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Exploring the Association Between Objective Financial Literacy and Perceived Change in Financial Well-Being: An Ordered Probit Analysis

Nasima Khatun¹  | Donald Lacombe²  | Megan McCoy³

¹Financial Planning Program, Florida State University, USA | ²School of Financial Planning, Texas Tech University, USA | ³Department of Personal Financial Planning, Kansas State University, USA

Correspondence: Nasima Khatun (nkhatun@fsu.edu)

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ABSTRACT

This study examines the association between objective financial literacy and perceived change in financial well-being using nationally representative cross-sectional data from the 2022 Survey of Household Economics and Decision Making (SHED), administered by the Federal Reserve Board ($N=8643$). Grounded in the Human Capital Theory (Gary Becker 1962), the study employs an ordered probit model to assess how financial literacy is associated with individuals' perceived change in financial well-being over the past year. Among the three objective financial literacy measures, inflation knowledge, interest rate knowledge, and risk diversification knowledge, only inflation knowledge shows a statistically significant association with perceived change in financial well-being. Respondents who correctly answered the inflation item were *more likely to report being financially worse off compared to 12 months earlier*. This association is consistent with the high-inflation environment of 2022, during which greater awareness of rising prices may have coincided with heightened perceptions of financial strain. Interest rate knowledge and risk diversification knowledge do not exhibit statistically significant associations. Socio-demographic characteristics show consistent associations with perceived change in financial well-being. Higher levels of education, full-time employment, and greater household income are associated with a higher likelihood of reporting being financially better off relative to 12 months earlier, whereas older age is associated with a lower likelihood of reporting being financially better off. Overall, the results suggest that objective financial literacy is not uniformly associated with perceived change in financial well-being and that these associations vary across knowledge domains and socioeconomic characteristics. While awareness of inflation may coincide with greater perceptions of financial strain during periods of rising prices, socioeconomic resources such as education, employment, and income are associated with a higher likelihood of reporting positive perceived change in financial well-being relative to 12 months earlier. For practitioners, these results emphasize the importance of contextualizing financial education and tailoring guidance to clients' circumstances. Financial planners and financial therapists may draw on this evidence to tailor their guidance to individuals navigating structural economic conditions and personal financial decisions.

JEL Classification: D14, D91, I31

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1 | Introduction

Financial literacy is a crucial aspect of personal finance management and has garnered significant attention from researchers, policymakers, and educators. It encompasses an individual's ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt (Lusardi and Mitchell 2014). Financial literacy is widely viewed as an important component of economic stability, as it is associated with more informed financial decision-making and potentially lower risk of personal financial crises (Nunoo and Andoh 2011). Research from the National Endowment for Financial Education (NEFE 2019) in 2019 highlights the importance of financial literacy in equipping individuals to navigate intricate financial systems, comprehend the consequences of financial choices, and make prudent financial decisions. Additionally, financial literacy is often associated with individual's ability to make informed decisions when engaging with financial products and services (Remund 2010). It is associated with consumer's understanding of the terms and conditions, fees, and risks associated with various financial products, such as mortgages, credit cards, and insurance (Kozup and Hogarth 2008). Lower levels of financial literacy have been linked to greater vulnerability to predatory practices and financial fraud (Lusardi and Mitchell 2014).

While financial literacy has been widely examined in relation to financial well-being, most prior studies conceptualize financial well-being as a static level or satisfaction-based construct. Financial well-being is generally understood as a subjective evaluation of one's financial situation and the extent to which financial resources allow individuals to meet obligations, enjoy life, and feel secure about the future (CFPB 2017; Brügger et al. 2017). It captures not only objective financial resources but also perceptions of control, security, and freedom from financial stress. Beyond individual security, financial well-being has also been examined in relation to relational well-being within household contexts, underscoring its broader social dimension (Saxey et al. 2023). However, less attention has been given to perceived change in financial well-being relative to the prior year. In this study, we focus specifically on perceived change in financial well-being as assessed in the SHED survey, which asks whether individuals feel financially better off, worse off, or about the same compared to 12 months earlier.

Existing research has documented a consistent association between financial literacy and financial well-being when the latter is measured as a static level or satisfaction-based construct. These studies generally report that individuals with higher financial literacy are more likely to engage in retirement planning, saving, investing, and debt management, and to report higher levels of financial well-being (Choung et al. 2023; Fan and Henager 2022; Lee et al. 2020; Utkarsh et al. 2020). Lusardi and Mitchell (2014) report that individuals with higher financial literacy are more likely to engage in retirement planning and wealth accumulation. Similarly, Fernandes et al. (2014) find that financial literacy is associated with financial behaviors such as saving, investing, and debt management. Van Rooij et al. (2011) show that financial literacy is associated with stock market participation.

These studies document a positive relationship between financial literacy and financial well-being. Rath et al. (2010) describe financial well-being as the effective management of one's economic life and the ability to make sound financial decisions. Other scholars emphasize that financial well-being reflects individuals' perceived ability to sustain a desired standard of living and meet financial obligations over time (Brügger et al. 2017; Lacombe and Khatun 2023). Such definitions highlight the subjective and forward-looking nature of financial well-being, including perceptions of stability, security, and reduced financial stress (White et al. 2022). Consistent with this emphasis on subjectivity and temporal context, the present study operationalizes financial well-being as perceived change in financial well-being relative to the prior year rather than as a static level. In this study, objective financial literacy is examined through three core knowledge domains: interest rates, inflation, and risk diversification. These items, commonly referred to as the "Big Three" (Lusardi and Mitchell 2006), are widely used in national surveys, including the SHED, and serve as established measures of foundational financial knowledge. These domains reflect fundamental economic concepts that are commonly encountered in household financial decisions and are particularly salient in a period characterized by rising prices and interest rate adjustments. Examining these domains separately allows for an assessment of whether specific areas of objective financial knowledge are differentially associated with perceived changes in financial well-being.

This research explores the relationship between financial literacy and financial well-being by addressing the research question: How is objective financial literacy associated with individuals' perceived change in financial well-being among US adults? The analysis uses nationally representative data from the 2022 Survey of Household Economics and Decision Making (SHED), administered by the Federal Reserve Board. By examining the association between objective financial literacy and perceived change in financial well-being relative to 12 months earlier, this study provides updated evidence from a post-pandemic, inflationary context. The findings contribute to understanding how specific domains of financial knowledge relate to reported changes in financial well-being. For practitioners, including financial planners and financial therapists, the results highlight the relevance of considering both macroeconomic conditions and socioeconomic resources when interpreting clients' reported changes in financial well-being.

2 | Literature Review

2.1 | Measuring Financial Literacy

Financial literacy is a multidimensional concept that includes knowledge, skills, confidence, and attitudes necessary for managing personal finance (Huston 2010; OECD 2017a, 2017b; Remund 2010). The U.S. FLEC (2016), the President's Advisory Council on Financial Literacy (PACFL 2008), and Hung et al. (2009) defined financial literacy as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being. These definitions emphasize the interplay of financial knowledge, behavior, and motivation across different stages of life.

Huston (2010) noted that the terms financial literacy, financial knowledge, and financial education are often used interchangeably in the literature and media. However, she emphasized that financial literacy encompasses more than just knowledge; it also includes the ability to apply that knowledge. Similarly, Warmath and Zimmerman (2019) also emphasized the role of financial self-efficacy, skill, and explicit knowledge in forming a comprehensive view of financial literacy.

In academic and policy research, financial literacy is commonly categorized into objective and subjective types (Tang and Baker 2016). Subjective financial literacy reflects a person's self-assessed confidence in handling financial tasks, while objective financial literacy is measured through performance-based questions that test factual knowledge of financial concepts (Lusardi and Mitchell 2014). West et al. (2023) stressed that even if individuals have financial knowledge, without confidence, they cannot answer those knowledge-based questions correctly. Due to concerns over inflated self-assessments and behavioral inconsistency (Agnew and Szykman 2005), many empirical studies prefer objective literacy measures.

Researchers have developed several tools to assess both dimensions. For example, the National Financial Capability Study (NFCS) by the Financial Literacy and Education Commission (FLEC 2016) used both self-reported and performance-based measures to address subjective financial literacy. Other national assessments, such as the Jump\$tart Coalition's (2005) survey and the Federal Reserve Board's Survey of Consumer Finances, included questions on understanding interest rates, inflation, and investment options with the aim to quantify objective financial literacy levels (Hilgert et al. 2003; Lusardi et al. 2010).

Despite the complexity of the term, many studies use objective financial literacy, particularly the well-established "Big Three" questions, as a validated and practical proxy for individuals' financial capability. These items, developed by Lusardi and Mitchell (2006), assess understanding of (a) compounding interest, (b) inflation, and (c) risk diversification. These three items have become standard indicators in international surveys (e.g., OECD/INFE), US government research (e.g., SHED), and financial literacy evaluations. They offered a concise, empirically validated benchmark that has been consistently linked to improved financial behavior and outcomes (Kaiser et al. 2022; Lusardi and Mitchell 2014).

This study draws on the 2022 Survey of Household Economics and Decision Making (SHED), which includes the standard "Big Three" items, to measure objective financial literacy. While this measure captures primarily the knowledge-based component of the broader construct, the study retains the term financial literacy—rather than objective financial knowledge—for two reasons. First, the ability to correctly answer these items depends not only on factual understanding but also on confidence and willingness to engage with financial tasks, as emphasized by West et al. (2023). This insight reflects the psychological dimension embedded in performance-based assessments, even when the items appear purely cognitive. Second, these "Big Three" items have been widely validated and adopted as proxies for financial literacy in both academic and policy contexts (Kaiser et al. 2022; Lusardi and Mitchell 2014), and their consistent

linkage to financial behavior provides justification for their use in studying financial well-being outcomes. This framing also aligns with the Human Capital Theory (Becker 1962), which views the acquisition of financial knowledge as an investment in one's economic capability, an investment theorized to be associated with improved financial decision-making and well-being. Therefore, although this study focuses on the objective dimension, it is referred to it as financial literacy to reflect both its validated role in the literature and its practical relevance for evaluating real-world financial competence.

2.2 | Measuring Financial Well-Being

Financial well-being (FWB) is a comprehensive construct that reflects an individual's overall financial health and satisfaction with their financial situation (CFPB 2017). It has been examined across multiple disciplines, including consumer research, financial services, household finance, and behavioral economics (Brüggen et al. 2017; Lacombe and Khatun 2023). Scholars have developed various definitions and measurement approaches to capture the complexity of financial well-being. For instance, Porter and Garman (1992) and Vosloo et al. (2014) conceptualized financial well-being through both objective and subjective lenses, evaluating financial conditions against individual comparison standards to form perceived satisfaction. Porter and Garman (1992) specifically included income level as an objective indicator and perceived standard of living as a subjective measure. Similarly, Shim et al. (2009) addressed subjective aspects like financial worries and satisfaction among young adults.

Researchers have developed several instruments to measure subjective financial well-being. One widely used measure is the Consumer Financial Protection Bureau (CFPB) Financial Well-being Scale, which assesses perceived financial control, freedom, and satisfaction across multiple domains (CFPB 2015). This scale has been widely adopted in research on financial literacy and education (Burke et al. 2020; Collins and Urban 2020; Fan and Henager 2022; Lee et al. 2020). These studies demonstrate that subjective financial well-being offers insights beyond traditional economic indicators. For instance, Lee et al. (2020) highlighted the moderating role of planning, while Patel and Wolfe (2019) explored how subjective well-being and financial literacy interact to affect outcomes for self-employed individuals.

Although multi-item scales are widely used in empirical research, single-item measures are also common in large-scale national surveys. In this study, financial well-being is operationalized as a subjective, time-referenced measure of perceived change in financial well-being relative to the prior year, drawn from the 2022 SHED, which asks respondents: "Compared to 12 months ago, would you say that you (and your family) are better off, the same, or worse off financially?" This item reflects perceived change in financial well-being relative to the prior year and has been used to evaluate household-level changes in financial security (Federal Reserve Board 2022). This approach aligns with prior literature that employed subjective measures grounded in temporal comparisons and perceptions of improvement (Kahneman and Deaton 2010; Patel and Wolfe 2019). Although less detailed than the CFPB scale, this measure captures individuals' self-assessments of their recent financial

trajectory and has been shown to correlate with broader well-being constructs (Cantril 1965; Joo and Grable 2004).

2.3 | Relationship Between Financial Literacy and Financial Well-Being

Financial literacy has been widely studied in relation to individuals' subjective financial well-being by equipping them with the knowledge and skills necessary to make informed financial decisions (Bhargava et al. 2018). Numerous studies have explored the relationship between financial literacy and financial well-being, shedding light on the importance of financial literacy in achieving positive financial outcomes (Chatterjee et al. 2021; Chen and Volpe 2002; Fan and Henager 2022; Lusardi and Mitchell 2011, 2014; Singh and Malik 2022; Taft et al. 2013; Zhang and Chatterjee 2023).

Lusardi and Mitchell (2014) provide a comprehensive review of the literature on financial literacy and document consistent associations between financial knowledge and economic behaviors such as retirement planning, saving, debt management, and participation in financial markets. Their work conceptualizes financial literacy as a form of human capital and examines its relationship with various economic outcomes, including financial well-being. Similarly, Chen and Volpe (2002) examined financial literacy among college students and found that higher levels of financial knowledge were associated with more responsible financial behaviors. Their findings indicated that higher levels of financial literacy were associated with better financial behaviors and higher reported financial well-being. Another study (Bucher-Koenen and Lusardi 2011) investigated the relationship between financial literacy, retirement planning, and financial well-being in Germany. The findings suggest that individuals with higher levels of financial literacy are more likely to engage in retirement planning activities, which are associated with higher reported financial well-being during retirement. Similarly, Hung et al. (2009) examined different definitions and measures of financial literacy and their implications for financial well-being. The paper highlighted the importance of using comprehensive and standardized measures to assess the impact of financial literacy on financial well-being. Likewise, Robb and Sharpe (2009) explored the relationship between personal financial knowledge, credit card behavior, and financial well-being among college students. The study revealed that higher levels of financial knowledge are associated with responsible credit card behavior and higher reported financial well-being.

While these studies have established a strong foundation, this study contributes to the literature by addressing several gaps. First, this study uses the 2022 SHED, a nationally representative dataset collected in the aftermath of the COVID-19 pandemic and amid rising inflation, to examine whether objective financial literacy is associated with individuals reporting being financially “better off” than they were a year ago. Second, the dependent variable is a subjective, time-referenced measure of financial well-being, asking respondents to compare their financial situation to 12 months prior. This approach captures perceived change in financial well-being from the respondent's perspective, aligning with the view that financial well-being is

dynamic and perception-based (Brüggen et al. 2017; Joo and Grable 2004; Kahneman and Deaton 2010).

Unlike many studies that used static satisfaction scales or complex indices, this approach focuses on perceived change in financial well-being. Further, an ordered probit model to estimate the likelihood of respondents reporting financial improvement, a method that respects the ordinal nature of the outcome and enhances analytical rigor. Together, these choices allow us to build on a well-established relationship while offering updated evidence in a contemporary and policy-relevant context. Ultimately, this study is guided by Human Capital Theory (Becker 1962), which views financial literacy as an investment in personal capability that may be associated with individual well-being. From this perspective, financial literacy is viewed not merely as a proxy for knowledge but as a strategic resource that may support individuals in navigating financial challenges and assessing their financial progress. This theoretical foundation provides a basis for examining objective financial literacy as a key explanatory variable associated with perceived change in financial well-being relative to the prior year in a post-pandemic, inflationary context.

Despite growing research linking financial literacy to financial well-being, three critical gaps remain. First, most studies treat financial literacy as a single composite score, potentially masking distinct associations across individual knowledge domains. Second, few use time-referenced measures of financial well-being that capture perceived changes in individuals' financial perceptions. Third, limited work has examined this relationship using recent data from the post-pandemic inflationary environment. This study addresses these gaps by disaggregating objective financial literacy items, employing a time-referenced measure of perceived change in financial well-being, and grounding the analysis in Human Capital Theory using the 2022 SHED dataset.

3 | Theory

This study is grounded in Human Capital Theory (HCT), originally developed by Gary Becker in 1962, which posits that investments in knowledge, skills, and competencies are associated with improvements in well-being. While HCT traditionally emphasized formal education and job training, its application has expanded to include personal financial capability as a form of human capital that is associated with individual's ability to manage their financial lives more effectively (Lusardi and Mitchell 2014). In this context of personal finance, objective financial literacy—measured through demonstrated knowledge of core financial concepts such as interest rates, inflation, and risk diversification—represents a strategic investment. This form of financial literacy reflects both cognitive understanding and the confidence required to apply knowledge in real-world decisions (West et al. 2023), aligning with Human Capital Theory's emphasis on productive capabilities that are theorized to be associated with differences in individuals' perceived changes in financial well-being relative to the prior year, which is the focus of this study.

Although financial literacy includes multiple dimensions—knowledge, skills, confidence, and behavior (CFPB 2015), this

study focuses specifically on objective financial literacy, operationalized through individuals' demonstrated understanding of interest rates, inflation, and risk diversification. We consider this objective dimension a measurable, foundational component of financial literacy that aligns most directly with HCT. Rather than treating knowledge as a proxy for education, I conceptualize objective financial literacy, consistent with Lusardi and Mitchell (2014) and Fernandes et al. (2014), as a strategic investment in personal human capital that is associated with behavioral and economic outcomes. This investment may be associated with individuals' ability to make informed decisions, adapt to financial shocks, and build resilience in uncertain environments.

We apply HCT to examine whether individuals with higher levels of objective financial literacy are more likely to report being financially "better off" than they were 12 months ago. Dependent variable is a subjective, time-referenced measure of perceived change in financial well-being. It captures respondents' assessments of whether they are financially better off, worse off, or about the same compared to 12 months earlier. This evaluation is particularly salient in a post-pandemic, inflationary environment. In such contexts, objective financial literacy may be associated with greater flexibility in reallocating resources, adjusting spending, or making financial decisions during periods of economic stress. (Brüggen et al. 2017; Kahneman and Deaton 2010).

Ultimately, this theoretical framing positions objective financial literacy as a strategic form of human capital that is associated with how individuals assess and navigate their financial progress. By conceptualizing financial literacy as a self-directed investment, this study explores its association with perceived changes in financial well-being during a time of heightened economic uncertainty. This perspective informs both hypotheses and variable selection, consistent with the idea that financial capability is related to confidence, adaptability, and perceptions of financial trajectory. The following hypotheses are postulated based on the theoretical motivation and existing literature reviewed above:

H1. *Higher objective financial literacy about risk diversification is positively associated with individuals' likelihood of reporting being financially better off compared to 12 months ago.*

H2. *Higher objective financial literacy about inflation is positively associated with individuals' likelihood of reporting being financially better off compared to 12 months ago.*

H3. *Higher objective financial literacy about interest rates is positively associated with individuals' likelihood of reporting being financially better off compared to 12 months ago.*

4 | Method

4.1 | Data and Sample

This study uses the 2022 Survey of Household Economics and Decision Making (SHED), conducted by the Federal Reserve Board. The SHED provides nationally representative,

cross-sectional data on US households' economic well-being and financial conditions. The survey includes binary (yes/no), and categorical variables covering income, employment, debt, savings, financial decision-making, and general economic conditions. The sampling methodology used to select households for the survey is generally based on a random sample. Detailed information regarding the sampling design, survey weights, and technical methodology is provided in the Federal Reserve Board's official report and its accompanying Consumer Survey Methodology appendix (Federal Reserve Board 2023).

The dataset includes responses from 11,667 individuals. Responses coded as "Refused" (−1) and "Don't know" (−2) were excluded from the analysis. These responses are non-substantive and reflect either a lack of knowledge or a deliberate choice not to answer, making them unsuitable for standard imputation techniques. Unlike demographic variables such as age or income, which may be missing at random and are often imputed, these items are cognitively driven and do not lend themselves to reliable estimation. Therefore, listwise deletion was applied to maintain analytical rigor and preserve the interpretability of model estimates, in line with best practices in survey-based behavioral research (Allison 2002). Final analysis is based on 8643 observations.

4.2 | Measurement

4.2.1 | Dependent Variable

The dependent variable is a subjective, time referenced measure of perceived change in financial well-being relative to the prior year, operationalized using a self-reported question from the SHED dataset. Respondents were asked whether they and their family were financially better off, about the same, or worse off compared to 12 months ago. Five response options were provided: much worse off, somewhat worse off, about the same, somewhat better off, much better off. This measure captures respondents' perceived change in their financial well-being relative to the prior year rather than their perceived level of financial well-being. The outcome variable is ordinal and coded from 1 (much worse off) to 5 (much better off), reflecting the natural ordering of the response categories.

4.2.2 | Explanatory Variables

Objective financial literacy is assessed using three standard financial literacy questions widely recognized in the literature (e.g., Lusardi and Mitchell 2011). These questions evaluate understanding of risk diversification, inflation, and interest. To measure their overall understanding in risk diversification, respondents were given a statement to decide whether the statement is true or false, "Buying a single company's stock usually provides a safer return than a stock mutual fund." 3889 respondents (90%) answered the question correctly. To assess their comprehension of inflation, they were asked a question, "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?" Three options were provided: more than today, exactly the same,

and less than today. The question was answered correctly by 5792 respondents (85%). For their knowledge about interest, respondents were asked one question, “Suppose you had \$100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?”. They were given three options: more than \$102, exactly \$102, and less than \$102.5966 (83% answered the question correctly). Each question was scored as binary (correct = 1, incorrect = 0), and all three are included separately in the analysis to examine the individual association of each knowledge domain.

4.2.3 | Control (Socio-Demographic) Variables

In addition to financial literacy variables, the model includes socio-demographic control variables: age (18 to 75+), education (no high school diploma, high school graduate, some college or Associate’s degree, Bachelor’s degree, Master’s degree or higher), employment status (working full-time, working part-time, not working), ethnicity (White, Non-Hispanic; Black, Non-Hispanic; Other, Non-Hispanic; Hispanic), gender (male, female), and household income (less than \$10,000 to more than \$150,000).

4.3 | Data Analysis

Given the ordinal categorical nature of the dependent variable, this study employs an ordered probit model to examine the association between objective financial literacy and individuals’ perceived change in financial well-being. Ordered probit is a generalization of the widely used [probit](#) analysis to the case of more than two outcomes of an [ordinal dependent variable](#). Ordered probit, like ordered logit, is a particular method of [ordinal regression](#).

$$y^* = x^T \beta + \epsilon \quad (1)$$

In this case, the dependent variable is denoted by y and represents the observed categories of response based on the unobserved and continuous variable y^* . The underlying relationship between y^* and the independent variables x is assumed to be linear, and the model aims to estimate the vector of regression coefficients β .

Further suppose that while we cannot observe y^* , we instead can only observe the categorical response:

$$y = \begin{cases} 0 & \text{if } y^* \leq 0 \\ 1 & \text{if } 0 < y^* \leq \mu_1 \\ 2 & \text{if } \mu_1 < y^* \leq \mu_2 \\ \vdots \\ N & \text{if } \mu_{N-1} < y^* \end{cases} \quad (2)$$

Then the ordered probit technique will use the observations on y , a form of censored data on y^* , to fit the parameter vector β . Because the SHED data are cross-sectional and

non-experimental, the estimated coefficients reflect statistical associations rather than causal effects.

All statistical analyses were conducted using Python (version 3.10). Data manipulation was performed using the pandas and NumPy libraries, and the ordered probit models were estimated using the OrderedModel function from the statsmodels package. To ensure the results are representative of the US population, all models incorporated the official SHED survey weights.

5 | Results

5.1 | Descriptive and Bivariate Statistics

Table 1 presents the distribution of perceived change in financial well-being across levels of objective financial literacy and socio-demographic characteristics. Pearson’s chi-square tests indicate statistically significant associations for most variables. Overall, 45.3% of respondents reported being financially “about the same” compared to 12 months earlier, while 17.5% reported being either somewhat or much better off, and 37.2% reported being somewhat or much worse off.

Inflation knowledge is significantly associated with perceived change in financial well-being ($p < 0.01$). Respondents who answer the inflation question incorrectly report a higher mean perceived change score (2.98) compared to those who answered correctly (2.71). A larger proportion of correct respondents report being somewhat or much worse off (39.0%) relative to incorrect respondents (27.1%). Conversely, incorrect respondents are more likely to report being somewhat or much better off (24.3%) compared to correct respondents (16.2%). Interest rate knowledge is also significantly associated with perceived change in financial well-being ($p < 0.01$), although differences are modest. Respondents who answered correctly report a slightly higher mean perceived change score (2.76) than those who answered incorrectly (2.72). Risk diversification knowledge does not show a statistically significant association with perceived change in financial well-being at conventional levels.

Perceived change in financial well-being varies significantly across age groups ($p < 0.01$). Younger respondents report higher mean perceived change scores. For example, respondents aged 25–34 report a mean of 3.00, whereas respondents aged 75 and older report a mean of 2.54. The proportion reporting being somewhat or much better off declines across older age groups, while the proportion reporting being somewhat or much worse off tends to increase. Additionally, older respondents are more likely to report that their financial situation remained about the same. Household income demonstrates a strong association with perceived change in financial well-being ($p < 0.01$). Higher income categories are associated with higher mean perceived change scores. Respondents earning \$150,000 or more report a mean of 2.86, compared to 2.63 among those earning \$10,000 to \$24,999. The proportion reporting being financially better off increases across income categories, while the proportion reporting being worse off decreases. Education is significantly associated with perceived change in financial well-being ($p < 0.01$). Respondents with a bachelor’s degree report a mean perceived change score of 2.86, compared to 2.64 among those without

TABLE 1 | bivariate distribution of perceived change in financial well-being relative to 12 months earlier by objective financial literacy and socio-demographic characteristics ($N=8643$).

Variable/ category	<i>n</i>	%	Mean perceived change in financial well-being	Much worse off (1)	Somewhat worse off (2)	About the same (3)	Somewhat better off (4)	Much better off (5)
Total sample	8643	100.00%	2.75	8.60%	28.60%	45.30%	13.60%	3.90%
Objective financial literacy								
Risk diversification knowledge								
Incorrect	827	9.60%	2.79	8.50%	27.70%	45.20%	13.80%	4.80%
Correct	7816	90.40%	2.75	8.60%	28.70%	45.40%	13.50%	3.80%
Inflation knowledge***								
Incorrect	1325	15.30%	2.98	6.00%	21.10%	48.50%	17.50%	6.80%
Correct	7318	84.70%	2.71	9.10%	29.90%	44.80%	12.80%	3.40%
Interest rate knowledge***								
Incorrect	1436	16.60%	2.72	11.10%	27.90%	43.40%	13.00%	4.60%
Correct	7207	83.40%	2.76	8.10%	28.70%	45.70%	13.70%	3.70%
Socio-demographic variables								
Age***								
18–24	451	5.20%	2.95	7.10%	20.00%	49.00%	18.80%	5.10%
25–34	1252	14.50%	3	6.70%	23.50%	40.30%	22.10%	7.40%
35–44	1381	16.00%	2.93	7.30%	23.80%	44.20%	18.50%	6.20%
45–54	1252	14.50%	2.73	9.40%	28.80%	44.60%	14.20%	3.00%
55–64	1752	20.30%	2.66	10.00%	30.40%	45.50%	11.50%	2.50%
65–74	1649	19.10%	2.61	9.10%	32.60%	48.30%	7.80%	2.20%
75+	906	10.50%	2.54	9.40%	36.10%	47.60%	5.10%	1.90%
Income***								
Less than \$10,000	287	3.30%	2.69	15.30%	26.10%	39.40%	12.50%	6.60%
\$10,000 to \$24,999	621	7.20%	2.63	12.60%	31.70%	39.90%	12.10%	3.70%
\$25,000 to \$49,999	1275	14.80%	2.64	10.50%	33.10%	41.20%	11.90%	3.30%
\$50,000 to \$74,999	1323	15.30%	2.74	7.80%	30.80%	44.90%	12.50%	4.00%
\$75,000 to \$99,999	1175	13.60%	2.73	8.90%	29.50%	44.40%	13.90%	3.20%
\$100,000 to \$149,999	1704	19.70%	2.78	8.20%	27.10%	47.40%	13.30%	4.00%
\$150,000 or more	2258	26.10%	2.86	6.30%	24.80%	49.10%	15.60%	4.10%

(Continues)

TABLE 1 | (Continued)

Variable/ category	<i>n</i>	%	Mean perceived change in financial well-being	Much worse off (1)	Somewhat worse off (2)	About the same (3)	Somewhat better off (4)	Much better off (5)
Education***								
No high school diploma/ GED	385	4.50%	2.64	12.70%	28.10%	45.70%	9.60%	3.90%
High school diploma/ GED	1789	20.70%	2.66	10.00%	31.10%	45.00%	10.30%	3.60%
Some college or Associate's	2287	26.50%	2.71	10.20%	29.20%	43.60%	13.20%	3.80%
Bachelor's degree	2293	26.50%	2.86	5.70%	28.20%	45.10%	16.80%	4.20%
Master's degree or higher	1889	21.90%	2.79	8.10%	26.00%	48.10%	14.00%	3.80%
Employment***								
Working full-time	4229	48.90%	2.88	7.50%	24.90%	44.50%	18.00%	5.20%
Working part-time	1148	13.30%	2.74	8.40%	30.10%	44.50%	12.90%	4.00%
Not working	3266	37.80%	2.59	10.20%	32.70%	46.80%	8.10%	2.20%
Ethnicity***								
White, Non-Hispanic	6120	70.80%	2.7	9.00%	30.90%	44.80%	12.00%	3.30%
Black, Non-Hispanic	804	9.30%	3.05	5.10%	18.00%	50.40%	20.00%	6.50%
Other, Non-Hispanic	424	4.90%	2.88	7.10%	21.00%	52.80%	14.90%	4.20%
Hispanic	1021	11.80%	2.85	8.60%	26.10%	42.90%	16.70%	5.70%
Gender*								
Male	4727	54.70%	2.75	9.30%	28.50%	44.30%	13.90%	4.00%
Female	3916	45.30%	2.76	7.90%	28.70%	46.60%	13.10%	3.70%

Note: Asterisks denote statistical significance based on Pearson's chi-square (χ^2) tests of independence: * $p < 0.10$, *** $p < 0.01$.

a high school diploma. Higher education categories are associated with lower proportions reporting being worse off and higher proportions reporting being somewhat or much better off. Employment status is strongly associated with perceived change in financial well-being ($p < 0.01$). Respondents working full-time report the highest mean perceived change score (2.88), followed by those working part-time (2.74), and those not working (2.59). Individuals not working are more likely to

report being worse off and less likely to report being better off. Ethnicity shows statistically significant differences ($p < 0.01$). Black, Non-Hispanic respondents report the highest mean perceived change score (3.05), with a greater proportion reporting being somewhat or much better off relative to other groups. Gender differences are statistically significant at the 10% level ($p < 0.10$), though mean differences between males and females are minimal.

5.2 | Ordered Probit

The model converged after four iterations, with a final log-likelihood value of $-11,229.437$. The likelihood ratio test ($\text{Prob} > \chi^2 = 0.0000$) indicates that the full model provides a statistically significant improvement in fit relative to a restricted model without explanatory variables (Table 2). To facilitate interpretation, average marginal effects are reported as percentage point changes in predicted probabilities and serve as effect size estimates.

Accuracy on the inflation knowledge question is significantly associated with perceived change in financial well-being at the 5% level. Respondents who answered the inflation question correctly have a 5.00 percentage-point higher predicted probability of reporting being “much worse off” and a 6.95 percentage-point higher probability of reporting being “somewhat worse off” relative to 12 months earlier. Correct responses are associated with a 3.82 percentage-point lower predicted probability of reporting being “about the same,” a 5.49 percentage-point lower probability of reporting being “somewhat better off,” and a 2.63 percentage-point lower probability of reporting being “much better off.”

Age category also exhibits a statistically significant association with perceived change in financial well-being. A one-category increase in age corresponds to a 1.14 percentage-point higher predicted probability of reporting being “much worse off” and a 1.58 percentage-point higher probability of reporting being “somewhat worse off” relative to 12 months earlier. Older age categories correspond to a 0.87 percentage-point lower predicted probability of reporting being “about the same,” a 1.25 percentage-point lower probability of reporting being “somewhat better off,” and a 0.60 percentage-point lower probability of reporting being “much better off.”

Education level shows statistically significant associations with perceived change in financial well-being. Compared across education categories, respondents with higher levels of education have a 0.54 percentage-point lower predicted probability of reporting being “much worse off” and a 0.75 percentage-point lower probability of reporting being “somewhat worse off.” Higher education categories correspond to a 0.41 percentage-point higher predicted probability of reporting being “about the same,” a 0.60 percentage-point higher probability of reporting being “somewhat better off,” and a 0.29 percentage-point higher probability of reporting being “much better off.”

Employment status is significantly associated with perceived change in financial well-being at the 5% level. Relative to respondents working full-time, those not working have a 1.18 percentage-point higher predicted probability of reporting being “much worse off” and a 1.63 percentage-point higher probability of reporting being “somewhat worse off.” Not working corresponds to a 0.90 percentage-point lower predicted probability of reporting being “about the same,” a 1.30 percentage-point lower probability of reporting being “somewhat better off,” and a 0.62 percentage-point lower probability of reporting being “much better off.”

Income level shows statistically significant associations with perceived change in financial well-being at the 5% level. Across

income categories, respondents in higher income groups have a 0.68 percentage-point lower predicted probability of reporting being “much worse off” and a 0.94 percentage-point lower probability of reporting being “somewhat worse off.” Higher income categories correspond to a 0.52 percentage-point higher predicted probability of reporting being “about the same,” a 0.74 percentage-point higher probability of reporting being “somewhat better off,” and a 0.36 percentage-point higher probability of reporting being “much better off.”

Figure 1 displays the average marginal effects reported in Table 2. The figure shows that inflation knowledge, age, employment status, education, and income are associated with differences in predicted probabilities across the five outcome categories. Inflation knowledge is associated with the largest differences between worse-off and better-off categories. The figure also makes clear the relative magnitude of associations across explanatory variables.

6 | Discussion

This study examined how objective financial literacy and demographic characteristics are associated with individuals' perceived change in financial well-being using the 2022 SHED data. The results indicate that socioeconomic resources correspond to differences in perceived change in financial well-being. Younger respondents, those with higher levels of education, individuals working full-time, and respondents in higher income categories exhibited higher predicted probabilities of reporting being financially better off compared to 12 months earlier.

The findings for financial literacy were more nuanced. Among the three Big Three knowledge items, namely interest, inflation, and risk diversification, only inflation knowledge exhibited a statistically significant association with perceived change in financial well-being relative to the prior year. Contrary to the initial hypothesis (H1), the association was negative: respondents who correctly answered the inflation question were more likely to report being financially worse off compared to 12 months earlier.

One possible explanation relates to the economic environment in which the data were collected. During 2022, US inflation exceeded 8 percent (BLS 2022), representing one of the highest inflationary periods in recent decades. Individuals with stronger objective knowledge of inflation may have been more attentive to rising prices and reductions in purchasing power, which could have shaped their reported perceived change in financial well-being. This interpretation reflects contextual association rather than causal inference.

In addition to elevated inflation, broader economic disruptions associated with the COVID-19 pandemic may also have influenced respondents' evaluations of their financial position. Labor market instability, changes in employment status, income volatility, and continued economic uncertainty during the post-pandemic recovery period may have shaped how individuals assessed their financial situation relative to the prior year. Individuals with higher levels of objective financial literacy may have been more attentive to macroeconomic conditions,

TABLE 2 | Ordered probit marginal effects for perceived change in financial well-being relative to 12 months earlier.

Variables	Marginal effects	Standard error	Z	p > Z	95% confidence interval	
Objective financial literacy						
Risk diversification knowledge						
1	0.0022	0.0061	0.36	0.720	-0.0098	0.0142
2	0.0031	0.0085	0.36	0.720	-0.0137	0.0198
3	-0.0017	0.0047	-0.36	0.720	-0.0109	0.0075
4	-0.0024	0.0067	-0.36	0.720	-0.0156	0.0108
5	-0.0012	0.0032	-0.36	0.720	-0.0075	0.0052
Inflation knowledge						
1	0.0500	0.0054	9.33	0.000	0.0395	0.0605
2	0.0695	0.0072	9.63	0.000	0.0553	0.0836
3	-0.0382	0.0042	-9.10	0.000	-0.0465	-0.0300
4	-0.0549	0.0058	-9.52	0.000	-0.0662	-0.0436
5	-0.0263	0.0030	-8.83	0.000	-0.0322	-0.0205
Interest rate knowledge						
1	-0.0085	0.0050	-1.69	0.091	-0.0184	0.0014
2	-0.0118	0.0070	-1.69	0.091	-0.0255	0.0019
3	0.0065	0.0038	1.69	0.091	-0.0010	0.0140
4	0.0093	0.0055	1.69	0.091	-0.0015	0.0202
5	0.0045	0.0027	1.69	0.092	-0.0007	0.0097
Socio-demographic variables						
Age category						
1	0.0114	0.0012	9.45	0.000	0.0090	0.0138
2	0.0158	0.0016	9.81	0.000	0.0127	0.0190
3	-0.0087	0.0009	-9.31	0.000	-0.0106	-0.0069
4	-0.0125	0.0013	-9.61	0.000	-0.0151	-0.0100
5	-0.0060	0.0007	-8.98	0.000	-0.0073	-0.0047
Education level						
1	-0.0054	0.0018	-3.00	0.003	-0.0090	-0.0019
2	-0.0075	0.0025	-3.01	0.003	-0.0125	-0.0026
3	0.0041	0.0014	2.99	0.003	0.0014	0.0069
4	0.0060	0.0020	3.00	0.003	0.0021	0.0099
5	0.0029	0.0010	2.98	0.003	0.0010	0.0047
Employment status						
1	0.0118	0.0023	5.13	0.000	0.0073	0.0163
2	0.0163	0.0032	5.18	0.000	0.0102	0.0225
3	-0.0090	0.0018	-5.11	0.000	-0.0124	-0.0055
4	-0.0129	0.0025	-5.15	0.000	-0.0178	-0.0080
5	-0.0062	0.0012	-5.05	0.000	-0.0086	-0.0038

(Continues)

TABLE 2 | (Continued)

Variables	Marginal effects	Standard error	Z	p > Z	95% confidence interval	
Gender						
1	-0.0070	0.0036	-1.93	0.054	-0.0141	0.0001
2	-0.0097	0.0050	-1.93	0.054	-0.0196	0.0002
3	0.0053	0.0028	1.92	0.054	-0.0001	0.0108
4	0.0077	0.0040	1.93	0.054	-0.0001	0.0155
5	0.0037	0.0019	1.92	0.055	-0.0001	0.0074
Income category						
1	-0.0068	0.0012	-5.55	0.000	-0.0092	-0.0044
2	-0.0094	0.0017	-5.60	0.000	-0.0127	-0.0061
3	0.0052	0.0009	5.51	0.000	0.0033	0.0070
4	0.0074	0.0013	5.58	0.000	0.0048	0.0100
5	0.0036	0.0007	5.41	0.000	0.0023	0.0049

Note: The dependent variable measures perceived change in financial well-being relative to 12 months earlier (1 = Much worse off; 5 = Much better off). Reported values are marginal effects from an ordered probit model. Marginal effects represent the change in predicted probability of each outcome category associated with a one-unit increase in the explanatory variable, holding other variables constant. Objective financial literacy variables are coded 1 = correct response and 0 = incorrect response. N = 8643.

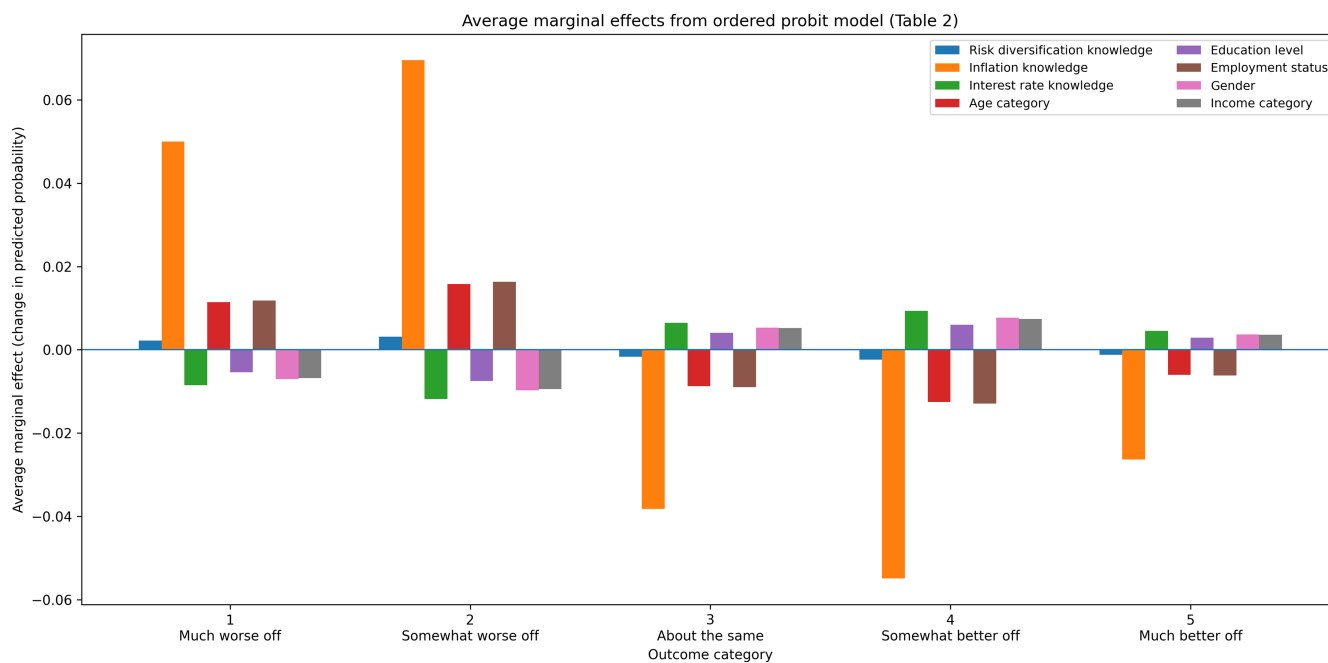


FIGURE 1 | Average marginal effects of financial literacy and socio-demographic factors on perceived change in financial well-being. Bars represent average marginal effects from an ordered probit model. Values indicate changes in predicted probability for each outcome category associated with a one-unit increase in the explanatory variable, holding other variables constant. See Table 2 for full regression result.

including unemployment trends and economic risk. Because the present study does not directly model pandemic-specific shocks, these considerations remain interpretive and warrant further investigation.

These results both confirm and challenge prior research. Consistent with Lusardi and Mitchell (2014) and Fernandes et al. (2014), the analysis shows that education and income are positively associated with reporting more favorable changes

in financial well-being. However, unlike most studies that report a positive relationship between financial literacy and well-being (Bucher-Koenen and Lusardi 2011; Robb and Sharpe 2009), the findings indicate that inflation knowledge may be associated with lower subjective well-being during periods of economic stress. This highlights the importance of context: financial literacy does not operate in isolation, and its effects can vary depending on the broader economic environment.

A key contribution of this study is its decision to examine financial literacy as a multidimensional construct rather than relying on a composite index. By analyzing the three Big Three items separately, the study indicates that different domains of knowledge are associated with different patterns in perceived change in financial well-being, with inflation awareness emerging as especially relevant in 2022. This approach aligns with Human Capital Theory, which emphasizes the role of specific forms of knowledge in shaping individual outcomes.

The study also advances literature methodologically and contextually. First, it employs a subjective, time-referenced measure of financial well-being that asks whether individuals feel financially better off, worse off, or about the same compared to the prior year. This approach provides a dynamic view of financial progress rather than a static satisfaction score. Second, it uses data collected during a historically high-inflation period, offering insights into how individuals interpret their financial situation under economic stress. Third, by applying an ordered probit model, the analysis respects the ordinal structure of the outcome and provides estimates of the associations between objective financial literacy, demographic characteristics, and perceived change in financial well-being. Taken together, these findings suggest that while financial literacy remains an important dimension of capability, its associations are not uniformly positive. Instead, its association appears to vary depending on both the type of knowledge measured and the broader economic environment.

7 | Implications

These findings offer valuable insights for both theory, research, and practice. The results are consistent with the relevance of Human Capital Theory in the context of financial decision-making and suggest that context-specific knowledge, such as inflation, may be particularly salient during periods of economic disruption. Future research can build on these findings in several ways. First, it would be valuable to construct and compare composite financial literacy indices with disaggregated measures to assess which is more strongly associated with perceived change in financial well-being across contexts. Second, incorporating psychological and health-related controls, such as self-reported mental and physical health, could allow researchers to better estimate the independent association of financial literacy. Third, using longitudinal or experimental designs would enable researchers to explore causal pathways, assess temporal shifts in financial well-being, and examine how individuals adapt their financial behaviors over time. These extensions would strengthen both the empirical rigor and practical relevance of future work examining financial resilience across diverse populations. For educators and policymakers, the findings are consistent with ongoing efforts to expand access to financial education, particularly content focused on improving individuals' understanding of macroeconomic trends. For practitioners such as financial planners, financial counselors, and financial therapists, incorporating financial literacy assessments into client engagement strategies may facilitate more personalized advice and be associated with greater client financial confidence. This study contributes to ongoing discussions about more targeted financial education programs and evidence-based policy design that reflects the evolving economic landscape.

8 | Limitations

Several limitations should be acknowledged. First, because the SHED data are cross-sectional and non-experimental, causal inferences cannot be drawn. The estimated relationships reflect statistical associations rather than causal effects. Second, while the financial literacy questions used are well-established, they represent only a narrow slice of financial knowledge and omit behavioral or skill-based components. This study also relied on a single self-reported item to assess perceived change in financial well-being relative to the prior year, which may reflect recent experiences or short-term economic conditions rather than longer-term financial status. Third, although the dataset includes self-reported physical and mental health variables, these were not incorporated in this study. The available mental health measure reflects treatment-seeking behavior rather than psychological state, and the physical health item is a single-item proxy not grounded in a validated scale. To maintain conceptual alignment with HCT and the study's focus on objective financial literacy, these variables were excluded. However, health is closely related to financial well-being, and future research should examine its potential mediating or moderating role using validated, multidimensional measures.

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Ethics Statement

The study uses publicly available, de-identified secondary data from the Federal Reserve Board's SHED survey. As such, this research did not require ethics approval.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the Survey of Household Economics and Decision Making (SHED), conducted by the Federal Reserve Board. Publicly available data can be accessed at: <https://www.federalreserve.gov/consumerscommunities/shed.htm>

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