:** Actual financial capability is **related** to educational attainment
- Six separate **chi-square tests** of association used

More information available at <http://thripp.com/FinEdu>

References available separately. You may photograph and share this poster for not-profit use.

## Abstract (Revised)

The 2015 National Financial Capability Study (NFCS) was a national-representative survey of 27,564 American adults' financial capability. The datasets are publicly available ([www.usfinancialcapability.org/downloads.php](http://www.usfinancialcapability.org/downloads.php)) and have been used to study young adults (de Bassa Scheresberg, 2013), disadvantaged and underrepresented individuals (Lusardi & Mitchell, 2011), and the unbanked (Birkenmaier & Fu, 2016), but a comparison based on educational attainment is missing. To fill this gap, this study compared perceived and actual financial capability with educational attainment.

The survey included one question about educational attainment, three questions with Likert-type scales about *perceived* financial capability, and six multiple-choice questions which were used herein as a proxy for *actual* financial capability. The relationships between educational attainment and financial capability were analyzed with descriptive statistics, Spearman's rank-order correlations for each perceived financial capability question, and chi-square tests of association for each actual financial capability question.

Overall, each relationship was statistically significant ( $p < .01$ ), with weak effect sizes (Spearman's  $r_s$  ranged from .138 to .148; Cramer's  $V$  ranged from .101 to .183), meaning that higher levels of education were weakly but positively associated with both perceived and actual financial capability. However, although post-graduate degree holders did the best, even they performed poorly on questions about interest rates and bond prices (45.5% responded correctly), compound interest (47.5% correct), and stock diversification (68.4% correct), suggesting that even highly educated Americans may have lackluster financial capabilities.