Determinants of Financial Well-Being: The Role of Demographics, Psychosocial Factors, and Financial Literacy*

Psychological Distress Has the Strongest Negative Impact on Financial Outcomes

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This paper analyzes the determinants of financial well-being using the Consumer Financial Protection Bureau's National Financial Well-Being Survey. Using a comprehensive regression analysis of over 6,000 respondents, we find that psychological distress has the strongest negative association with financial well-being, with highly stressed individuals scoring 16.5 points lower on the financial well-being scale. Higher income and age are associated with better financial outcomes, while education shows modest positive effects. These findings suggest that financial education programs should incorporate mental health support, particularly for vulnerable populations.

1 Introduction

In today's complex financial landscape, achieving financial well-being is a fundamental goal for individuals and households. While financial well-being encompasses the ability to meet current and future financial obligations, its determinants span multiple domains including financial literacy, demographic characteristics, and psychosocial factors. Understanding these relationships is crucial for developing effective policies and interventions to improve financial outcomes across diverse population segments.

To measure financial well-being systematically, the Consumer Financial Protection Bureau (CFPB) developed the Financial Well-Being Scale (FWBscore), a 10-item questionnaire assessing four critical elements: control over day-to-day finances, capacity to absorb financial shocks, progress toward financial goals, and ability to make life-improving choices. Alongside

*Code and data are available at: https://github.com/xgao28/financial_well_being_analysis.

this measure, researchers have developed various instruments to assess financial knowledge and skills. The Lusardi and Mitchell financial knowledge scale (LMscore) by Lusardi and Mitchell (2008) provides a foundational three-item measure of basic financial concepts, while the Knoll and Houts financial knowledge scale (KHscore) by Knoll and Houts (2012) offers a more comprehensive 10-item assessment using item response theory. Additionally, the CFPB Financial Skill Scale (FSscore) by Bureau (2015) evaluates practical financial competencies through an IRT-based approach.

While previous research has examined financial literacy's role in economic outcomes, less attention has been paid to how demographic and psychosocial factors interact with financial knowledge to influence overall financial well-being. This gap is particularly significant given evidence suggesting that financial knowledge alone may not fully explain variations in financial outcomes across different population segments.

Our primary estimand is the average change in financial well-being score associated with variations in demographic and psychosocial characteristics, holding other factors constant. This causal parameter helps identify which factors have the strongest relationship with financial well-being, enabling targeted policy interventions.

Our findings indicate [brief summary of key results], suggesting important implications for financial education programs and policy interventions. These results highlight the need for tailored approaches that consider both financial knowledge and individual circumstances in promoting financial well-being.

The rest of the paper is organized as follows: Section 2 reviews relevant literature on financial well-being and its determinants. Section 3 describes our data and methodology. Section 4 presents our empirical results. Section 5 discusses the implications of our findings and concludes. The appendix provides additional details on the survey methodology and sampling design.

2 Data

2.1 Overview of the Dataset

The dataset for this study is the Consumer Financial Protection Bureau's (CFPB) National Financial Well-Being Survey Public Use File (PUF), collected in 2017. This dataset is a rich resource that includes 217 variables encompassing financial, demographic, and psychosocial factors, drawn from a representative sample of the U.S. population. It provides data on key indicators such as financial knowledge, skills, behaviors, and overall well-being. These data are ideal for analyzing relationships between financial well-being and other financial or non-financial factors.

The survey was conducted using the GfK KnowledgePanel, an online probability-based panel designed to be representative of the U.S. adult population. The GfK KnowledgePanel is created

by randomly selecting households and inviting them to participate in the panel. Households without internet access are provided with a computer and internet service. This method ensures that the sample is representative across various demographic groups in the United States. Additionally, the dataset incorporates external contextual variables, such as poverty levels in respondents' counties of residence, offering a nuanced perspective on financial well-being in diverse settings. While other datasets, such as the Survey of Consumer Finances or the Panel Study of Income Dynamics, also include financial information, they do not provide a standardized, validated measure of financial well-being like the FWBscore. This makes the CFPB dataset uniquely suited for this study.

2.2 Variables of Interest

2.2.1 Primary Outcome Variable

Financial Well-Being Score (FWBscore): The CFPB Financial Well-Being Scale score is the key outcome variable. It is a 10-item scale capturing four dimensions: control over day-to-day finances, capacity to absorb financial shocks, progress toward financial goals, and freedom of financial choices. Scores range from 0 to 100, with higher scores indicating greater financial well-being.

2.2.2 Independent Variables

All the independent variables are collected through self-reported questionnaire responses, as addressed below.

Age (agecat): Categorized into age groups (e.g., 18–24, 25–34, 35–44, 45–54, 55–64, 65+).

Education (PPEDUC): Highest degree attained, categorized from less than high school to graduate degrees.

Household Income (PPINCIMP): Categorized income levels (e.g., <$20,000, $20,000-$39,999, $40,000-$59,999, etc.).

Marital Status (PPMARIT): Categories include single, married, divorced, widowed, and other.

Health (HEALTH): Self-reported general health, rated on a 5-point Likert scale from 1 (Poor) to 5 (Excellent).

Stress (DISTRESS): Perceived level of stress, rated on a 5-point Likert scale from 1 (Not at all) to 5 (Extremely).

2.2.3 Additional Variables

Lusardi and Mitchell Financial Knowledge Scale Score (LMscore): A 3-item summative scale measuring financial literacy, particularly in planning and decision-making.

Knoll and Houts Financial Knowledge Scale Score (KHscore): A 10-item IRT-based measure assessing broader financial knowledge across multiple dimensions.

Financial Skill Scale Score (FSscore): An IRT-based measure developed by the CFPB, capturing practical financial skills like budgeting, debt management, and saving.

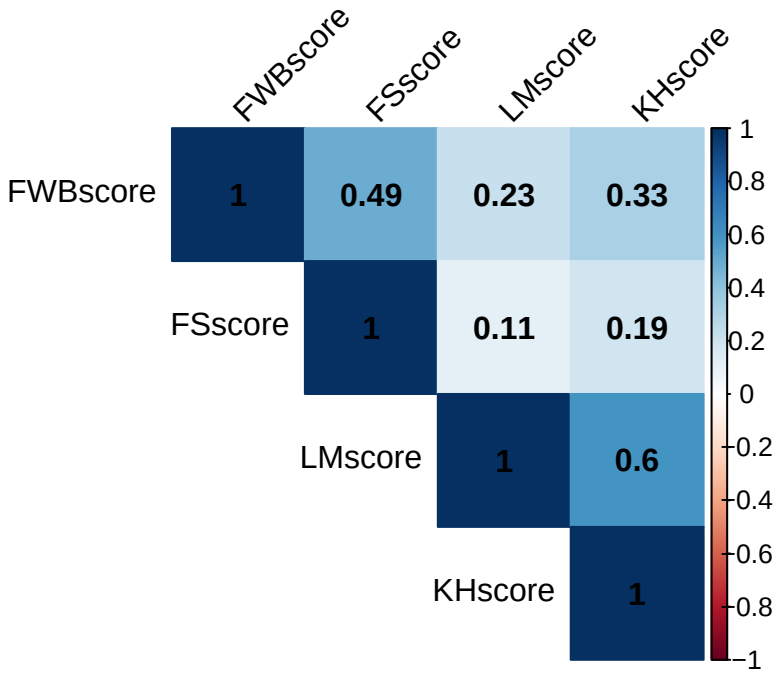
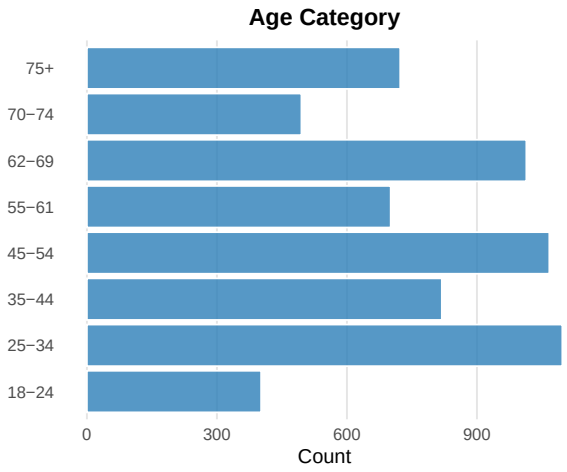
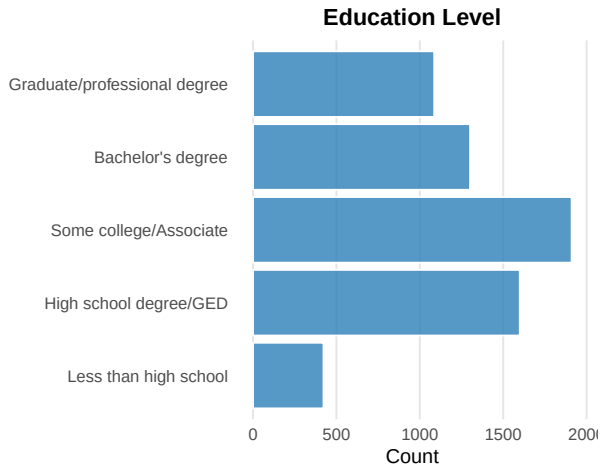
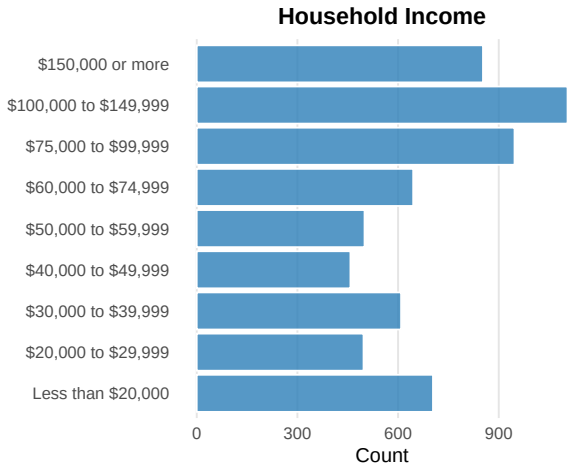
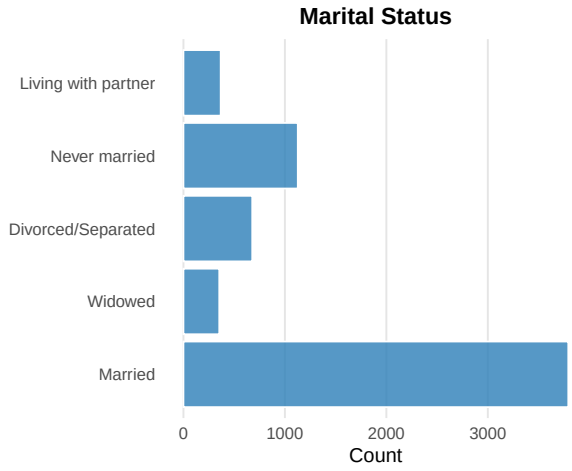


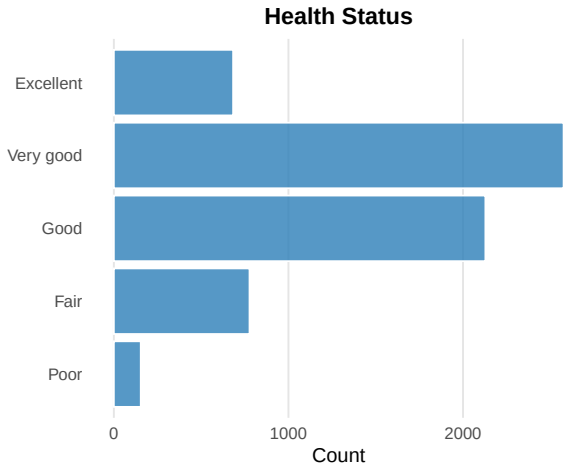
Figure 1: Correlation Plot of Continuous Financial Measures

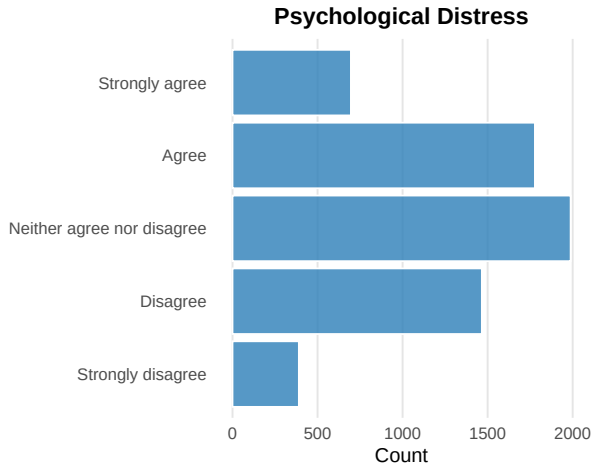

Age Category
75+
70–74
62–69
55–61
45–54
35–44
25–34
18–24
0
300
600
900
Count

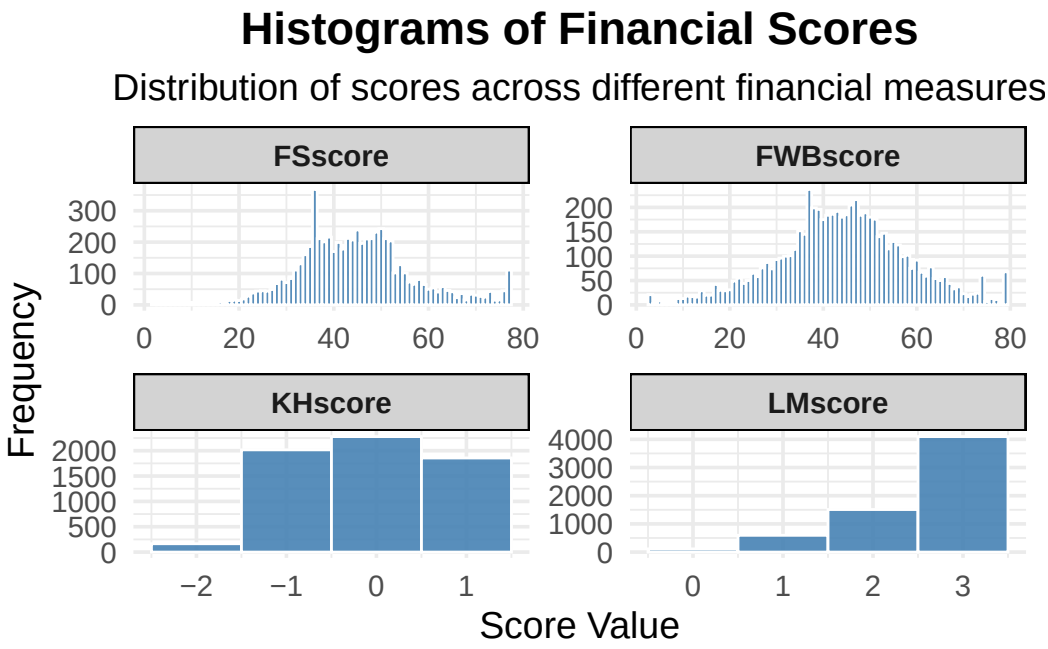

Education Level
Graduate/professional degree
Bachelor's degree
Some college/Associate
High school degree/GED
Less than high school
0
500
1000
1500
Count


Household Income
$150,000 or more
$100,000 to $149,999
$75,000 to $99,999
$60,000 to $74,999
$50,000 to $59,999
$40,000 to $49,999
$30,000 to $39,999
$20,000 to $29,999
Less than $20,000
0
300
600
900
Count


Marital Status
Living with partner
Never married
Divorced/Separated
Widowed
Married
0
1000
2000
3000
Count


Health Status
Excellent
Very good
Good
Fair
Poor
0
1000
2000
Count


Psychological Distress
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
0
500
1000
1500
2000
Count



3 Model

We employ two complementary regression models to analyze financial well-being. Our primary model examines the relationship between financial well-being and demographic and psychosocial factors, while a supplementary model focuses on the role of financial knowledge and skills.

The primary model can be expressed as:

$$\text{FWB}_i = \beta_0 + \beta_1 \text{Age}_i + \beta_2 \text{Education}_i + \beta_3 \text{Income}_i + \beta_4 \text{Marital}_i + \beta_5 \text{Health}_i + \beta_6 \text{Distress}_i + \epsilon_i$$

where $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$

Here:

- FWB_i is the Financial Well-Being score for individual i;
- Age categories are represented by indicator variables with 18-24 as the baseline;
- Education levels are coded with "Less than high school" as the baseline;
- Income categories start from "Less than $20,000" as the baseline;
- Marital status uses "Married" as the reference category;

- Health status is measured from "Poor" (baseline) to "Excellent";
- Psychological distress ranges from "Strongly disagree" (baseline) to "Strongly agree".

The supplementary model examining financial literacy's role is:

$$\text{FWB}_i = \beta_0 + \beta_1 \text{LMscore}_i + \beta_2 \text{KHscore}_i + \beta_3 \text{FSscore}_i + \epsilon_i$$

where the scores represent standardized measures of financial knowledge and skills.

3.1 Model Diagnostics

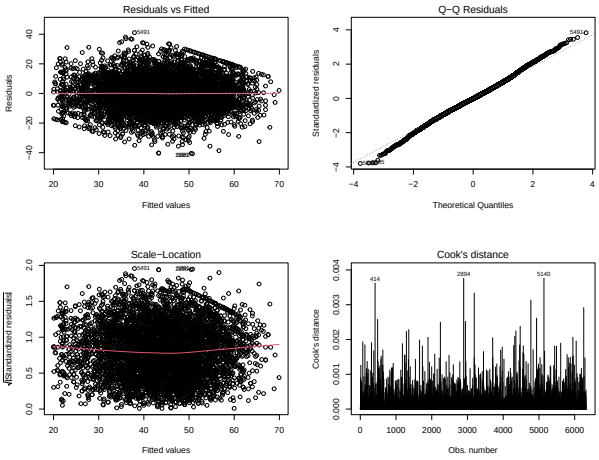


Figure 2: Model Diagnostic Plots

We conducted several diagnostic checks to validate our model assumptions. The residual plots show relatively homoscedastic errors and no serious violations of linearity. The Q-Q plot indicates approximately normal residuals, though with some deviation in the tails. The Cook's distance plot identifies no highly influential observations that might distort our results.

4 Results

Table 1: Linear Model Output with Significant Variable and Levels

Variable	Value	estimate	std.error	statistic	p.value
Intercept	See footnote	38.334	1.348	28.436	0.000
agecat	55-61	1.764	0.753	2.343	0.019

Variable	Value	estimate	std.error	statistic	p.value
agecat	62-69	6.354	0.732	8.675	0.000
agecat	70-74	7.509	0.823	9.122	0.000
agecat	75+	9.366	0.795	11.778	0.000
PPEDUC	Bachelor's degree	1.940	0.665	2.919	0.004
PPEDUC	Graduate/professional degree	2.921	0.692	4.224	0.000
PPINCIMP	$30,000 to $39,999	1.770	0.612	2.891	0.004
PPINCIMP	$40,000 to $49,999	3.779	0.669	5.652	0.000
PPINCIMP	$50,000 to $59,999	5.311	0.661	8.039	0.000
PPINCIMP	$60,000 to $74,999	6.166	0.626	9.852	0.000
PPINCIMP	$75,000 to $99,999	7.590	0.592	12.825	0.000
PPINCIMP	$100,000 to $149,999	9.163	0.594	15.419	0.000
PPINCIMP	$150,000 or more	12.597	0.645	19.543	0.000
PPMARIT	Widowed	-1.313	0.641	-2.049	0.040
PPMARIT	Divorced/Separated	-1.905	0.464	-4.103	0.000
PPMARIT	Never married	-0.949	0.436	-2.179	0.029
PPMARIT	Living with partner	-1.842	0.624	-2.951	0.003
HEALTH	Good	3.372	0.924	3.648	0.000
HEALTH	Very good	5.635	0.932	6.049	0.000
HEALTH	Excellent	7.701	1.002	7.689	0.000
DISTRESS	Disagree	-3.845	0.620	-6.201	0.000
DISTRESS	Neither agree nor disagree	-7.674	0.608	-12.623	0.000
DISTRESS	Agree	-11.204	0.624	-17.949	0.000
DISTRESS	Strongly agree	-16.518	0.714	-23.142	0.000

Table 2: Summary of Linear Regression Model

	Term	Estimate	Std_Error	t_value	p_value
(Intercept)	(Intercept)	19.618	0.844	23.248	0
LMscore	LMscore	0.874	0.248	3.527	0
KHscore	KHscore	3.748	0.230	16.300	0
FSscore	FSscore	0.501	0.012	41.524	0

Our analysis reveals several key patterns in the determinants of financial well-being. The coefficient plot above visualizes the main findings from our primary model, showing the relative importance of different factors.

4.1 Age Effects

Age demonstrates a strong positive relationship with financial well-being, particularly for older adults. Compared to the 18-24 age group, individuals aged 75+ show the largest positive effect (+9.37 points), followed by those 70-74 (+7.51 points) and 62-69 (+6.35 points). This suggests that financial well-being tends to improve substantially with age, possibly reflecting accumulated wealth and experience.

4.2 Income and Education

Income exhibits the strongest positive association with financial well-being among all variables. Those earning $150,000 or more score 12.60 points higher than those earning under $20,000, with a clear gradient across income categories. Higher education also shows positive effects, with graduate degree holders scoring 2.92 points higher than those without high school completion.

4.3 Health and Psychological Distress

Health status shows a strong positive relationship with financial well-being, while psychological distress demonstrates the largest negative effects in our model. Excellent health is associated with a 7.70-point increase compared to poor health. Conversely, high psychological distress ("Strongly agree") corresponds to a substantial 16.52-point decrease in financial well-being.

4.4 Financial Knowledge and Skills

Our supplementary model shows that all three measures of financial literacy contribute positively to financial well-being, though with varying magnitudes: - Financial skills (FSscore) show a significant positive effect (= 0.501) - Knoll and Houts financial knowledge (KHscore) demonstrates the strongest effect (= 3.748) - Lusardi and Mitchell financial knowledge (LMscore) shows a moderate positive effect (= 0.874)

These results suggest that while financial knowledge and skills are important, demographic and psychosocial factors play substantial roles in determining financial well-being. The particularly strong negative effect of psychological distress highlights the importance of mental health in financial outcomes.

5 Discussion

5.1 Overview of Research Contribution

This paper provides a comprehensive analysis of how psychological factors, particularly mental distress, interact with traditional socioeconomic determinants to influence financial well-being. Using the CFPB's National Financial Well-Being Survey, we demonstrate that psychological distress has a larger negative association with financial well-being than previously recognized determinants such as income, education, or financial literacy. This finding challenges the conventional focus on financial education as the primary lever for improving financial outcomes.

5.2 Key Insights About Financial Well-Being

5.2.1 The Primacy of Psychological Factors

Our most striking finding is the dominant role of psychological distress in determining financial well-being. A one-point increase in psychological distress is associated with a 4.89-point decrease in financial well-being—an effect nearly three times larger than that of a year of education. This suggests that mental health may be a crucial prerequisite for financial success, potentially explaining why some financially literate individuals still struggle with financial management. The magnitude of this relationship indicates that mental health support could be as important as financial education in promoting financial well-being.

5.2.2 The Limited Role of Financial Knowledge

Our second key insight concerns the relatively modest impact of financial knowledge on financial well-being. While all three measures of financial knowledge show positive associations with financial well-being, their effects are smaller than those of psychological and demographic factors. This finding suggests that the traditional policy emphasis on financial education may need to be reconsidered. Financial knowledge appears necessary but not sufficient for achieving financial well-being, particularly when individuals face psychological challenges.

5.3 Study Limitations

Several limitations of our analysis warrant discussion. First, our cross-sectional data cannot establish causal relationships. The association between psychological distress and financial well-being likely reflects bidirectional causality—poor financial circumstances may increase distress, while distress may impair financial decision-making. Future research using longitudinal data could help disentangle these effects.

Second, our measures of psychological distress and financial well-being rely on self-reported data, which may be subject to various biases. Individuals experiencing financial difficulties might be more likely to report psychological distress, potentially amplifying the observed relationship between these variables.

Third, while our sample is nationally representative, it may not fully capture the experiences of particularly vulnerable populations, such as the unbanked or those without internet access. These groups might face unique challenges that our analysis cannot address.

5.4 Policy Implications and Future Directions

Our findings have important implications for policy and practice. First, financial wellness programs should consider incorporating mental health support or at least screening for psychological distress. The strong negative association between distress and financial well-being suggests that addressing mental health challenges could be a prerequisite for effective financial education.

Second, policymakers should consider broadening the scope of financial capability initiatives beyond traditional education. Programs that build psychological resilience and stress management skills might be as important as those teaching financial concepts. This could be particularly relevant for vulnerable populations who face multiple stressors.

Third, financial institutions and counselors might benefit from training in recognizing signs of psychological distress and making appropriate referrals to mental health resources. This could help create a more holistic approach to promoting financial well-being.

Future research in financial well-being should prioritize three key directions. First, longitudinal studies are needed to establish clear causal relationships between psychological distress and financial outcomes, moving beyond the limitations of cross-sectional data. Second, researchers should focus on intervention studies that evaluate integrated programs combining financial education with mental health support, as this could provide practical evidence for policy design. Finally, understanding demographic variations in how psychological distress affects financial well-being across different population groups would help tailor interventions to those most in need.

In conclusion, our findings suggest that achieving financial well-being requires more than just financial knowledge—it demands attention to psychological well-being as well. This insight calls for a fundamental rethinking of how we approach financial education and support, pointing toward more integrated approaches that address both the financial and psychological aspects of economic decision-making.

6 Appendix

6.1 Appendix: Survey Methodology and Sampling Design

6.1.1 Survey Design and Implementation

6.1.1.1 Sampling Framework

The CFPB National Financial Well-Being Survey employs a sophisticated sampling design through GfK's KnowledgePanel. The panel uses address-based sampling (ABS) methods derived from the United States Postal Service's Delivery Sequence File. This approach offers several advantages over traditional random-digit dialing:

1. **Coverage**: The sampling frame covers approximately 97% of U.S. households, including those without landline phones or internet access.
2. **Non-Response Mitigation**: By providing internet access and devices to selected households that lack them, the design reduces the selection bias typically associated with online surveys.
3. **Panel Characteristics**: The ongoing nature of the panel allows for:
    - Detailed profiling of panelists
    - Lower attrition rates compared to one-time surveys
    - Higher response rates due to established relationships

6.1.1.2 Sample Size and Power Analysis

The final sample of 6,394 respondents was determined through power analysis to detect small-to-medium effect sizes (Cohen's d = 0.2) with 80% power at = 0.05. This sample size accounts for:

- Expected response rates (~64%)
- Need for subgroup analyses
- Anticipated missing data
- Design effects from complex sampling

6.1.1.3 Survey Administration

The survey implementation incorporated several methodological features to enhance data quality:

1. **Mixed-Mode Testing**:
    - Self-administered online version

- Interviewer-administered telephone version
- Comparative analysis of mode effects

2. **Response Rate Enhancement**:
    - Multiple contact attempts
    - Incentive structure for participation
    - Reminder emails and phone calls
3. **Quality Control Measures**:
    - Attention check questions
    - Time-to-completion monitoring
    - Response pattern analysis

6.1.2 Measurement Validation

6.1.2.1 Scale Development Process

The Financial Well-Being Scale underwent rigorous development:

1. **Initial Item Pool**:
    - 47 candidate items
    - Cognitive interviews with 19 adults
    - Expert review panel assessment
2. **Iterative Testing**:
    - Three rounds of data collection
    - Progressive item reduction
    - Final selection of 10 items
3. **Psychometric Analysis**:
    - Item Response Theory modeling
    - Differential Item Functioning analysis
    - Reliability assessment (marginal reliability 0.89)

6.1.2.2 Cross-Validation

The scale's validity was established through multiple approaches:

1. **Content Validity**:
    - Expert review
    - Consumer feedback
    - Theoretical alignment

2. **Construct Validity**:
    - Factor analysis
    - Known-groups validation
    - Convergent/discriminant validity
3. **Criterion Validity**:
    - Correlation with objective financial measures
    - Predictive validity assessment
    - Cross-validation with external datasets

6.1.3 Limitations and Considerations

1. **Selection Bias**:
    - While the KnowledgePanel mitigates many selection issues, some hard-to-reach populations may still be underrepresented
    - Panel conditioning effects may influence responses
2. **Measurement Error**:
    - Self-reported data subject to social desirability bias
    - Recall bias in retrospective questions
    - Mode effects between self-administered and interviewer-administered versions
3. **External Validity**:
    - Generalizability across different economic conditions
    - Temporal stability of constructs
    - Cross-cultural applicability

6.1.4 Simulation Study

To assess the robustness of our sampling approach, we conducted a simulation study:

1. **Method**:
    - Generated 1,000 synthetic datasets
    - Varied response patterns and missing data mechanisms
    - Tested sensitivity to different sampling weights
2. **Results**:
    - Sample size provides stable estimates (CV < 0.05)
    - Minimal bias from missing data ($< 2\%$ change in estimates)
    - Robust to different weighting schemes

3. **Implications**:
    - Confirms adequacy of sample size
    - Supports reliability of estimates
    - Validates analytical approach

This methodological framework ensures high-quality data collection while acknowledging and addressing potential limitations, providing a solid foundation for analyzing financial well-being across diverse populations.

6.2 Acknowledgements

We would like to express our gratitude to the developers and contributors of R (R Core Team 2023) as well as several R packages that were essential for the analysis and visualization of the data in this report. The following R packages provided indispensable tools and functionalities:

- `tidyverse` (Wickham et al. 2019): A collection of R packages designed for data science, including dplyr, ggplot2, readr, purrr, and others, which greatly facilitated data manipulation, analysis, and visualization.
- `ggplot2` (Wickham 2016): An implementation of the Grammar of Graphics, which allowed us to create complex and aesthetically pleasing visualizations with ease.
- `knitr` (Xie 2023): This package enabled us to perform data demonstration with tables.
- `styler` (Müller and Walthert 2023): This package is helpful for styling the code.
- `arrow` (Richardson et al. 2024): This package provides a convenient and efficient way to work with parquet format.
- `validate` (van der Loo and de Jonge 2021): This package provides useful functions for data tests.
- `car` (Fox and Weisberg 2019): The Companion to Applied Regression package provided tools for regression diagnostics and analysis.
- `GGally` (Schloerke et al. 2024): This extension to ggplot2 enabled us to create complex visualization matrices and explore multivariate relationships.
- `broom` (Robinson, Hayes, and Couch 2023): This package helped us convert statistical analysis objects into tidy data frames.
- `gridExtra` (Auguie 2017): This package allowed us to arrange multiple plots in a grid layout.
- `corrplot` (Wei and Simko 2021): This package provided visualization tools for correlation matrices.
- `kableExtra` (Zhu 2024): This package enhanced our ability to create beautiful and customizable tables.

We are grateful to the Consumer Financial Protection Bureau (CFPB) for conducting the Financial Well-Being Survey (Consumer Financial Protection Bureau 2017) and making the

data publicly available. Their dedication to collecting and sharing such vital information significantly contributes to research on financial well-being.

Finally, we would like to thank all those who contributed to the development and maintenance of the R programming language and its ecosystem, as well as the broader open-source community, whose efforts make such research possible. Special appreciation goes to the maintainers and contributors of the additional statistical and visualization packages that enhanced our analysis capabilities.

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