

FINANCIAL SERVICES REVIEW

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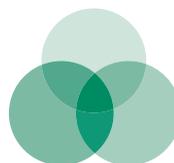
FINANCIAL SERVICES REVIEW

The Journal of
Individual Financial Management

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From the Editor

This issue contains **Volume 30 - Issue 1** of *Financial Services Review (FSR)*. I would like to thank the board and members of the Academy of Financial Services for their continued support. I continue to work in broadening the scope of articles, while still focusing on individual financial management and personal financial planning. I encourage authors to reach out when discussing the implications of their findings in a more comprehensive way. As such, all articles in the Journal more appropriately relate to financial planning topics and issues.

The lead article “Retirement Income Beliefs and Financial Advice Seeking Behaviors” is coauthored by Alejandro Murguía at McLean Asset Management and Wade D. Pfau at McLean Asset Management and The American College of Financial Services. This paper investigates a series of salient behavioral finance and psychological constructs that influence retirement income planning. The authors show how these scales are related to each other as well as retirement income concerns and investment behaviors. They also describe how four investment personas can be linked with the Advisor Usefulness and Retirement Income Self-Efficacy scales to identify preferred financial implementation methods. This can assist individuals in recognizing their relative strengths and weaknesses while financial professionals can present advice in a manner that addresses a client’s concerns and preferred implementation.

The second article “Mutual Fund Knowledge Assessment for Policy and Decision Problems” is coauthored by Brian Scholl at the Office of the Investor Advocate and Angela Fontes at NORC at the University of Chicago. In this paper the authors develop a measure of mutual fund investment knowledge that complements existing financial literacy measures. They validate the index with factor analysis identifying two latent components, and descriptive regressions demonstrating the additive value of our index beyond general financial literacy in explaining variation in financial well-being, investment ownership, and fee calculation proficiency. Despite mutual funds’ importance in household savings, their index suggests that the public lacks adequate understanding of mutual funds.

The third article, “Do As I Tell You, Not As I Do: Financial Advisors and Personal Financial Decision-Making” is coauthored by Negin Azamian, Kristine Beck, Hsin-Hui Chiu, and Inga Timmerman, all at California State University Northridge. The authors describe the financial behavior of financial advisors and whether they follow the advice they give clients. In doing so they focus on the following areas of comprehensive financial planning as they relate to advisor behavior: (1) cash flow, (2) debt, (3) retirement planning, (4)

investments, and (5) estate planning. The authors find that financial advisors generally follow their own advice; and as a group they are more likely to be prepared for retirement, have less debt, higher liquidity, covered insurance needs, and have an estate plan in place.

The final article, “Financial Advisor Use, Life Events, and the Relationship with Beneficial Intentions” is coauthored by Matt Sommer at Janus Henderson Investors, HanNa Lim at Kansas State University, and Maurice MacDonald at Kansas State University. This study investigates whether working with a financial advisor and experiencing a recent life event were associated with having beneficial financial planning intentions. The authors found no relationship between working with a financial advisor and beneficial intentions over the next 12 months. Life events incurred within the prior year, however, were positively related to beneficial intentions and when interacted with working with an advisor, had a positive moderating effect. The results suggest that planning for difficult life transitions is an important benefit of working with a financial advisor.

Thank you to those who make the journal possible, especially the referees and contributing authors. Over the past year, the following reviewers provided excellent reviews of the articles you enjoyed within the pages of *Financial Services Review*. I would like to send a special thank you to the many reviewers that have significantly contributed to the quality of our journal by providing timely and thorough reviews of the submissions to our journal.

Please consider submitting to the *Financial Services Review* and rely on the style information provided to ease readability and streamline the review process. The Journal welcomes articles over the range of areas that comprise personal financial planning. While FSR articles are certainly diverse in terms of topic, data, and method, they are focused in terms of motivation. FSR exists to produce research that addresses issues that matter to individuals. I remain committed to the goal of making *Financial Services Review* the best academic journal in individual financial management and personal financial planning.

Best regards,
Stuart Michelson
Editor *Financial Services Review*

Retirement income beliefs and financial advice seeking behaviors

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Abstract

This investigation identifies and validates a series of salient behavioral finance and psychological constructs that influence retirement income planning. We show how these scales relate to each other as well as retirement income concerns and investment behaviors. We also describe how four investment personas can be linked with the Advisor Usefulness and Retirement Income Self-Efficacy scales to successfully identify preferred financial implementation methods. This can assist individuals in more readily recognizing their relative strengths and weaknesses when implementing a retirement income strategy, and financial professionals can present advice in a manner that addresses a client's concerns and preferred implementation. © 2022 Academy of Financial Services. All rights reserved.

JEL classifications: D14

Keywords: Retirement income; Self-efficacy; Financial advisor perceived usefulness; Behavioral finance

1. Introduction

While it is generally accepted that irrational behaviors influence general financial decisions, research detailing how various psychological constructs affect financial behaviors specific to retirement income planning has lagged. Moreover, advances from behavioral finance and psychology have progressed in a parallel manner reflecting the different academic departments that help to identify these constructs. The interplay between behavioral finance,

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psychology, and retirement planning is one that should be examined to better identify and promote successful financial behaviors while mitigating the negative ones.

After we briefly address how various behavioral finance and psychological constructs have been linked to general financial behaviors, we detail the development of specific self-efficacy, financial bias, numeracy, and advisor usefulness scales. While these are generally accepted social science constructs, these scales were created with an increased level of specificity to retirement income. We assess their ability to reliably quantify these factors. We further examine how these factors associate with each other, retirement income concerns, investment behaviors, overall retirement income outlook, and the use of an advisor. This presents a further indication of construct and criterion validity for the scales (DeVellis, 2017). The results identify four financial implementation personas in relation to their retirement income self-efficacy and perceptions about the usefulness of financial advisors. These personas link to various behavioral finance constructs, retirement income concerns, investment behaviors, and retirement outlooks. This provides a framework to identify individual preferences for receiving financial advice and avenues that maximize those preferences. It also addresses the potential areas of strengths and weaknesses for the different types of retirees. Altogether, this supports greater retirement income planning success.

2. Literature review

We provide a brief review of the constructs that will be included in our investigation. First, Tversky and Kahneman (1974) identified that individuals have two approaches to their decision-making process. One is predicated on a quick and simple heuristic approach via mental shortcuts, and another is deeply analytical and measured. While many mental shortcuts are very adaptive for everyday living, they are frequently maladaptive when making personal financial decisions. Additionally, loss aversion is a significant behavioral finance construct that permeates throughout the personal finance field. It is not only the idea that losses are more psychologically impactful than gains, but that individuals evaluate these gains and losses relative to a reference point (Kahneman & Tversky, 1979). Our tendency to rely on heuristics for financial decisions and the effect of loss aversion leads to many well-known financial biases including hindsight, recency, survivorship, affinity, gambler's fallacy, and the endowment effect.

Other behavioral finance constructs have started to indicate potential avenues for insight. Inertia has been advanced as a foundational contributor to explaining financial behavior (Gal, 2006). The concept of inertia indicates that individuals tend to maintain the status-quo. To change this baseline for the status quo, there must be an improvement, not just a substitution, to the current situation that makes the effort for change worthwhile. This push past indifference also requires that alternatives be posed as clear choices. The key dynamic for differentiation between loss aversion and inertia is the push and pull between action versus inaction (e.g., inertia) as opposed to the psychological valence of a gain versus a loss (e.g., loss aversion). Gal (2006) posits that inertia is a more impactful construct than loss aversion as a keystone principle in behavioral finance.

Numeracy is the ability to comprehend numerical concepts such as probabilities and other mathematical procedures. In the field of personal finance, it is frequently referred to as financial literacy or risk literacy. One's level of financial literacy has been identified as having a major impact into financial decision making (Lusardi & Mitchell, 2014). Financial literacy has also been associated with an inability to understand the impact of portfolio volatility on investment returns (Newall, 2016). Low financial literacy is a pervasive global observation (Kell, 2014) and unfortunately only 57% of Americans made a passing grade in a standard financial literacy test (Zumbrum, 2015). Numeracy studies within the medical field has also found that older adults experienced difficulty using numerical information to compare Medicare health plans (Hibbard et al., 2001). Numeracy is an important personal consideration when developing a retirement income plan. Agarwal and Mazumder (2013) point out that one's financial choices may not be optimal due to low proficiency or a general avoidance of mathematical concepts.

While numeracy is the objective measure of mathematical competence, few studies have investigated the differences between numeracy and perceived numeracy. Balasubramnian and Sargent (2020) found that discrepancies between perceived and objective financial literacy lead to weaker financial decisions. They conclude that the gap between the two is of great importance when investigating consumer financial behavior. In addition, perceived financial literacy can be as or more important than actual financial literacy in influencing financial behaviors (Allgood & Walstad, 2016). Unfortunately, this overestimation gap is frequently observed in individuals scoring lowest on numeracy tasks. Kruger and Dunning (1999) observe that this occurs due to the double burden of lacking the general capacity to make sound choices and that this incompetence hinders the metacognitive ability to realize it. This construct is widely recognized as the Dunning-Kruger effect. While a meta-analysis of over 201 studies indicated that increasing financial knowledge has little impact on financial behaviors (Fernandes, Lynch, & Netemeyer, 2014), Kruger and Dunning (1999) found that addressing these blind spots (overestimation gap) by improving individual skills helped participants recognize their shortcomings more effectively.

Self-efficacy is a psychological construct espoused by Bandura's social cognitive theory (Bandura, 1977). It is the conviction of how well one can successfully execute a specific course of action. It differs from general confidence because it represents an individual's perception of competently achieving more localized tasks. Hence, a high degree of self-efficacy in one domain does not imply a high degree in another area. Due to this domain specificity, it is important to measure self-efficacy in the field of study (Bandura, 1997). Lown (2011) created a general financial self-efficacy scale to measure the behavioral aspects of personal financial management. The scale was positively associated with a high level of confidence to manage money. Asebedo and Seay (2018) observed financial self-efficacy to be positively related to savings behavior after accounting for various demographic variables. In addition, Asebedo and Browning (2020) found portfolio withdrawal rates to be associated with financial self-efficacy. Overall, financial self-efficacy is an important construct in helping promote effective retirement income planning behaviors.

Many studies try to identify the additive benefits that a financial professional provides to one's overall investment return. Blanchett and Kaplan (2013) quantify how advisors have positively impacted retirement income decisions via improved financial planning decisions. Vanguard has also identified various value-added factors that an advisor can potentially

provide to improve an individual's financial standing (Kinniry et al., 2015). While these studies identify the benefits of an advisory relationship, a lack of fee transparency and general mistrust may lead to an underutilization of financial professionals. While there is a lack of availability for financial advice across the general population, among those who have access to advice, there potentially remains skepticism about an advisor's overall value. Therefore, assessing one's belief about the cost effectiveness of a financial advisor may indicate who is most likely to use one. The five-stage model for advice seeking behavior posited by Grable and Joo (1999) theorizes that individuals assess the benefits and cost of engaging in a range of retirement planning activities (Marsden, Zick, & Mayer, 2011). With the increasing popularity of various self-directed methods and business models to implement a retirement income plan, such as automated investment strategies and hourly financial planners, matching one's financial implementation approach (using or not using a financial advisor) to appropriate methods can positively influence retirement outcomes.

3. Method

The methodology includes several steps. First, we discuss scale construction. We utilize exploratory factor analysis with a Varimax rotation across the four scales to assess if they present as valid and meaningful constructs. Cronbach's α further analyzes internal reliability and helps determine the final question set for each scale. Additionally, the Pearson correlation coefficient reviews retest reliability among the scales. These steps indicate the degree of content and construct validity for the scales (DeVellis, 2017).

For the second part of this investigation, we examine bivariate correlations between the scales to further assess construct validity and measure criterion validity. Furthermore, we assess multivariate relationships between these constructs against various dependent variables that relate to investment behaviors, perceived retirement risks, overall retirement outlook, and advice implementation to determine predictive validity (DeVellis, 2017). This analysis is conducted using ordinary least squares regressions for continuous dependent variables and logistic regression for binary ones; all coefficients in the regression analyses are standardized.

We create a Financial Implementation Matrix centered on Advisor Usefulness and Retirement Income Self Efficacy scales to indicate how to identify preferred financial planning implementation methods. All results are computed using SAS.

3.1. Constructing the scales

After reviewing various sources related to our constructs surrounding retirement income, we created 157 questions to be tested. These questions were reviewed by roughly 350 volunteers to provide initial feedback. These volunteers included a mix of financial professionals and individuals who are active readers of RetirementResearcher.com. This website largely focuses on retirement income planning topics. These volunteers provided feedback and suggestions about the questions in terms of their quality, clarity, and conciseness. The focus at this stage was on content validity.

This feedback helped reduce the number of questions to less than 90, which were then provided to the participants of this study. Participants were recruited as a convenience sample of 1,478 individuals from the same source of RetirementResearcher.com readership. Participants were asked to complete an online questionnaire. They were given 14 days to complete the survey during the month of July 2019. As an incentive for participation, we offered them a retake of the final questionnaire once the analysis was completed. We also provided reports of their results. While total participants peaked at 1,478, the number of specific completed surveys by topic varies because participants could drop out at any point, and some had left before all topics had been introduced. As well, answering a question about net worth was optional and reduced the number of respondents available to use in the regression analysis. For retest purposes, the finalized survey was administered on March 27, 2020, and again on September 10, 2020, roughly six months apart. It should be noted that due to the coronavirus disease 2019 (COVID-19) pandemic, this period experienced pronounced market volatility and most likely great personal uncertainty for the respondents. While the sample is not intended to be random and reflective of the population at large, it is indicative of individuals for whom retirement income is a salient personal topic. Many of those taking the survey can be viewed as taking an active interest in retirement planning topics and being more knowledgeable about retirement income than the average layperson.

3.2. Descriptive statistics and exploratory factor analysis

With 1,478 total participants, a power analysis indicated that the sample size was well above the number of participants needed to test our hypotheses with the exploratory factor analysis even as some participants did not complete every iteration of the study. In addition, we captured other information such as age and net worth to control for these additional variables during the subsequent regression analysis.

Descriptive participant data are provided in Table 1. We were able to attract participants in which retirement is a relevant life milestone. For example, 61% ($n = 845$) of participants were in between 59 and 70 years old. Males represent 77% of responses ($n = 1,143$) and females 23% ($n = 335$). 86% of the respondents are married ($n = 1,270$) and 14% ($n = 208$) are single. While an optional question, 50% ($n = 372$) of the 740 respondents report a net worth of \$1-3 million dollars.

Descriptive statistics for all scales are presented in Table 2. These scales are divided between psychological and behavior finance constructs, retirement income concerns, investment behaviors, and retirement outlook. The table presents means and standard deviations and a range of scores. Higher scores within the range represent the degree of strength for the construct being measured.

For Financial Biases, Retirement Income Self-Efficacy, and Advisor Usefulness, we will also refer to subsequent tables with exploratory factor analysis to determine whether these scales reflect our distinctly hypothesized constructs, Cronbach's α to determine internal scale consistency, and Pearson correlation retest scores to indicate temporal consistency (DeVellis, 2017).

Table 1 Demographic information

	Respondents	
	<i>n</i>	%
Total participants		
Men	1,143	77%
Women	335	23%
Age classes		
Younger than 40	64	4%
40-46	64	4%
47-52	97	7%
53-58	267	18%
59-64	460	31%
65-70	385	26%
71-76	131	9%
Above 76	8	1%
Marital status		
Spouse/partner	1,270	86%
Single	208	14%
Net worth range		
Less than \$500k	46	6%
\$500k - \$1M	91	12%
\$1M - \$2M	210	28%
\$2M - \$3M	162	22%
\$3M - \$4M	85	11%
\$4M - \$5M	48	6%
Greater than \$5M	98	13%

Table 2 Descriptive information for all scales

Variable	<i>N</i>	Mean	Standard deviation	Minimum	Maximum
Psychological and behavioral finance constructs					
Financial biases	1,058	2.13	0.48	1	3.75
Inertia	1,002	1.27	0.40	1	2.5
Retirement income self-efficacy	1,142	4.39	1.03	1	6
Advisor usefulness	969	3.32	1.41	1	6
Numeracy	1,025	5.25	1.64	0	8
Numeracy self-awareness	1,025	0.18	0.27	-0.75	0.96
Portfolio loss aversion	1,020	0.38	0.26	0	1
Retirement income concerns					
Lifestyle	1,209	3.90	0.94	1	6
Longevity	1,175	2.63	1.30	1	6
Liquidity	1,174	3.91	1.03	1	6
Investment behaviors					
Dividend Agnosticism	1,008	4.10	1.29	1	6
Non-forecasting versus forecasting	1,157	4.67	1.07	1	6
Retirement outlook					
Nest egg satisfaction	1,016	3.64	1.08	1	5
Retirement income plan anxiety	1,016	2.21	0.73	1	4

3.3. Financial biases and inertia

We created statements reflecting various financial biases. Specifically, we focused on hindsight, gambler's fallacy, affinity, survivorship bias, herd mentality, endowment, and recency heuristics. We presented statements and asked the participant to select the degree to which each of the following statements best represents their opinion. The options were presented as a four-item Likert scale ranging from *strongly disagree* (score of 1) to *strongly agree* (score of 4). For example, one potential question would read: "I have participated in popular investment strategies because I did not want to miss out on the opportunity." The average financial bias score of 2.13. The scale midpoint is 2.5. Participants perceive themselves with slightly below average levels of financial biases. We recognize the potential for a social desirability bias with this question set and discuss it in the results section.

We measure inertia by asking how long it took a participant to act after acknowledging a need for an investment or financial planning adjustment. Categorized responses for both questions ranged from 1 to 5: (1) Less than three months; (2) three to six months; (3) six to 12 months; (4) one to two years; (5) more than two years. The mean inertia score of 1.27 indicates that it takes our participants, on average, a little more than three months to address any needed adjustments to their investments and plans.

We include inertia in our exploratory factor analysis of our financial biases item set since inertia may be influenced by other heuristics. Results in Table 3 indicate that the different financial biases largely present as one overall factor with an Eigenvalue of 7.24. While we expected the various financial biases to present as separate and distinct constructs, the data indicate that the varied biases manifest as a singular construct of overall financial heuristics. Hindsight, affinity, gamblers fallacy, and survivorship biases present with the highest factor loadings in the first column of Table 3. While herd mentality questions are present in the second factor construct, the items detailing this bias has significant cross factor loadings with the first and third factors as well. Inertia did not cross load with the first factor structure and loads separately as its own distinct factor with an Eigenvalue of 1.45. The data indicate that the financial biases present as a single generalized level of psychological noise. The higher the score on their Financial Bias scale, the greater the tendency to rely on heuristics for financial decisions. It is also interesting that our two-item inertia checklist loaded as a separate factor and did not combine within the first factor structure along with the majority of the financial bias items. This supports inertia as a separate construct from the other financial biases.

The final Financial Bias item set is presented in bold. The Financial Bias scale has a Cronbach's α score of .82. With respect to retest, the Pearson correlation coefficient is 0.80 ($p < .0001$). This supports excellent internal reliability and very good consistency between the time periods measured, especially during the emotionally charged time period measured as a result of the COVID pandemic.

3.4. Retirement income Self-Efficacy

While there are self-efficacy scales that measure financial attitudes (Lown, 2011), there is not one addressing the retirement income planning domain. Lown's (2011) six-item scale is

Table 3 Exploratory factor analysis, Cronbach's α , and Pearson correlation coefficient for financial bias scale

		Factor loadings for all items**								
		Factors	1	2	3	4	5	6	7	8
		Eigenvalues	7.24	1.55	1.45	1.38	1.18	1.09	1.05	1.04
Financial biases	Cronbach's coefficient α^* 0.82	Pearson correlation coefficient* 0.8								
Hindsight 2			0.67							
Hindsight 1			0.66							
Hindsight 3			0.64							
Gambler's fallacy 1			0.63							
Affinity 4			0.61							
Gambler's fallacy 4			0.60							
Survivorship bias 2			0.60							
Survivorship bias 3			0.60							
Survivorship bias 1			0.56							
Herd mentality 4			0.56							
Survivorship bias 4			0.55							
Gambler's fallacy 2			0.55							
Affinity 1			0.54							
Endowment 1			0.54							
Affinity 3			0.53							
Herd mentality 1			0.51							
Herd mentality 3			0.51	0.43						
Gambler's fallacy 3			0.43							0.43
Endowment 3			0.43							
Recency 3									0.40	
Endowment 4										
Recency 2										
Herd mentality 2				0.41						
Affinity 2										
Hindsight 4								0.48		
Recency 4								0.44		
Recency 1										
Inertia***					0.65					
Inertia***				0.42	0.62					
Endowment 2										

Note. *Cronbach's α and Pearson correlation coefficients selected for the items in bold. They represent the final questions for each scale. **Only factor loadings greater or equal to 0.40 are presented. ***Used separately for the inertia checklist.

limited to one-item detailing retirement income (i.e., I worry about running out of money in retirement.). Our Retirement Income Self-Efficacy scale further expands the retirement income theme. We model our Retirement Income Self-efficacy scale after Badura's Guide for Constructing Self-Efficacy Scales (Bandura, 2006). Participants were shown statements detailing potential hurdles when implementing a retirement income plan. They were then asked to rate how certain they were in believing they could overcome each situation described. They rated themselves on a six-point Likert scale ranging from *strongly disagree* to *strongly agree*. The mean Self-Efficacy score of 4.39 suggests that most participants felt fairly confident about their ability to implement their retirement income plan. This was

expected since the sample included many participants who have a personal interest in the domain of retirement income planning.

Results from the factor analysis in Table 4 indicate that many questions sort within the first two factors with Eigenvalues of 6.80 and 5.06. The dimension in the first column identifies self-efficacy with statements that addressed both the need to deal with the emotional influence and overall competence of organizing a retirement income plan. An example includes how well someone can resist the temptation to try new solutions due to the fear that their plan is not good enough. The second factor structure introduces how well one can deal with personal issues that may naturally arise as they implement their plan. For example, asking how well someone can deal with an increasing lack of interest in financial matters as they get older reflects this. Statements about dealing with one's eventual cognitive decline also loaded on this second column. Many items touched on all these issues and loaded on both factor structures. Because both of these factors capture an overall sense of retirement income self-efficacy, we chose questions for the final item set that successfully loaded on both columns.

The items in bold represent the final Retirement Income Self-Efficacy items for the scale. The final question set presents a Cronbach's α score of .91. With respect to retest, the Pearson

Table 4 Exploratory factor analysis, Cronbach's α , and Pearson correlation coefficient for Retirement Income Self-Efficacy scale

		Factor loadings for all items**	
		1	2
Factors Eigenvalues		6.80	5.06
Self-Efficacy items	Cronbach's coefficient α^*	Pearson correlation coefficient*	
	0.91	0.71	
6		0.81	
5		0.79	
3		0.72	
9		0.70	
20		0.70	
11		0.69	0.45
18		0.66	0.54
15		0.62	
17		0.61	
8		0.60	0.52
2		0.59	0.46
4		0.58	0.47
10		0.58	0.56
14		0.56	0.55
19		0.49	0.64
12		0.41	0.63
1			
16			0.74
13			0.75
7			0.83

Note. *Cronbach's α and Pearson correlation coefficients selected for the items in bold. They represent the final questions for each scale. **Only factor loadings greater or equal to 0.40 are presented.

correlation coefficient is 0.71 ($p < .0001$). This supports excellent internal reliability and very good consistency between the time periods measured. In addition, as compared with Lown's Financial Self-Efficacy scale, our Retirement Income Scale reports higher levels of reliability (0.91 vs. 0.76) and comparable factor loading scores. Lown's financial self-efficacy scale does not report retest scores among their sample of 726 university employees (Lown, 2011).

3.5. Advisor usefulness

While studies have identified the benefits of working with a financial advisor, a general skepticism remains toward the true benefit of financial advice. Ex ante beliefs of perceived traits and stereotypes are difficult to overcome (Bargh, Chen, & Burrows, 1996). Working with an advisor is related to various planning and behavior activities. These include goal setting, retirement needs planning, investment diversification, retirement account optimization, reserves or contingency funds, behavioral guidance, and increased retirement confidence (Marsden et al., 2011). Hence, a scale measuring the cost effectiveness of these activities with an advisor may be valuable in determining the potential implementation options that retirees are likely choose. For this scale, participants identifying as financial advisors were removed from the data set to avoid any potential conflicts in their answers about the perceived utility of a financial professional.

For each entry, we present opposing statements based on perceived advisor usefulness. We focus on both an advisor's role and their cost effectiveness. Items were presented via a semantic differential method. One statement is on the left and the other on the right. Participants are asked to identify from a six-point scale, situated between both statements, which statement they relate with the most. A sample entry may read:

1. I can readily achieve my financial goals without the assistance of a financial advisor.
2. A financial advisor can readily help me achieve my financial goals.
3. Statement 1 Statement 2

In this example, picking the last circle would reflect a score of 6 and indicates a strong identification with perceiving high advisor usefulness. The average score of 3.32 indicates a slightly below average usefulness score for financial advisors (3.5 is the midpoint).

The results in Table 5 specify a three-factor structure for advisor usefulness with Eigenvalues of 8.24, 3.14, and 2.42 across our proposed questions. The items within the first factor structure provide a description of what an advisor does from a holistic planning perspective. The second factor structure provides the additional component of how an advisor can potentially keep a retiree from making costly mistakes. The third factor structure identifies statements that present the advisor as a superfluous intermediary who is becoming increasingly irrelevant in today's environment. The final item set for the scale, in bold, are taken from the first factor structure because it is the most dominant factor structure and best represents our intended focus of addressing a more complete purview of how an advisor may add value within a client relationship. This factor also reflects the various planning activities that result from working with an advisor (Marsden et al., 2011). Our Advisor Usefulness scale has a Cronbach's α score of 0.96, and a Pearson correlation coefficient of

Table 5 Exploratory factor analysis, Cronbach's α , and Pearson correlation coefficient for advisor usefulness scale

		Factor loadings for all items**			
		Factors	1	2	3
		Eigenvalues	8.24	3.14	2.42
Advisor usefulness	Cronbach's coefficient α^*	Pearson correlation coefficient*			
	0.96	0.65			
11			0.87		
16			0.87		
10			0.86		
8			0.84		
7			0.84		
9			0.84		
13			0.84		
15			0.81		
12			0.72		
4			0.69	0.46	
18			0.68		0.47
14			0.54		0.52
19			0.42		0.45
5			0.42	0.64	
6				0.77	
20					0.56
17					0.68
3				0.80	
2				0.58	0.47
1					0.59

Note. *Cronbach's α and Pearson correlation coefficients selected for the items in bold. They represent the final questions for each scale. **Only factor loadings greater or equal to 0.40 are presented.

0.65 ($p < .0001$). This supports excellent internal reliability and adequate consistency between the time periods measured.

3.6. Numeracy and numeracy Self-Awareness (Dunning Kruger)

We based our numeracy scale on the Weller et al. (2013) numeracy scale. While we maintained the mathematical integrity of each question, we reframed certain questions to reflect a retirement income context. Participants were asked to answer eight questions largely detailing a general understanding of probabilities. Our participants average test score is 66% (5.25/8). As a general measure of perceived numeracy, we asked participants how many of the questions did they think they answered correctly. On average, participants overestimate their scores by 18 percentage points.

3.7. Portfolio loss aversion

To measure a general sense of portfolio loss aversion, we presented respondents with an equal probability gamble between a positive and negative portfolio outcome. After directions were presented, the first question read: Please state whether you would accept the

following options? A 50-50 gamble of your portfolio losing 11% or gaining 35%. As an example; if you had a \$1,000,000 portfolio, would you take a 50-50 gamble of your investment portfolio losing \$110,000 or gaining \$350,000? Questions with a decreasing gain to loss ratio are presented until the respondent responds “no.” The first question presented here represents a 3.18 gain to loss ratio (35% gain vs. 11% loss), and each subsequent question reduced the spread between the gain to loss ratio by roughly 20%. Accepting a lower gain to loss ratio reflects increasing levels of risk tolerance.

Scores were computed by dividing the number of questions completed by the total number of available questions. As an example, a score of 0.17 would indicate that only the most conservative question was answered “yes” ($0.17 = 1/6$). A low score indicates greater loss aversion. The average score was 0.38 indicating that the average gain to loss multiplier was 2.34. This means that the participants need, on average, a gain of 2.34 times the amount of the potential loss to engage in an equal probability bet.

3.8. Retirement income concerns

While the scales above represent our key psychological and behavioral finance variables for analysis, the following variables will also help address how these constructs influence retirement income concerns, investment behaviors, and retirement outlook.

First, we attempt to quantify retirement income goals by measuring the level of concern a respondent feels about achieving a retirement objective. We classify three distinct concerns; Longevity, Lifestyle, and Liquidity objectives. Scales for these retirement concerns were presented via semantic differential with a six-point scale. A high score indicates a greater level of concern.

3.8.1. Longevity

Longevity objectives are centered around addressing the main risk of retirement: outliving your money. Most examples center on financial independence and knowing that you can pay your basic expenses and not be a burden to others. The average Longevity score of 2.63 indicates an overall lower level of longevity concern across our participants.

3.8.2. Lifestyle

Lifestyle objectives focus on maintaining your desired standard of living and enjoying your retirement with more discretionary spending. These goals require you to maximize your spending power. This aspect of retirement planning is about maintaining or improving your current lifestyle, rather than living too conservatively throughout retirement. The average Lifestyle score of 3.90 indicates that achieving lifestyle objectives is an above average concern.

3.8.3. Liquidity

Liquidity objectives involve maintaining enough reserves for unexpected contingencies. Maintaining enough liquidity is especially important for family emergencies, home repairs, and an unexpected death or illness. The average score of 3.91 also indicates that avoiding unforeseen disruptions to a plan is an above average concern.

3.9. Dividend agnosticism

We also consider two different investment behavior scales. While dividend stocks produce income for their shareholders, from an economic perspective, no value is created or destroyed from issuing dividends. The structure of capital is irrelevant. With dividend payouts, the capital just moves from one theoretical pocket to the other. Regardless of this, a significant number of retirees favor a dividend matching approach to retirement income. The industry further facilitates this focus with various “investing for yield” financial products aimed at retirees. We developed a six-item Dividend Agnosticism scale with a semantic differential format. A low score indicates a preference for dividend producing stocks and a high score indicates an indifference for dividend stocks. The average score of 4.1 indicates that most respondents are somewhat agnostic to dividend producing stocks for retirement income.

3.10. Non-Forecasting versus forecasting investment approach

Second, while there are many investment approaches, we wanted to single out the degree to which investors favor a forecasting or non-forecasting investment approach. A forecasting approach usually anticipates either a general market or individual stock movement or both. This is frequently referred to as an active approach to investing. A non-forecasting approach accepts market prices as a best estimate of price. This is usually identified as a passive investment approach. We created a five-item Forecasting versus Non-Forecasting scale (NF) to capture this construct. In the NF scale, forecasting is the low score, and non-forecasting is the high score. The average score of 4.67 indicates that most participants exhibit a non-forecasting approach within their investment strategy.

3.11. Nest egg satisfaction and retirement income plan anxiety

To measure retirement outlook, our participants were presented with the following statements: “I’m where I thought I would be with my retirement nest egg” and “I feel anxious about my retirement income strategy” They were asked to rate their nest egg satisfaction statement on a five-point Likert scale and their retirement income anxiety question on a four-point Likert scale. Responses ranged from *strongly disagree* (low score) to *strongly agree* (high score). Participants average score of 3.64 for nest egg satisfaction indicates a somewhat above average perception of their retirement nest egg. Furthermore, an average score of 2.21 for retirement income plan anxiety indicates a below average apprehension about their retirement income strategy.

4. Results

Results in Table 6 display bivariate correlations between our newly developed scales, retirement income concerns, and investment behaviors. Correlations between these scales

Table 6 Correlation table

	Retirement income self-efficacy	Financial biases	Numeracy	Numeracy self-awareness	Advisor usefulness	Inertia	Portfolio loss aversion
Retirement income self-efficacy							
Financial biases	-0.25****						
Numeracy	0.08*	-0.24****					
Numeracy self-awareness	0.02	0.13****	-0.47****				
Advisor usefulness	-0.43****	0.19****	-0.12****	-0.03			
Inertia	-0.12****	0.11***	0.0	-0.06	0.10**		
Portfolio loss aversion	0.11***	-0.10***	0.11***	0.01	-0.09**	-0.08*	
Longevity concern	-0.44****	0.18****	-0.04	-0.02	0.21****	0.10**	-0.06
Liquidity concern	-0.15****	0.10**	0.05	-0.11***	0.13****	0.08*	-0.08**
Lifestyle concern	0.15****	-0.05	0.09**	-0.01	-0.05	-0.01	0.18****
Dividend agnostic	0.23****	-0.37****	0.21****	-0.09**	-0.20****	-0.01	0.08*
Non-forecasting versus forecasting	0.34****	-0.35****	0.11***	-0.09**	-0.11***	-0.01	0.08**

* $p < .05$ ** $p < .01$ *** $p < .001$ **** $p < .0001$

indicate very good levels of validity as evidenced by the convergent and discriminant relationships in expected directions.

4.1. Psychological and behavioral finance and scales

High levels for the retirement income self-efficacy scale are negatively related to financial biases ($r = -0.25, p < .0001$), inertia ($r = -0.12, p < .0001$), and perceived advisor usefulness ($r = -0.43, p < .0001$) scores. Self-efficacy is positively related to numeracy ($r = 0.08, p < .02$) and loss aversion tolerance ($r = 0.10, p < .0001$).

Financial biases are negatively related to numeracy ($r = -0.24, p < .0001$) and loss aversion tolerance ($r = -0.10, p < .0001$) and positively relate to a lack of numeracy awareness ($r = 0.13, p < .0001$), inertia ($r = 0.11, p < .0001$), and perceived usefulness of an advisor ($r = 0.12, p < .0001$).

High numeracy is related to a lower perceived advisor usefulness ($r = -0.12, p < .0001$) but a higher loss aversion tolerance ($r = 0.11, p < .0001$). There is no observable relationship between numeracy and inertia. However, higher inertia levels are positively related to advisor usefulness ($r = 0.10, p < .0001$) and greater levels of loss aversion ($r = -0.08, p < .05$).

All variables with significant associations are in the expected direction. Self-reported scales, especially those that potentially paint an unfavorable impression of a respondent, carry the risk of a social desirability bias in their responses. It is interesting to note that our self-reported financial bias score is also associated in the expected direction with more objective measures of numeracy, lack of numeracy awareness, and inertia. In addition, socially desirable traits like self-efficacy are also associated with numeracy in the expected direction.

With regards to the numeracy and numeracy awareness, our results support a Dunning-Kruger effect (Kruger & Dunning, 1999). There is a negative relationship between one's level of numeracy and perceived numeracy ($r = -0.47, p < .0001$). The worst one performs on numeracy, the better one thought they performed. Furthermore, Fig. 1 separates numeracy scores and perceived numeracy scores by quartiles. Participants in the first quartile (worst 25%) overestimate their score by 88% while participants the fourth quartile underestimate their score by 7%. The lower the quartile positioning, the greater the overestimation. In contrast, the higher scoring quartile for numeracy slightly underestimate their skill. This underestimation among top quartile performers is also observed in the original investigation of the Dunning-Kruger effect (Kruger & Dunning, 1999).

4.2. Retirement income concerns

Longevity concerns are associated with higher levels of financial biases ($r = 0.18, p < .0001$), inertia ($r = 0.10, p < .01$), the perceived usefulness of an advisor ($r = 0.21, p < .0001$), and significantly lower levels of self-efficacy ($r = -0.44, p < .0001$). While not as strong, liquidity concerns also reflect similar directional relationships to financial biases ($r = 0.10, p < .01$), inertia ($r = 0.08, p < .02$), advisor usefulness ($r = 0.13, p < .0001$), and self-efficacy ($r = -0.15, p < .0001$). Additionally, higher liquidity concerns are associated with

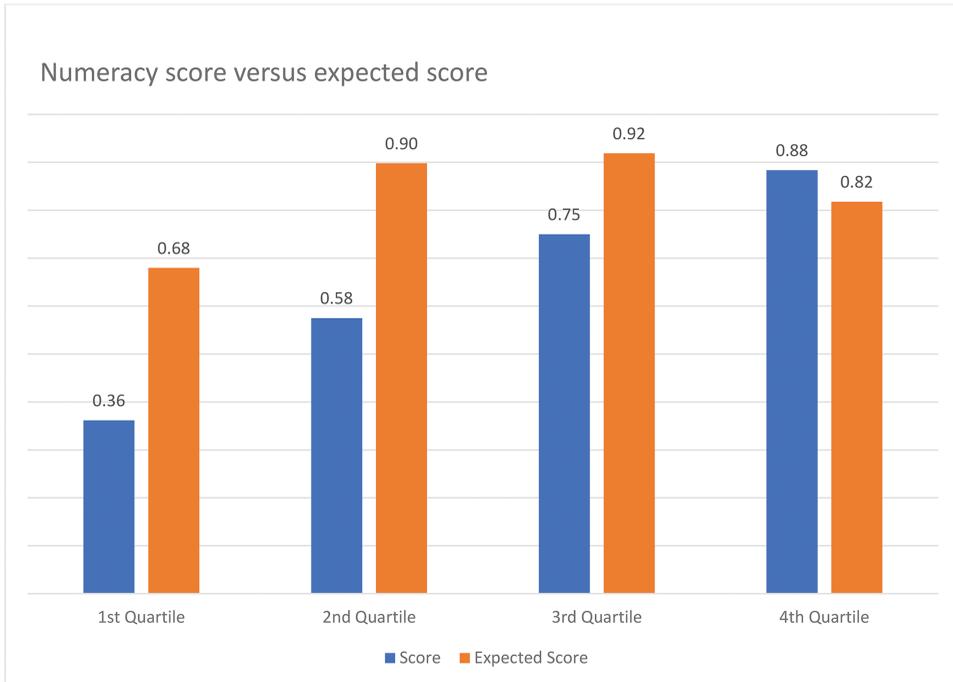


Fig. 1. Numeracy score versus expected score

lower loss aversion tolerance ($r = -0.08, p < .01$). Lifestyle concerns exhibit significant positive associations with self-efficacy ($r = 0.15, p < .0001$), numeracy ($r = 0.09, p < .01$), and loss aversion tolerance ($r = 0.18, p < .0001$).

Results across our scales indicate a hierarchy of retirement income concerns. At a more basic level, the presence of increased financial biases, lower numeracy scores, and lower levels of self-efficacy relate to a greater concern for achieving essential spending needs and accommodating unexpected emergencies during retirement. In addition, higher levels of liquidity concerns reflect greater loss aversion. There may also be a recognition among those with higher longevity and liquidity concerns that a financial professional can help them overcome their personal hurdles and retirement concerns.

In contrast, achieving more discretionary spending goals signals a shift beyond the threshold of longevity and liquidity concerns. While achieving essential spending needs are a requirement for any successful retirement income plan, participants with high levels of lifestyle concerns are not overly anxious about the ability to fulfill their longevity needs ($r = -0.27, p < .0001$). These individuals usually desire spending increases to achieve more lifestyle objectives in retirement. This generally requires a greater exposure to market volatility that is associated with greater levels of self-efficacy, numeracy, and loss aversion tolerance. Higher levels of numeracy self-awareness are related to the need to account for unexpected contingencies.

4.3. Investment behaviors

4.3.1 Dividend agnostic

An indifference toward dividend stocks (high score) for retirement income is associated with greater levels of retirement income self-efficacy ($r = 0.23, p < .0001$), numeracy ($r = 0.20, p < .0001$), and loss aversion tolerance ($r = 0.08, p < .05$). In contrast, a focus on dividends for retirement income (low dividend agnostic score) is related to higher levels of financial biases ($r = -0.37, p < .0001$), perceived advisor usefulness ($r = -0.20, p < .0001$), and lower levels of numeracy self-awareness ($r = -0.09, p < .01$). Those with a higher understanding of numerical concepts exhibit the belief that there is no true economic benefit by focusing on dividend producing stocks for a retirement income plan. Additionally, investors most susceptible to financial biases and lacking numeracy self-awareness may be emphasizing the benefits of dividend stocks for retirement income while minimizing the risk of focusing on a concentrated selection of stocks. A non-dividend focused approach and a non-forecasting investment style ($r = 0.42, p < .0001$) also supports this association.

4.3.2. Non-Forecasting versus Forecasting investment strategy

A high score on the Non-Forecasting versus Forecasting scale indicates a preference for a non-forecasting (passive) investment approach. A low score indicates a preference for forecasting (active). A non-forecasting investing approach is associated with higher levels of retirement income self-efficacy ($r = 0.34, p < .0001$), numeracy ($r = 0.11, p < .001$), and to a lesser extent loss aversion tolerance ($r = 0.08, p < .01$). Participants identifying with a forecasting approach exhibit a higher susceptibility to financial biases ($r = -0.35, p < .0001$) and low numeracy self-awareness ($r = -0.09, p < .01$). While the results are not intended to convey the benefits of one investment approach over another, results indicate that high self-efficacy, numeracy, and portfolio loss aversion tolerance are more salient for participants espousing a greater affinity for a non-forecasting investment approach. While these individuals may have the ability and domain confidence to attempt to identify market mispricing, they may also recognize the inherent difficulty and the potential for chance outcomes in these endeavors. Instead, these participants exhibit a preference to efficiently capture general market returns. Conversely, participants supporting market forecasting preferences are more vulnerable to financial biases; perhaps from the repeated exposures to the vagaries of unpredictable stock market movements. Coupled with a lack of numeracy self-awareness and lower retirement self-efficacy, these participants are more likely to seek professional guidance for help ($r = 0.11, p < .001$).

Overall, correlations indicate that our scales for retirement income self-efficacy, financial bias, numeracy, advisor usefulness, inertia, and portfolio loss aversion present with criterion validity as all relationships were in the expected direction. In addition, these constructs have significant implications in how they are related to each other, retirement income concerns, and investment behaviors that are very impactful to retirement income success. In the next section, we will assess how these variables are related to retirement outlooks and advisor implementation.

Table 7 Regression analysis of psychological and behavioral finance constructs with retirement outlooks

	Nest egg satisfaction	Retirement income strategy anxiousness
Sample	577	577
<i>F</i> value	13.15	12.12
Global <i>F</i> Pr > <i>F</i>	****	****
<i>R</i> ²	0.20	0.19
Intercept		
Estimate	0.12	0.11
Standard error	0.09	0.10
Prob	0.19	0.24
Self-efficacy		
Estimate	0.37	−0.29
Standard error	0.04	0.04
Probability	****	****
Financial biases		
Estimate	−0.01	0.20
Standard error	0.04	0.04
Probability	0.70	****
Inertia		
Estimate	−0.01	0.09
Standard error	0.04	0.04
Probability	0.86	*
Numeracy		
Estimate	−0.03	0.03
Standard error	0.05	0.05
Probability	0.45	0.50
Numeracy awareness		
Estimate	0.01	−0.02
Standard error	0.05	0.05
Probability	0.91	0.68
Portfolio loss aversion		
Estimate	−0.03	0.02
Standard error	0.04	0.04
Probability	0.45	0.69
Advisor usefulness		
Estimate	−0.07	0.02
Standard error	0.04	0.04
Probability	0.10	0.64
Gender		
Estimate	−0.15	−0.14
Standard error	0.10	0.10
Probability	0.15	0.18
Marital status		
Estimate	0.06	−0.09
Standard error	0.12	0.12
Probability	0.59	0.47
Age		
Estimate	0.05	−0.17
Standard error	0.04	0.04
Probability	0.18	****

(continued on next page)

Table 7 (Continued)

	Nest egg satisfaction	Retirement income strategy anxiousness
Net worth		
Estimate	0.17	0.00
Standard error	0.04	0.04
Probability	****	0.90
Gender. Female is the reference variable		
Marital status. Married is the reference variable		

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ **** $p < 0.0001$

4.3.3. Retirement outlook

Table 7 indicates the characteristics associated with the degree to which participants felt that their retirement nest eggs were on track with their expectations and whether they felt anxious about their retirement income strategy. Ordinary least squares regressions with standardized coefficients are used to assess these independent variables with our newly created scales and participant demographic variables, which include gender, marital status, age, and net worth. We find a significant relationship with retirement income self-efficacy (estimate = 0.37, $p < .0001$) and net worth (estimate = 0.17, $p < .0001$) with nest egg satisfaction. The results point out the importance of self-efficacy over other psychological constructs relating to a proxy for retirement satisfaction. Moreover, while net worth is a significant indicator, self-efficacy is more influential (estimates = 0.37 vs. 0.17).

With regard to retirement anxiousness, retirement income self-efficacy (estimate = -0.29 , $p < .0001$), levels of financial biases (estimate = 0.20, $p < .0001$), age (estimate = -0.17 , $p < .0001$), and inertia (estimate = 0.09, $p < .02$) are significant contributors. While self-efficacy is in the expected opposite direction than its relationship to nest egg satisfaction, it is again the largest contributor in the model. Lower self-efficacy suggests a greater the level of retirement anxiousness while holding all other variables constant. Results also indicate that a greater susceptibility to financial heuristics may lead to more anxiety regarding one's retirement income success. Additionally, an inability to execute financial tasks in a timely manner also leads to greater levels of retirement anxiousness. Although net worth is related to nest egg satisfaction, it is not significantly related to retirement anxiousness. Age is the only significant demographic variable. Our younger age cohorts, largely consisting of 40- to late 50-year-olds exhibited more anxiety about their retirement income strategy than those who are already near or into their retirement.

These results continue to provide support for the validity of our scales and their impact on retirement income outlooks. Results also indicate when controlling for demographic variables, these psychological constructs continue to exert a significant influence on one's retirement outlook. Retirement income self-efficacy is the only variable that significantly relates to both nest egg satisfaction and retirement income strategy anxiousness. Maladaptive investment behaviors such as increased financial biases and inertia also relate to increased

levels of retirement income anxiousness. While numeracy, numeracy awareness, portfolio loss aversion tolerance, and perceived advisor usefulness are associated with various investment behaviors and retirement risks, these associations do not manifest when assessing retirement income outlooks at the multivariate level.

4.3.4. Financial implementation style

While we have assessed how behavioral finance and psychological factors affect retirement income beliefs, investment behaviors, and retirement outlook, we want to further analyze their potential influence on financial implementation methods. We utilize logistic regression to examine the degree of influence of our behavioral finance and psychological factors on whether participants are currently in a financial advisory relationship. Results in Table 8 indicate that perceived advisor usefulness (estimate = 0.99, odds ratio [OR] = 2.72, $p < .0001$) is the only significant predictor variable in the model. Holding all other variables constant, for every unit increase in our Perceived Advisor Usefulness scale, the odds of being in an advisory relationship increase by a factor of 2.72 times. Results provide strong support for perceived advisor usefulness as the key indicator of advisor utilization. A higher perceived usefulness of an advisor means that one is more likely to engage in such a relationship.

The perceived level of advisor usefulness can help identify what implementation avenues certain individuals respond to best and tailor approaches to those preferences. The significant results for perceived advisor usefulness do not remove the potential impact of reverse causality (i.e., endogeneity) when choosing to utilize an advisor. However, the inclusion of control variables (i.e., net worth, etc.) in the model to adequately capture their potential influence over the use of an advisor, helps reduce the effects of endogeneity (Rosenbaum & Rubin, 1984). We will discuss this factor further in our conclusions section.

Being able to reliably identify who is most likely to implement a retirement income plan with the assistance of a financial advisor is a significant step forward. Instead of trying to convince skeptical individuals of using an advisor, a better approach may be to identify their preferences for receiving financial advice and provide avenues that maximize those preferences. By facilitating this approach, individuals may be more likely to engage in behaviors that ultimately lead to retirement income success.

Because advisor usefulness is the main determinant for directly working with an advisor and retirement income self-efficacy is a very strong variable throughout this investigation for identifying retirement income beliefs, risks, and investment behaviors, we establish a Financial Implementation Matrix with these factors to help us identify how an investor prefers to implement financial tasks. By placing perceived advisor usefulness on the vertical axis and retirement income self-efficacy on the horizontal axis, we can identify four investor personas that can be aligned with preferred financial implementation approaches. Fig. 2 presents the Financial Implementation Matrix and corresponding personas.

The top left quadrant identifies someone who is below average on perceived financial self-efficacy and high on perceived advisor usefulness. As a result, this person is more likely to have an advisor take the lead role in guiding their retirement plan. A profile score in this quadrant would be indicative of a delegator persona.

Table 8 Logistic regression analysis of psychological and behavioral finance constructs with advisory implementation

	In a current advisory relationship		
Sample	577		
Wald Test (χ^2)	72.39		
Pr > χ^2	<0.0001		
c-statistic	0.75		
Rescaled R^2	0.20		
Intercept			
Estimate	-1.17		
Standard error	0.17		
Probability	<0.0001		
		Wald 95% confidence interval limits	
Self-efficacy			
Odds ratio	1.24	0.99	1.56
Estimate	0.22		
Standard error	0.12		
Probability	0.06		
Financial biases			
Odds ratio	1.13	0.92	1.40
Estimate	0.12		
Standard error	0.11		
Probability	0.24		
Inertia			
Odds ratio	1.04	0.86	1.25
Estimate	0.03		
Standard error	0.09		
Probability	0.72		
Numeracy			
Odds ratio	1.06	0.83	1.36
Estimate	0.06		
Standard error	0.12		
Probability	0.62		
Numeracy awareness			
Odds ratio	1.15	0.91	1.47
Estimate	0.14		
Standard error	0.12		
Probability	0.25		
Portfolio loss aversion			
Odds ratio	1.15	0.93	1.43
Estimate	0.14		
Standard error	0.11		
Probability	0.20		
Advisor usefulness			
Odds ratio	2.72	2.13	3.46
Estimate	1.00		
Standard error	0.12		
Probability	****		
Gender			
Odds ratio	1.19	0.69	2.04
Estimate	0.09		
Standard error	0.14		

(continued on next page)

Table 8 (Continued)

	In a current advisory relationship		
Probability	0.53		
Marital status			
Odds ratio	0.74	0.38	1.44
Estimate	-0.15		
Standard error	0.17		
Probability	0.37		
Age			
Odds ratio	0.92	0.75	1.13
Estimate	-0.08		
Standard error	0.10		
Probability	0.44		
Net worth			
Odds ratio	1.03	0.84	1.25
Estimate	0.03		
Standard error	0.10		
Probability	0.79		

Gender. Female is the reference variable
 Marital status. Married is the reference variable

* $p < 0.05$
 ** $p < 0.01$
 *** $p < 0.001$
 **** $p < 0.0001$

The top right quadrant identifies someone who is high on both self-efficacy and advisor usefulness. This describes someone who feels very confident about their own ability but also appreciates the value of an advisor. This persona enjoys contributing as an active partner with a financial professional. A profile score in this quadrant indicates that they are most likely a collaborator.

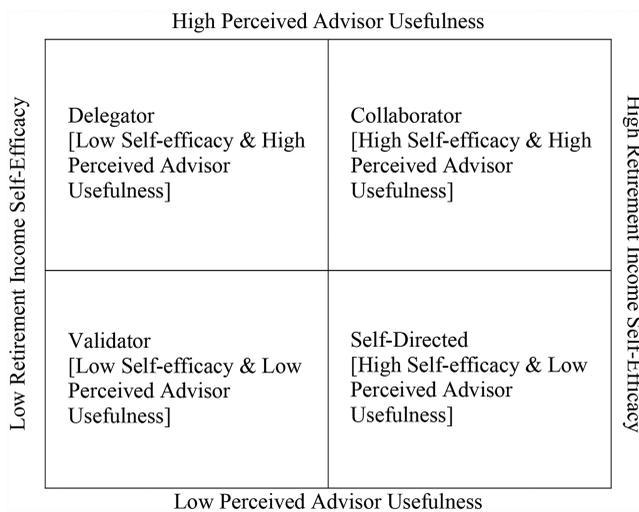


Fig. 2. Financial implementation Matrix

The bottom right quadrant is indicative of someone who is high on financial self-efficacy and low on perceived advisor usefulness. These individuals are confident about their aptitude to create and implement a retirement income plan and do not feel engaging an advisor for assistance is cost effective. This quadrant most likely reflects self-directed investor personas.

The bottom left quadrant identifies someone who is below average on perceived financial self-efficacy and is also low on perceived advisor usefulness. While those in this quadrant do not value an ongoing advisory relationship, their low self-efficacy score leaves open the possibility of seeking specialized guidance for complex financial decisions. Individuals here may seek a second opinion or a one-time consultation plan with an advisor as they continue to implement their strategy. A profile score in this quadrant relates to a validator persona.

Table 9 identifies the frequency breakdown between our four implementation personas and indicates whether these individuals are in a current advisory relationship. We do not include participants identifying as financial professionals in this analysis. Delegators ($n = 332$) and self-directed investors ($n = 331$) each represent 34% of our sample participants ($n = 965$). Collaborators ($n = 179$) and Validators ($n = 123$) represent 19% and 13%, respectively. Both Delegators and Collaborators (36.8% and 46.4%) are significantly more likely to have a current advisory relationship than Validators and Self-directed investors (13% and 10.9%). This is to be expected because the advisor usefulness score represents the vertical axis of the implementation matrix.

This matrix also provides potential insight into the type of financial service model each persona may best identify with. For example, Table 10 provides logistic regression results of the various behavioral finance, psychological, retirement concerns, and demographic variables described in this investigation for each persona type. Because the implementation matrix is based on perceived advisor usefulness and self-efficacy, we did not include these variables in the analysis. We also remove numeracy awareness from this analysis due to its insignificant findings in the previous multivariate analyses, its high association with numeracy, and the inclusion of other retirement income concern variables.

While delegator personas are naturally characterized by low self-efficacy and high advisor usefulness, they exhibit higher levels of longevity concerns (estimate = 0.43, $OR = 1.54$, $p < .001$), more anxiety towards their retirement income strategy (estimate = 0.29, $OR = 1.34$, $p < .01$), and higher levels of financial biases (estimate = 0.30, $OR = 1.34$, $p < .01$). These potential headwinds may be why a delegator persona may be more willing to outsource more financially driven tasks to professionals. Within this type of advisory relationship, an advisor can help address these concerns and biases with a financial plan that focuses on retirement income success and frames the investment process into a more goals-driven outcome. Client meetings with specific themes that address current events within a behavioral finance framework or that contextualize the investment experience may help bring awareness to financial biases.

The global Wald Chi-Square for Collaborators and the various independent variables are not significant (Wald χ^2 19.14, $p < .09$). Collaborators do not reliably exhibit higher or lower levels of the various factors. However, post hoc Bonferroni (Dunn) t tests reveal Collaborators have higher net worth levels than Delegators and Validator personas ($T = 2.65$, $p < .05$ for both). Hence, coupled with higher levels of self-efficacy and perceived advisor usefulness, the desire for collaboration may be due to the realization of the added

Table 9 Frequency of implementation by investor personas

	Delegators		Collaborators	
	Yes	No	Yes	No
In advisor relationship				
Frequency	122	210	83	96
Percent “yes”	36.8	63.3	46.4	53.6
		Validators		Self-directed
In advisor relationship				
Frequency	16	107	36	295
Percent “yes”	13.0	87.0	10.9	89.1
Total sample	965			

Table 10 Logistic regression analysis of psychological and behavioral finance constructs and investor type

	Delegator	Collaborator	Self-directed	Validator
Sample	576	576	576	576
Wald Test (χ^2)	67.47	19.14	73.85	27.99
Pr > χ^2	****	0.09	****	**
c-statistic	0.73	0.63	0.74	0.69
Rescaled R^2	0.19	0.06	0.21	0.10
Intercept				
Estimate	−0.88	−1.44	−0.87	−1.96
Standard error	0.16	0.17	0.17	0.20
Probability	<0.0001	<0.0001	<0.0001	<0.0001
Lifestyle concern				
Odds ratio	1.02	0.93	1.07	0.89
Estimate	0.02	−0.07	0.07	−0.11
Standard error	0.11	0.12	0.10	0.14
Probability	0.86	0.54	0.53	0.41
Longevity concern				
Odds ratio	1.54	0.85	0.53	1.37
Estimate	0.43	−0.17	−0.64	0.31
Standard error	0.12	0.14	0.14	0.15
Probability	***	0.25	****	*
Liquidity concern				
Odds ratio	1.18	0.98	0.95	0.86
Estimate	0.17	−0.03	−0.05	−0.15
Standard error	0.11	0.13	0.11	0.15
Probability	0.14	0.84	0.65	0.33
Retirement income anxiety				
Odds ratio	1.34	0.78	0.82	1.30
Estimate	0.29	−0.25	−0.20	0.26
Standard error	0.11	0.13	0.11	0.15
Probability	**	*	0.06	0.08
Financial biases				
Odds ratio	1.34	1.13	0.79	0.83
Estimate	0.30	0.12	−0.24	−0.19
Standard error	0.11	0.12	0.10	0.14
Probability	**	0.31	*	0.17
Inertia				
Odds ratio	1.14	1.05	0.75	1.09
Estimate	0.13	0.05	−0.29	0.08
Standard error	0.09	0.11	0.10	0.12
Probability	0.15	0.62	**	0.48
Numeracy				
Odds ratio	0.99	1.00	1.12	0.86
Estimate	−0.01	0.00	0.11	−0.15
Standard error	0.10	0.12	0.10	0.14
Probability	0.90	0.98	0.29	0.28
Portfolio loss aversion tolerance				
Odds ratio	0.96	0.97	1.21	0.75
Estimate	−0.05	−0.03	0.19	−0.29
Standard error	0.11	0.12	0.10	0.15
Probability	0.67	0.78	0.07	*
Gender				
Odds ratio	0.73	1.14	1.00	1.35

(continued on next page)

Table 10 (Continued)

	Delegator	Collaborator	Self-directed	Validator
Estimate	−0.15	0.06	0.00	0.15
Standard error	0.12	0.16	0.13	0.17
Probability	0.22	0.68	0.99	0.38
Marital status				
Odds ratio	0.70	1.63	0.62	1.84
Estimate	−0.18	0.25	−0.24	0.31
Standard error	0.16	0.17	0.16	0.19
Probability	0.27	0.16	0.13	0.10
Age				
Odds ratio	1.19	0.95	0.89	0.92
Estimate	0.17	−0.05	−0.12	−0.08
Standard error	0.11	0.13	0.11	0.14
Probability	0.12	0.69	0.27	0.57
Net worth				
Odds ratio	0.99	1.38	0.90	0.81
Estimate	−0.01	0.32	−0.10	−0.21
Standard error	0.10	0.11	0.10	0.14
Probability	0.90	**	0.31	0.14

Gender. Female is the reference variable

Marital status. Married is the reference variable

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

**** $p < 0.0001$

complexities that arise from greater amounts of wealth. While a delegator may appreciate an advisor taking the lead, a collaborator may prefer situations that allow for active input in developing and implementing a retirement income strategy. High levels of communication and providing sound reasoning behind the decision-making process is most appropriate with this persona. In contrast to a delegator that may just want to know the proverbial “time,” the collaborator may also want to know “how the clock is made.”

Diagonally across from delegators, on the implementation matrix, are self-directed investors. While they exhibit a high degree of self-efficacy and low perceived advisor usefulness, self-directed investors also exhibit a significant negative relationship with longevity concerns (estimate = -0.64 , $OR = 0.53$, $p < .0001$), financial biases (estimate = -0.24 , $OR = 0.79$, $p < .05$), and inertia (estimate = -0.29 , $OR = 0.75$, $p < .01$). Longevity concerns and degree of financial biases are in the opposite direction of delegators. In addition, while anxiety regarding their retirement income strategy is not significant at the $p < .05$ level of analysis (estimate = -0.20 , $OR = 0.82$, $p < .06$), it was also trending in the opposite direction as delegators.

While a self-directed investor is less likely to utilize an advisor, there are various approaches that can engage and help them with a successful retirement income plan. Because this persona is actively involved in their retirement income plan and has high levels of self-efficacy, it is important that they have access to unbiased educational materials that convey the practical application of retirement income strategies. With the rise of financial

technologies, many automated advisory offerings are readily available for investments. In addition, online financial planning offers could also address the specific retirement income problems facing investors.

Lastly, validators exhibit a significant positive relationship to longevity concerns (estimate = 0.31, $OR = 1.37$, $p < .05$), and a negative relationship to portfolio loss aversion tolerance (estimate = -0.29 , $OR = 0.75$, $p < .05$). While they do not view an ongoing advisor relationship as cost effective, their low levels of self-efficacy may lead them to seek the reassurance from an advisor in the form of a second opinion regarding the above-mentioned concerns. To provide the appropriate assistance for these individuals, advisors may need to give serious consideration to expanding their service offering to include a planning services as a stand-alone offer and not bundled with asset management.

Ultimately, the Financial Implementation Matrix is an effective way to determine what type of approach can best assist with implementing a retirement income plan. This is a more optimal approach than attempting to convince every investor that they should engage in an ongoing advisory relationship with asset management as its primary revenue source. Entry level offerings may also provide a stepping-stone into higher level service models as individuals learn first-hand about the complexities of developing and implementing a retirement income plan.

5. Conclusion

We quantify retirement income self-efficacy, financial biases, numeracy, numeracy self-awareness, inertia, and perceived advisor usefulness and create scales for these constructs specific to retirement income. In addition, we show how these scales relate to each other and more traditional measures, such as loss aversion, to further provide significant levels of construct validity. We find these scales to significantly relate to retirement income concerns such as longevity, lifestyle, and liquidity. Moreover, investment behaviors such as a preference for dividend stocks and investment approach are related to these constructs. One's retirement nest egg satisfaction and anxiety levels towards their retirement income strategy is also shown to be related to many of these factors. Overall, results indicate significant levels of criterion validity for the newly developed scales. And finally, we create four investment personas with our advisor usefulness and retirement income self-efficacy scales to successfully identify preferred financial implementation methods.

The implications for this investigation affect both individuals and financial professionals. Individuals can readily recognize their relative strengths and weaknesses when implementing a retirement income strategy. By clearly pointing out potential weak spots, an individual can take the necessary steps to fill in the needed gaps. For example, individuals low in numeracy can strive to attain a higher level of competence for retirement income success or can seek professional help. If they are lacking perceived self-awareness regarding their numeracy, this may serve as a wake-up call for them to temper their perceived expertise and to embrace a more receptive attitude towards individuals with more experience and knowledge in the subject matter. A high financial bias score may indicate the areas in which individuals are more susceptible to maladaptive behaviors. This information can also help them

focus on their strengths to successfully implement a retirement income plan. For example, an individual who may have an average numeracy score but is very self-aware of this may be more willing to embrace advice from third parties in a productive manner.

For a financial professional, the ability to present advice in a manner that resonates with an individual is paramount to a successful relationship. More importantly, it will help them follow through with their retirement income plan. For example, assessing individual levels of self-efficacy, numeracy, numeracy self-awareness, financial biases, inertia, and perceived advisor usefulness will help an advisor better understand their client and the relationship dynamic that is most likely to be more engaging. Having greater levels of insight into whether a client understands what is presented to them and how likely they will be candid about their comprehension is beneficial to assuring adherence to a plan. If an advisor has a sense of a client's numeracy and self-awareness, they can tailor investment presentations and recommendations in a productive manner. If an advisor knows how a client may be interpreting the investment landscape and current events, the advisor may be able to reach out and discuss these issues before the client potentially infers conclusions that are suboptimal to their plan. If an advisor has a sense of how timely a client implements advice, then the advisor can present next steps for a plan in a more digestible manner. And finally, an advisor can identify a relationship dynamic that will increase client satisfaction. A delegator and a collaborator need a different cadence with their advisor for the relationship to be productive. In addition, a validator and self-directed investor may need different options that do not require an ongoing professional relationship.

While this investigation significantly enhances our understanding of retirement income beliefs and retirement outcomes, no research is without limitations. Because our convenience sample largely consists of individuals interested and well-read in retirement income and possess greater levels of net worth than the larger population, further testing should be considered with a more diverse population. In addition, to address the potential issue of reverse causality for the Advisor Usefulness score, future investigations can address this beyond the use of control variables in the investigation, as we have, by utilizing a propensity score (Rosenbaum & Rubin, 1984). The propensity score methodology adjusts for this potential bias.

Ultimately, individuals and advisors should recognize how these factors affect the successful implementation of a retirement income plan. One can then be more aware of how to focus on individual strengths and weaknesses. Future studies should also continue to explore how various investor personas and implementation strategies can be individualized with greater levels of specificity to productively engage in a successful retirement plan implementation.

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Mutual fund knowledge assessment for policy and decision problems

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Abstract

We develop a measure of mutual fund investment knowledge that complements existing financial literacy measures. Our question battery was administered to 3,444 survey respondents. We validate the index with factor analysis identifying two latent components, and descriptive regressions demonstrating the additive value of our index beyond general financial literacy in explaining variation in financial well-being, investment ownership, and fee calculation proficiency. Despite mutual funds' importance in household savings, our index suggests that the public lacks adequate understanding of them. We demonstrate the utility of our index for studying selected decision and policy problems. © 2022 Academy of Financial Services. All rights reserved.

JEL classification: G53 (Household Finance: Financial Literacy); G11 (Portfolio Choice; Investment Decisions)

Keywords: Financial literacy; mutual funds; Investor decision-making; Measurement; Human capital; Knowledge; Exchange-traded funds (ETFs)

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1. Introduction

Mutual funds are extremely important to household investment portfolios, potentially providing well-diversified investment management options for most investors, and serving as the main investment vehicle in retirement and educational savings accounts.¹ With the transition to defined contribution retirement plans well underway, nearly 80% of investors hold employer-sponsored retirement plans, putting the onus of investment management largely on individuals themselves. The majority of these individuals report ownership of mutual funds and exchange traded funds (ETFs)—with more investors reporting ownership of funds than stocks and bonds combined; some estimates suggest that the number of individual mutual fund shareholders was 99.5 million in 2018 (ICI, 2010, 2018).²

Although mutual funds are often targeted towards individual investors, their complexity may be an obstacle that inhibits investor choice. To better understand the precise knowledge gaps that may lead to potential investor decision pitfalls, we develop an easily deployable and respondent-friendly battery of 11 true-false technical mutual fund questions that allows us to measure respondent knowledge of key concepts important to investment decision making. Our battery is the result of extensive input from extant literature, financial regulators, a close reading of the mandated disclosure documents intended to communicate important product features to investors, substantial cognitive interviewing, multiple rounds of testing, and considerable data analysis following standard practice in index development (in particular, see DeVellis, 2016). Administration is comprised of a set of progressively more complicated technical questions that seek to test knowledge of basic concepts such as risk, fees, regulatory protections, marketplace characteristics and performance. We field the battery on a large, nationally representative, probability-based panel, allowing us to provide a broad perspective on U.S. households. To summarize respondent knowledge, we use these individual questions to construct a simple index that well-encapsulates the level of technical mutual fund knowledge of the investing public.

We believe our index is highly useful in the context of regulatory policy and academic work on investor decision making. Policymakers have an interest in making sure mutual fund products work as intended so that investors achieve their investment goals, with investor protection one of the main goals of the U.S. Securities and Exchange Commission (SEC), the body that regulates mutual funds.³ Regulators operationalize policies that advance this goal with rules limiting or prohibiting certain activity and (perhaps most importantly) by mandating disclosures that provide transparency about decision-relevant features such as fees and risks, which can facilitate informed investor decision making.³ The interrelated nature of financial knowledge and disclosure is highlighted by U. S. Securities & Exchange Commission (2012), a SEC staff report on financial literacy mandated by Congress as part of the Dodd-Frank Act; the report notes troubling disparities in knowledge, particularly in selected demographic groups, but also responds at length to specific Congressional mandates to probe into highly related issues in disclosure.

In a disclosure-centric regulatory regime, the burden of choosing investments ultimately falls on the investor. Disclosure of information about a particular product does not mean that investors can understand the concepts, understand their implications or make appropriate investment choices. Such conceptual gaps may forestall potential investors from investing

leaving them unprepared for important goals such as college or retirement, but for those that do invest, a knowledge gap related to important technical specifics may result in choices that have real consequences for a household's balance sheet. For example, an investor that follows conventional wisdom by investing \$100,000 in one of the lowest priced S&P index funds ("Fund A") with returns averaging 7% per year would pay approximately \$1,300 in fees over 20 years, and would have a final balance of approximately \$385,000. But an investor that *makes a single mistake* in their purchase decision by selecting one of the higher priced S&P index funds ("Fund B")—a mistake that could arise by simply picking the more expensive option from a broker's menu of funds—would pay approximately \$80,000 in fees over the same period and end up with less than \$240,000. The consequences of fees are well known to professionals, policymakers, and academics, but it is important to ask: how widely known is this to the public who may not be as experienced or knowledgeable?⁵ Moreover, what other misconceptions do they hold about mutual funds that could lead to other costly mistakes? Identifying these deficiencies may help in developing more targeted interventions to complement broad financial education initiatives.

In the context of investor decision making, our index complements existing measures of general financial knowledge that have been associated with a broad range of economic outcomes. A large body of evidence has elevated attention to financial knowledge and its implications for various financial outcomes (Lusardi, 2019, 2012, 2008; Lusardi & Mitchell, 2014; Lusardi, Mitchell, & Curto, 2014; van Rooij, Lusardi, & Alessie, 2011), such as wealth accumulation, debt management, general financial management, and uptake of financial advice (Scholl & Hung, 2018). Typical measures of financial literacy attempt to glean knowledge of general economic principles, which may make them helpful for understanding such concerns as overall well-being and asset accumulation, but these measures may be insufficiently specialized for the policy-making context of financial market regulators. For example, the useful and widely accepted three-question financial literacy questions advanced by Lusardi and Mitchell (Lusardi & Mitchell, 2014, 2008) tests literacy in terms of questions on purchasing power and inflation, risk, and interest compounding. In extended versions of this standard battery (Lusardi, 2008; Lin et al., 2019; van Rooij, Lusardi, & Alessie, 2011), further developments and refinements of these fundamental measurement concepts are made to examine the knowledge of increasingly complex principles of economics, finance, and investment.

Yet, in the \$145,000 investment mistake illustrated above, the knowledge gap that leads to this investor decision-making error relates to technical features of funds and the market for funds, rather than general economic knowledge. Leading up to this "asset selection decision" between Fund A and B based on an evaluation of the characteristics of the funds, an individual presumably has previously made the decision to invest in securities ("participation decision") and determined that a particular asset class such as mutual funds are right for them ("asset class selection decision"). Of the Lusardi-Mitchell Big 5 general financial literacy questions, the most directly relevant to the context of mutual fund investments is a true-false question that asks: "buying a single company's stock usually provides a safer return than a stock mutual fund?" This question seems directly related to the asset class selection decision and perhaps the participation decision, but less directly related to the asset selection decision in which the investor evaluates the merits of features of funds. To make a reasonable asset selection choice, the investor may need to be aware of facts such as: that

differences in fees exist; that the expense ratio does not necessarily reflect all fees such as commissions or loads; that fees compound over time much like interest; and where to find information about fees. Moreover, the investor is often only presented with a single fund, and may need to evaluate such a fund in reference to an unknown set of alternatives; if they are presented with Fund B, they may need to engage in costly search to identify a better alternative (as in Hortaçsu & Syverson, 2004). A lack of knowledge about the potential to find alternatives may forestall search, possibly because they do not know that cheaper, nearly identical alternatives exist. For securities regulators, the asset selection decision is arguably the most relevant to policy levers given that disclosures tend to contain information relevant to investment selection and management decisions rather than participation decisions.

These concerns motivated us to develop an index that more specifically focuses on technical knowledge geared towards asset selection decisions that are most relevant in the policy and research contexts we study. Technical knowledge of investment products would seem a prerequisite to good investor decision making—after all, if an investor does not understand fees, where they may be hidden, or how to identify them in the disclosures, they ultimately may not even know the choice dimensions on which they should be optimizing. The focus on technical knowledge recognizes that disclosures are typically written by securities attorneys with specialized knowledge of the subject matter, and are often intended for multiple audiences: from mutual fund experts to ordinary investors with limited investment experience. Over time, much criticism has been levied at disclosures that are not informative for retail investors.⁶

Our broad view is that general financial literacy may be informative about respondent inclusion of mutual funds in their portfolios, but believe our measure of knowledge may provide additional insight on the respondent's ability to distinguish between products in the marketplace. It is households' propensity for making technical mistakes in mutual fund choice decisions that we attempt to assess in our measure of knowledge; arguably, such propensities should be of interest to policymakers and researchers interested in promoting better investor decision making. Ultimately, the relative value of any measure of knowledge in a particular context is an empirical question that we study in this article; here, we provide extensive evidence that demonstrates the utility of our knowledge index.

Regrettably, the picture we paint about mutual fund knowledge in the population is somewhat bleak. Overall knowledge scores are quite low with many respondents performing far worse than if they had guessed randomly in responding to the questions. These results are disheartening: most of the concepts that form a potential basis for informed decision making, and have been mandated for inclusion in disclosures, are not broadly understood. Our findings call into question the sufficiency of existing disclosures as a vehicle for providing decision-relevant information to investors, and also raise questions about the adequacy of relying on disclosure alone as such a prominent method of promoting investor protection. The results also challenge the notion that financial education on its own has been sufficient to equip most individuals with the knowledge and skills needed to successfully manage their own investments: either that education has been insufficiently widespread, or its efficacy may be limited; whatever the reason, we do not find a sufficient level of pass-through from education to decision-relevant knowledge at the population-level. These results are particularly troubling especially in light of the importance of mutual funds to education and savings (Scholl & Hung, 2018). Moreover, while fees are widely considered among the most

important and controllable feature on which to make choices, see, for example, (Barber et al., 2005; Choi et al., 2010; Carhart, 1997; SEC Office of Investor Education and Advocacy 2016), virtually every subgroup we have examined has demonstrated extremely poor performance on fee questions.⁶ Our analysis demonstrates the potential of our knowledge index to serve as a measurement tool to explain a host of household financial concerns including investment participation (i.e., ownership of investment accounts and/or financial securities), financial well-being, and fee computation skill. Other emergent work has also demonstrated the utility of the measure in other contexts (e.g., Chin, Scholl, & VanEpps, 2021; Scholl, 2020).

This article proceeds as follows: Section 2 provides a comprehensive review of relevant literature; Section 3 describes the individual items and methodology; Section 4 provides a synopsis of item and cumulative results; Section 5 discusses index development and validation; Section 6 concludes.

2. Literature

Our article speaks to the literature on financial literacy, and to a lesser extent financial education, policy work on the role of financial capability and education in promoting better investment outcomes, and broader literature on financial decision making. Financial literacy has been associated with a wide array of economic outcomes such as debt management, wealth accumulation, financial vulnerability, and a host of other economic outcomes in the United States and other countries (Lusardi, 2008, 2012, 2019; Lusardi & Mitchell, 2014; Lusardi & Tufano, 2009, 2015; Lusardi, Mitchell, & Curto, 2014; van Rooij, Lusardi, & Alessie, 2011). In these studies, literacy is measured by the number of correct responses to a set of survey questions, with by far the most widely accepted being the standard set developed as the Lusardi-Mitchell “e” or the “Big 5” (Lusardi & Mitchell, 2014, 2011; Lusardi & Mitchell, 2008). Other work has extended these standard questions (e.g., Lin et al., 2019; Lusardi, 2008), while other approaches to measurement of financial literacy are surveyed in Elan (2011). These studies overwhelmingly find that higher levels of financial literacy are associated with more favorable financial and economic outcomes (while also providing important tools for measurement of knowledge within the population). Rather than using survey measures, Calvet, Campbell, and Sodini (2007) measure the related concept of financial sophistication, backing out an index of sophistication from identifiable mistakes in observed household portfolio choices using Swedish administrative data, although that approach requires data that is largely unavailable for most populations.

Meta-analyses that have altogether examined hundreds of studies on the topic have demonstrated mixed conclusions as to the importance of financial literacy and financial education programs (Fernandes et al., 2014; Kaiser & Menkhoff, 2017, 2020). The topics remain of sustained interest, with a recent special issue of the *Economics of Education Review* providing a wealth of articles examining related issues in financial literacy and education (including Davoli & Rodríguez-Planas, 2020; Kaiser & Menkhoff, 2020; Lusardi et al., 2020; Urban et al., 2020). Hastings, Madrian, and Skimmyhorn (2013) outline a number of issues and raise a number of outstanding questions related to financial literacy, including the

very goals related to research and education. Beshears et al. (2018) provide an extensive review of this literature in behavioral household finance. They conclude that while the literature has demonstrated the potential effectiveness of financial education and information interventions, they express some skepticism in relation to cost-effectiveness. While these are extensive contributions to the debate on topics of financial education, it is important to note that we do not take a perspective in this article on financial education per se nor its efficacy: we view our article as focusing on measurement that can help explain behavior in certain decision and policy contexts.

While mutual fund products are extremely important to household investment portfolios (Scholl & Hung, 2018), specific knowledge of mutual fund features has apparently received far less attention than overall financial literacy. Muller and Turner (2021) examine knowledge in the context of the “high-fee puzzle,” or the selection of strictly dominated funds. They find that while three quarters of their sample correctly answer common financial literacy questions, only a third could correctly answer questions related to quantifying fees. Kahraman (2021) examines investor mistakes in the context of purchasing inappropriate (and more expensive than necessary) share classes for mutual funds, leading to real consequences for investors. The author presents evidence to suggest that the selection of these inferior share classes is a form of exploitation of investors by professionals. In addition, the author examines fee-flow sensitivity and holding periods to test whether fund flows suggest rational or naïve purchase of these funds, concluding that these are naïve purchases.

Other recent work has examined additional barriers to investment decision making, in the context of the language used to describe funds. Chin, Scholl, and VanEpps (2021) study linguistic barriers to understanding mutual fund fees. They conduct two studies that suggest that terminology often used is unintuitive for respondents, and that a simple set of alternative terms they test leads respondents to higher rates of identifying the true underlying fee concept. Scholl, Silverman, and Enriquez (2020, 2021), examine prospectus readability and other textual features using natural language processing and machine learning techniques, and relate these features to ex-post fund performance. Readability calculated using structural features of prospectus sentences; this concept is distinct from comprehension of the underlying concepts, which could require expert knowledge. One descriptive fact that they document is that readability of fund disclosures is extremely low. Less than one percentage of fund summary prospectus documents are as readable as a U.S.A. Today article, while roughly three-quarters are less readable than the U.S. tax code. The majority of these documents are at college reading levels and above. deHaan et al. (2021) provide evidence that highlights the potential for intentional obfuscation in terms of narrative complexity and the structural complexity of the securities instrument.

The only study of which we are aware that specifically attempts to profile specific knowledge of mutual funds products is Alexander, Jones, and Nigro (1998) that was conducted during a very different investing environment. That article focuses on the sources of information that investors use and the differences in knowledge based on the purchase channels investors use. The authors concluded based on survey results conducted a quarter of a century ago that there is much room for improvement in investor’s knowledge levels; they also survey an earlier literature that documents some common misconceptions of investors such as that mutual funds sold through a bank are backed by FDIC insurance. Our work builds off

some of the key features identified in Alexander, Jones, and Nigro (1998), while delving into a broader set of mutual fund features, and formalizing an index. Moreover, our knowledge index design and our survey methodology are quite distinct in several important dimensions. Our sample is a general population sample, which includes both individuals residing in mutual fund owning households as well as those that reside in households that do not own mutual funds that were the focus of Alexander et al. (1998).⁸ This sample distinction allows for us to document initial observations related to our interest in participation in the market (although a more detailed study of participation barriers in connection to knowledge deserves a separate treatment).

Our intention is that our work is informative in the context of literature on investor choice and decision making, and lays the groundwork for further decomposing aspects of decision making. A relatively large body of literature has emerged along these lines in recent decades relating largely to deviations from rationality or a lack of information by investors (e.g., see observational studies by Barber et al. [2005], Elton et al. [2011]; as well as work using behavioral experiments such as Beshears et al. [2011], Choi et al. [2010]; and also the extensive review in Beshears et al. [2011]). In a related study, Müller and Weber (2010) construct a financial literacy measure, and look at participation and choice decisions in selected mutual fund markets. They note there is a positive relationship between their literacy measure and the likelihood of investing in active funds (that they argue are worse than passive management alternatives); nevertheless, despite the fact that literacy matters, it alone cannot explain the historical growth of active management. Overall, they find only weak evidence that investors that performed well on their measure had superior fund selection skills. Scholl (2020) examines decision making in the presence of choice set complexity in a large-scale experiment in which subjects complete an allocation problem from a menu of S&P 500 index mutual funds. That study directly uses an early version of the mutual fund knowledge index we examine here. Scores on our index demonstrated strong separation and well ordering of subjects in terms of their overall performance on the investment task (where fee minimization is a strictly dominating strategy). Other forthcoming behavioral research using allocation experiments by Scholl and coauthors also demonstrate the utility of our mutual fund knowledge index in other contexts, such as in the classification of investor types described in Chin, Scholl, and VanEpps (2021). The importance of the knowledge we test is highlighted in Bhattacharya et al. (2017), who decomposed investor decision mistakes with respect to ETF investments into “poor timing” and “poor selection”—the latter accounting for 1.69% loss per annum in investor returns; our index directly tests knowledge that could plausibly help investors avoid such selection mistakes.

3. Method

3.1. Data collection

Data from 3,444 respondents were collected over three waves of data collection (over a 10-month period) using the AmeriSpeak Panel (AS), a probability-based, nationally representative U.S. panel.⁹ Respondents were incentivized for participation in each wave of the

Table 1 Demographic characteristics, by group

Demographic characteristics, by group Index item	Panel A: Total Pop total		Panel B: General financial literacy		Panel C: Validation variable breakdowns		
			Low literacy	High literacy	Investors	Calculated fee question correctly	FWB Q3+
Gender (male)	55.75%		33.78%	64.42%	56.25%	66.08%	58.54%
Age							
18-29	4.27%		6.76%	4.00%	4.20%	4.24%	3.33%
30-44	25.26%		35.14%	22.23%	25.49%	27.18%	11.92%
45-59	29.38%		28.38%	28.79%	29.29%	27.43%	20.62%
60+	41.09%		29.73%	44.98%	41.02%	41.15%	64.12%
Race/ethnicity							
White non-Hispanic	83.42%		63.51%	85.40%	83.87%	83.42%	88.40%
African American non-Hispanic	3.75%		12.16%	2.70%	3.73%	3.37%	2.90%
Hispanic	4.76%		12.16%	3.86%	4.63%	3.24%	3.11%
Other	8.07%		12.16%	8.05%	7.76%	9.98%	5.59%
Education							
No high school diploma	1.10%		5.41%	0.33%	0.77%	0.50%	0.43%
High school graduate or equivalent	7.93%		17.57%	4.33%	6.56%	3.99%	4.94%
Some college	27.18%		44.59%	22.42%	25.42%	19.83%	21.91%
BA or above	63.79%		32.43%	72.93%	67.24%	75.69%	72.72%
Income							
Less than \$35,000	16.06%		33.78%	11.12%	11.20%	10.35%	5.80%
\$35,000-\$59,999	17.57%		22.97%	16.19%	16.83%	14.46%	11.28%
\$60,000-\$99,999	29.88%		20.27%	30.56%	31.59%	29.55%	32.65%
\$100,000 or more	36.50%		22.97%	42.14%	40.39%	45.64%	50.27%
Net worth							
In debt	12.22%		22.97%	8.88%	9.80%	8.10%	2.58%
Zero	9.70%		29.73%	6.37%	8.23%	5.61%	2.26%
Greater than zero	78.08%		47.30%	84.74%	81.97%	86.28%	95.17%
Fee calculation (Correct)	23.29%		13.51%	29.72%	24.83%	100.00%	27.39%
Financial Well-being (Q3+)	27.03%		14.86%	31.91%	29.52%	31.80%	100.00%
Financial literacy score (M)	2.48		2.53	3.00	2.53	2.73	2.66
N	3,444		74	2,150	3,001	802	931

Notes: "Low literacy" group answered no Lusardi-Mitchell Big 3 questions correctly, "high literacy" group answered three questions correctly. FWB Q3+ are respondents that were in the third and fourth quartile of FWB. FWB = CFPB's Financial Well-Being.

study via points redeemable for consumer goods, gift card, or cash of approximately \$10. Average survey length for each wave was 21–26 min, although our knowledge index only required a few minutes to complete. Several aspects of the AS panel contribute to data quality when investigating household finances. Panelists are recruited with an enhanced address-based sampling frame that increases coverage of U.S. households to over 97%, increasing rural enumeration. Internet-phone mixed-mode data collection accommodates households without internet access.¹⁰ Table 1 presents the demographics of the sample as a whole, and by subcategories used in index validation. By intention, we oversampled likely mutual fund investors in our initial recruitment; as such, the sample reported here is older and more educated than the U.S. population.¹¹

3.2. Mutual fund literacy item identification

We developed a set of true/false items based on a careful review of existing work in the areas of general financial literacy (e.g., Lusardi, 2008; Lusardi & Mitchell, 2014), investment literacy (e.g., Forbes & Kara, 2010), and mutual fund investment knowledge (specifically, Alexander, Jones, & Nigro, 1998). Our question areas were designed to test respondent technical knowledge on key features of mutual funds. More specifically, they were designed to elicit technical knowledge of key choice features (most notably, risks and fees) that we identified as helpful to an investor in the context of mutual fund selection problems. We believe that individuals lacking knowledge of these attributes would be impaired in investment decision-making situations. We favored this technical knowledge approach over a more generalized set of economic concepts that are typically found in financial literacy batteries.

Once identified, items were then refined with extensive expert input from individuals with highly specialized knowledge and experience regarding regulation, financial education, investor advocacy, in the context of both the technical features of the funds and the regulatory tools that regulators apply to mutual fund products. Some of these individuals were intimately familiar with financial literacy issues and programs as they are viewed and implemented by regulators, while others had experience in disclosure review and/or the writing of disclosure rules and regulations. An investor advocate entity that promotes pro-investor policies with regulators also provided an important perspective. We refined the questions so that they would identify and elicit knowledge gaps that would inhibit investors from utilizing the information contained in disclosures for decision making.

We view the link to mutual fund disclosures, the primary method of information exchange on investment options, as extremely important. Our article focuses on technical knowledge that relates to feature concepts or applications that may inhibit investors from making use of disclosed information for informed decision making. For example, for an investor to pick a mutual fund that avoids a load fee: the individual may need to be aware that a sales charge exists; what services the load pays for and what is the typical range in such charges; know that it must be disclosed in disclosures; understand that the appropriate term is “load”; be able to locate it in disclosures; potentially evaluate the fee as part of a tradeoff vis-à-vis other fees; understand that no-load mutual fund investments exist; distinguish it from alternative “sales” charges (e.g., broker commissions)—that is, know that commissions are not the only

sales charge; and potentially to understand that loads can potentially be applied at both the time of purchase and the time of sale. Without these elements of knowledge—clearly linked to disclosed information and the investor’s interaction with disclosures—the investor may not be able to make an optimal choice. The overriding importance of this linkage between knowledge or literacy and disclosures has not received much attention in the academic literature, but is highlighted by a 2012 SEC Staff report on financial literacy (U.S. Securities and Exchange Commission, 2012), which was undertaken pursuant to a mandate in the Dodd-Frank Act by Congress.

Qualitative research was used extensively during the development process. An initial round of 19 interviews provided early insights that helped us to identify broad deficiencies in misconceptions. These interviews were centered around completion of a specific mutual fund choice task, and revealed large deficiencies in knowledge for certain participants. Later, once themes and the initial structure of question items were identified, we tested them with extensive cognitive interviews in subsequent rounds with a total of 23 participants drawn from a nationally representative probability sample. Such testing helped to refine the phrasing of questions and fielding protocol of the questions (in particular, the need for randomization of placement on a survey instrument). A larger battery of questions was originally considered, including both multiple choice questions and true-false questions on technical features of funds. Additional questions increased difficulty of the overall assessment considerably, and appeared to make interviewees—particularly those with less experience in investment—more reluctant to venture answers to the questions at all. Moreover, While these questions added further richness to our perspectives of respondents, in the end, we determined that a focused battery centering on the true-false questions provided sufficient comfort to the interviewees, sufficient well-ordering in terms of sophistication, and that we had a sufficient number of questions to distinguish between respondents based on sophistication. The interviews also provided insight into dealing with incorrect answers versus question skips.¹² One particular debate that cognitive testing sparked among members of the research team was related to the use of terminology. Our testing revealed that some individuals were so unfamiliar with mutual funds and ETFs that they did not understand the terminology used in our questions such as “loads” or the “expense ratio.” While it can be argued that this unfamiliarity with the terminology creates barriers to answering the questions (as per Chin, Scholl, & VanEpps, 2021), these barriers directly mimic barriers that individuals would face in seeking and choosing among mutual fund investments and are related to the specific knowledge each question is testing. After all, in reading investment disclosures, investors have to do their own translation of technical language. As such, we deemed that preserving such terminology was important in the context of assessing a respondent’s overall knowledge. Naturally, it is possible that individuals that have engaged with the market in terms of key investment decisions in the past will have been more motivated to understand terminology before making a decision. Yet, this learning process would consequentially be captured in our stock measurements of overall investor knowledge in the population—and would analytically present itself in the difference in knowledge levels between investors and non-investors.

In addition to these steps in development, we have utilized the battery in experiment and testing studies with thousands of participants (e.g., Scholl, 2020). The battery has overall been

effective at rank ordering investor sophistication, as well as the propensity of individuals to exhibit a number of decision making and comprehension mistakes in investment settings (e.g., naïve diversification, susceptibility to complexity, and failures to avoid fees). Our final battery identified 11 items in four key areas: market alternatives, risk, performance history, and fees. Questions were true/false, with a “don’t know” response option. These questions (correct answers in parentheses) are as follows, with labels assigned to each question for ease of reference:

Marketplace alternatives category:

1. Financial markets offer thousands of different mutual funds to investors. (TRUE)
(Label: market options)

Risk category:

2. Mutual funds pay a guaranteed rate of return. (FALSE) (“guaranteed return”)
3. It is possible to lose money in a stock mutual fund. (TRUE) (“risk stockfund”)
4. It is possible to lose money in a bond mutual fund. (TRUE) (“risk bondfund”)
5. If a mutual fund is registered with the Securities and Exchange Commission (the SEC) or state securities regulators, you cannot lose money. (FALSE) (“risk regulation”)¹³

Performance history category:

6. A good predictor of the future performance of a mutual fund is its past performance. (FALSE) (“performance history”) Fee category:

7. A no-load mutual fund charges yearly expenses. (TRUE) (“yearly expenses”)
8. A load fee is charged only when the fund is initially purchased. (FALSE) (“load”)
9. Fees and expenses for the mutual fund industry are capped at a maximum level by regulatory authorities. (FALSE) (“fee cap”)
10. Fund fees are required to be reported in the fund’s prospectus document. (TRUE) (“prospectus fees”)
11. The fees or expenses charged by the mutual fund company in a given year can be approximated by multiplying the fund’s net expense ratio by the investment gains for the year. (FALSE) (“fee basis”)

In addition to these four primary categories, questions risk regulation and fee cap implicitly ask respondents for assumptions about regulatory protections. Question prospectus fees connects to disclosure requirements (and the respondent’s familiarity with the prospectus document from which much of a fund’s decision-relevant information can be gleaned). Question performance history also has a direct link to the standard disclosure, sometimes referred to as the mutual fund warning label that is required by the Securities and Exchange Commission on certain performance presentations.

To minimize order effects, we randomized the presentation order of questions on the survey. As much as possible, we endeavored to develop questions that had objectively correct and incorrect answers rather than ones that might be considered situationally dependent. Although the questions have varying degrees of difficulty, few, if any of the questions, can be considered “trick questions.”

Table 2 Item level results, by group

	Panel A: Total		Panel B: General financial literacy			Panel C: Investor status			
	Pop total	SE	Low literacy	High literacy	SE	Investor	Non-investor	SE	
Financial markets offer thousands of different mutual funds to investors.	71.05	0.77	56.76	80.60	0.85	74.11	50.34	0.80	2.38
Mutual funds pay a guaranteed rate of return.	64.23	0.82	21.62	79.16	0.88	68.34	36.34	0.85	2.29
It is possible to lose money in a stock mutual fund.	81.27	0.66	60.81	89.07	0.67	83.51	66.14	0.68	2.25
It is possible to lose money in a bond mutual fund.	55.11	0.85	36.49	64.28	1.03	57.71	37.47	0.90	2.30
If a mutual fund is registered with the SEC or state securities regulators, you cannot lose money.	67.71	0.80	27.03	81.02	0.85	70.84	46.50	0.83	2.37
A good predictor of the future performance of a mutual fund is its past performance.	32.93	0.80	17.57	40.42	1.06	34.96	19.19	0.87	1.87
A no-load mutual fund charges yearly expenses.	24.22	0.73	16.22	30.42	0.99	25.76	13.77	0.80	1.64
A load fee is charged only when the fund is initially purchased.	16.46	0.63	5.41	20.98	0.88	17.79	7.45	0.70	1.25
Fees and expenses for the mutual fund industry are capped at a maximum level by regulatory authorities.	22.82	0.72	9.46	30.37	0.99	24.66	10.38	0.79	1.45
Fund fees are required to be reported in the fund's prospectus document.	59.93	0.84	37.84	72.09	0.97	63.08	38.60	0.88	2.32
The fees or expenses charged by the mutual fund company in a given year can be approximated by multiplying the fund's net expense ratio by the investment gains for the year.	14.37	0.60	1.35	18.88	0.84	15.53	6.55	0.66	1.18
Mean score (average total correct)	5.1		2.9	6.1		5.4	3.3		
N	3444		74	2150		3001	443		

4. Results

4.1. Individual question responses

Table 2 provides the proportion of the sample who responded correctly to each item in the mutual fund index. Considering that most questions for this survey were developed with the intention of reflecting basic properties of mutual funds that should be considered when making investment decisions, the results overall are not encouraging in terms of respondent knowledge. Of the 11 questions we developed, only six were each answered correctly by more than half of respondents. The remaining five questions each had only a third of respondents, or fewer, responding correctly.

The *marketplace options* question aims to determine if respondents are aware that there are many different alternative investment options available to them (and by implication, if they are not happy, they can shop around). Encouragingly, over 71 percent of respondents were aware that financial markets offer thousands of different mutual fund options. Of course, this does not mean that the respondents believe they have the skills to successfully navigate such a diverse choice environment, and in fact, it is conceivable that investors and non-investors may be paralyzed by choice (e.g., see Carvalho & Silverman, 2019, and the somewhat related and Agnew & Szykman, 2005). Concern was reflected in cognitive testing conducted during the refinement of survey questions, where several respondents indicated that choosing funds felt overwhelming (e.g., when making choices related to their employer-sponsored retirement plan). However, these responses at least suggest a realization that alternatives exist and it may be worth additional search in the marketplace if their satisfaction is low with their current investment mix.

In terms of risk, 36% of respondents thought that mutual funds pay a guaranteed rate of return. Almost half thought that it is not possible to lose money in a bond mutual fund (45%), although more than three-quarters (81%) did recognize that one could lose money in a stock mutual fund. In addition, one-third (32%) thought that mutual funds that are registered with the SEC or a state regulator cannot lose money. Overall, these results suggest very little understanding of mutual fund risk.

Despite the warning label offered on mutual fund product documents, nearly two-thirds (67%) indicated that past performance is a good predictor of future performance.¹⁴ The extant literature is not supportive of this view (e.g., Brown & Goetzmann, 1995; Carhart, 1997; Goetzmann & Ibbotson, 1994; Malkiel, 1995).¹⁵

Fee questions were constructed to be slightly more technical than risk questions, with correct responses that may require knowledge that is more specialized to mutual fund products; at the same time, these questions are germane in the context of mutual fund choice problems given the importance of fees in determining net returns. Only a quarter (24%) of respondents correctly stated that no-load mutual funds charge yearly expenses (as would be reflected in the fund's expense ratio), perhaps indicating a lack of understanding of the term load, which refers to a sales charge. Only 16% correctly identified that a load is not confined to the point of purchase ("front-load"), which sales loads ("back-loads") exist. Seventy-eight percent erroneously believed that fees are capped at a maximum level by regulatory authorities. Three-fifths (60%) indicated that fund fees need to be reported in the fund's prospectus.

Perhaps most disheartening is that only 14% correctly identified our conceptual fee computation question as false. The fee computation question was intended to identify if respondents understood that fees are computed based on total account balance rather than on the basis of investment returns. This observation arose in cognitive interviews that revealed that some individuals believed that the fee basis is the much lower level (investment gain) than it actually is in practice (total balance), and the possibility that some investors believe that fees are not accrued if the fund has negative performance in a given period. Respondents overwhelmingly indicated that they implicitly believe that mutual fund fees are much lower than they really are, perhaps giving insight to the Bhattacharya et al. (2017) results.

4.2. Cumulative index scores

Summing correct responses provides a composite score of the extent of a respondent's knowledge about mutual funds, as well as a general perspective on aggregate knowledge of the public. Fig. 1 presents the distribution of index performance as the sum of correct responses. Fig. 2 presents the cumulative distribution of correct responses. Blue vertical lines denote the expected value from coin tossing true-false responses (5.5).

Overall performance in the literacy index is poor. The average respondent score was 5.1, with a median score of 5.0 (Table 2a, Panel A). In Fig. 1, 52.2% of the sample answered less than six questions correctly; 13.2% answered less than two questions correctly. Only 11.3% answered at least nine questions correctly.

Average results in particular groups roughly align with expectations, but highlight additional deficiencies. In Panel B, average scores for those with the highest score on general financial literacy (all three “big 3” questions answered correct) and low general financial literacy (no “big 3” questions answered correctly), align with expectations to a certain degree. The few respondents ($n = 74$) that failed to correctly answer any of the generalized

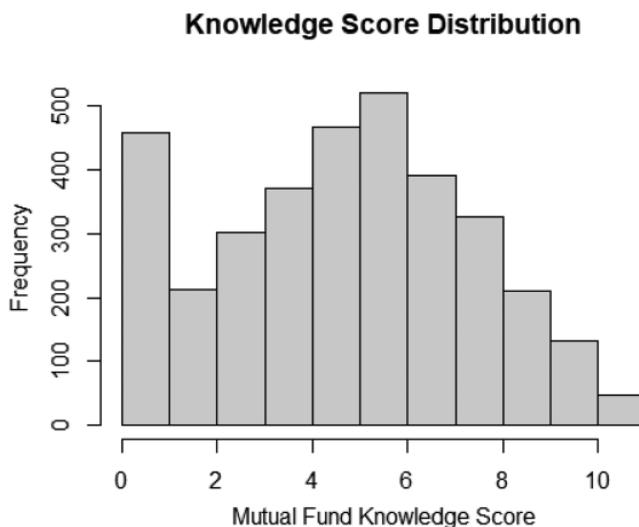


Fig. 1. Mutual fund knowledge score distribution.

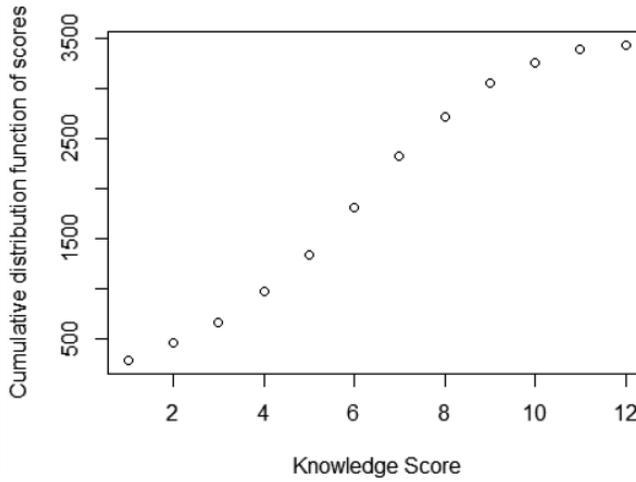


Fig. 2. Cumulative distribution function of scores *Note:* Cumulative number of respondents that scored less than or equal to a given score value.

financial literacy questions correctly, answered less than three mutual fund knowledge questions correctly, on average. High financial literacy score respondents ($n = 2,150$), performed significantly better, with an average of 6.1 questions correct (two-sample t test t -statistic of difference in means is 10.5, with a p -value of 0.00). Yet, the average score of 6.1 questions correct is not impressive. Note that the correlation coefficient between our knowledge score and general financial literacy in the sample is moderate at 0.44.

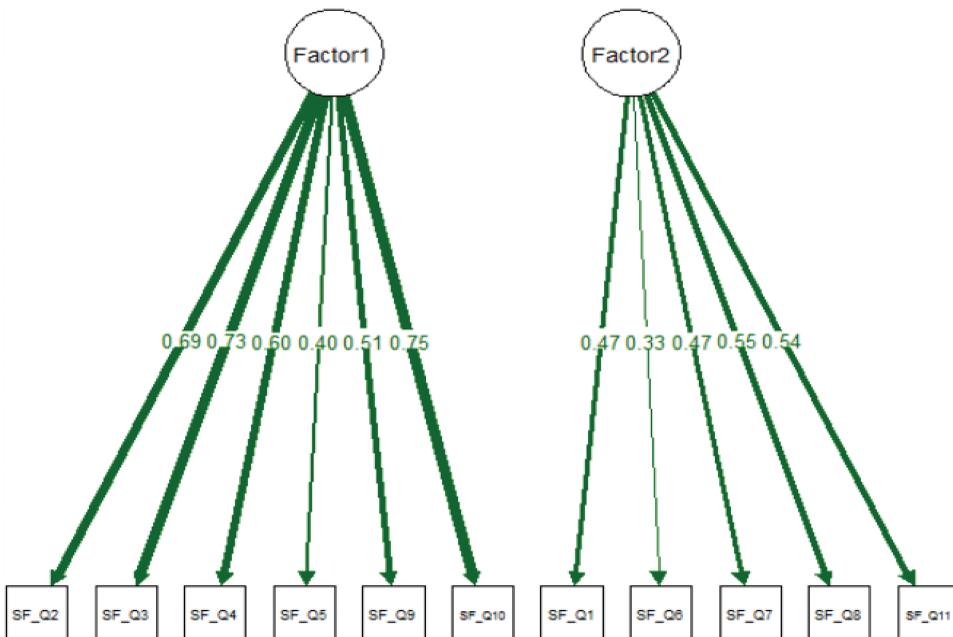


Fig. 3. Factor loadings in a two-factor solution.

Consider the following below:

Annual Operating Expenses	
(expenses that you pay each year as a % of the value of your investment)	
Management Fee	0.20%
Other Expense	1.00%
Fee Waiver	(0.00%)
Total Annual Operating Expenses	1.20%

If you started the year with \$100,000 invested in this mutual fund, and the fund earned 10% during the year so that by the end of the year the mutual fund has \$10,000 in returns, which of the following comes closest to the amount of fees that you would pay to the fund management company during the year?

1. \$0, because the funds fees are only charged when funds are bought or sold
2. About \$13, because the fees are applied to the annual investment gains
3. About \$20, because Other Expenses are rebated at the end of the year
4. About \$100, because Management fees are rebated at the end of the year
5. About \$120, because the fees are applied to annual investment gains
6. About \$800, because fees are calculated as a flat fee ever year regardless of the company's internal expenses.
7. About \$1,320, because the fees are applied to the total value of the assets (**CORRECT RESPONSE**)
8. About \$2,640, because each of the fee categories are summed and then applied to the ending balance
9. About \$3,120, because the fees above are applied to the annual investment gains, but investors also pay standard flat fees for record-keeping.
77. Don't know

Fig. 4. Fee calculation question.

Our survey collected both investor and non-investor responses. On one hand, it may be argued that non-investors are less consequential for determining overall knowledge and excluded from analysis, given that they may not have experience with these products. On the other hand, we view knowledge as a potentially important barrier for participation decisions, so application of the index to this subpopulation is of interest. Nevertheless, the question remains: do non-investors drive the results reported above? The answer from Table 2a (Panel C) is clearly no. Non-investors make up only about 13% of our respondents. While their scores on average are much lower than those for investors (3.3 vs. 5.4; 2-sample t test t -value: 15.2, $p < .001$), this has little effect on the average score previously reported; in short, investors do poorly enough on their own. Similarly, individual item responses for investors are as much as twice as accurate as those for non-investors, but performance on some questions such as fee basis and load were extremely poor even for the more experienced group. About three quarters of the more experienced group answered these questions wrong as compared with nearly ninety percentage of the non-investor group. As with high financial literacy respondents, investors did modestly well on risk questions, but overall tended to do poorly on fee questions.

4.3. Index development

While our 11 question battery was designed to test specific technical knowledge of key features of mutual funds, it is conceivable that the questions are really capturing a smaller set of underlying latent aspects of respondent knowledge. This might make some questions redundant. After all, if a respondent does not know that mutual funds are risky financial investments, they may answer both the risk stockfund and risk bondfund questions incorrectly so that one of these questions might be eliminated.

Following DeVellis (2016), to identify latent components, we conducted factor analysis with the 11 individual items (presented in Fig. 1). To determine the number of factors, or latent variables, present in the data, we investigated both the eigenvalues of factors identified. Following the standard method identified in Kaiser (1960, 1970), factors with eigenvalues greater than one were retained for analysis. Our analysis identified two factors with eigenvalues over 1: one corresponding to the market alternatives and risk categories, and a second corresponding to the performance history and fees categories (see Figure 3). Performance history loaded on to the fees factor, although this was the weakest loading of any item.

We calculated item-total correlations for each item and the total index score and each item with its corresponding total factor score (presented in Table 3). Item-total correlations suggested strong relationships between each of the individual items and the overall index score, with the correlations ranging between 0.44 and .70. The correlation between individual items and their respective factors is quite strong, with a range between 0.59 and .76. These results argue in favor of preserving all 11 items in the index.¹⁶

4.4. Index validation

To demonstrate construct validity, we use descriptive regressions to examine the relationship between the index and selected outcome measures to gain more perspective on the explanatory power of the index (DeVellis, 2016).¹⁷ Results are presented in Table 4. Each outcome we consider has a widening sphere of influence: as a measure of direct application,

Table 3 Item-total and item-factor total correlations

Item	Index total correlation	Factor 1 correlation (market alternatives)	Factor 2 correlation (fees)
2	0.7036	0.7553	
3	0.6259	0.7182	
4	0.6235	0.6898	
5	0.6200	0.6442	
9	0.6693	0.7023	
10	0.7054	0.7686	
1	0.5086		0.6378
6	0.5235		0.6377
7	0.4504		0.5978
8	0.5316		0.6663
11	0.4410		0.6020

Table 4 Descriptive regression estimates

	Fee calculation (1)	Investor (2)	FWB (3)
Mutual fund knowledge (<i>SD</i>)	0.104*** (0.008)	0.053*** (0.006)	0.753*** (0.238)
Financial literacy (<i>SD</i>)	0.021** (0.009)	0.001 (0.007)	0.497* (0.264)
Female	−0.043*** (0.015)	0.022** (0.011)	−0.554 (0.416)
Age 30–44	0.008 (0.036)	−0.037 (0.027)	−4.023*** (1.034)
Age 45–59	−0.046 (0.036)	−0.071*** (0.027)	−4.747*** (1.039)
Age 60+	−0.068* (0.036)	−0.096*** (0.027)	3.060*** (1.026)
High school graduate or equivalent	−0.038 (0.070)	0.064 (0.052)	−4.132** (1.995)
Some college	−0.027 (0.067)	0.089* (0.050)	−3.582* (1.921)
BA or above	0.017 (0.067)	0.124** (0.050)	−1.886 (1.926)
Income (USD 35,000–59,999)	−0.004 (0.024)	0.192*** (0.018)	2.884*** (0.688)
Income (USD 60,000–99,999)	0.012 (0.022)	0.259*** (0.017)	6.591*** (0.632)
Income (USD 100,000+)	0.032 (0.022)	0.273*** (0.017)	8.910*** (0.638)
Black	0.021 (0.037)	0.046* (0.028)	1.372 (1.054)
Hispanic	−0.068** (0.033)	−0.014 (0.024)	−0.729 (0.931)
Race other	0.030 (0.026)	−0.053*** (0.019)	−2.378*** (0.733)
Net Worth (breakeven)	−0.008 (0.030)	0.030 (0.022)	3.056*** (0.850)
Net Worth (positive)	0.036 (0.023)	0.138*** (0.017)	9.510*** (0.647)
Constant	0.233*** (0.076)	0.499*** (0.056)	47.412*** (2.158)
Observations	3,444	3,444	3,444
R^2	0.100	0.198	0.294
Adjusted R^2	0.096	0.194	0.291
Residual <i>SE</i> (<i>df</i> = 3,426)	0.402	0.301	11.490
<i>F</i> Statistic (<i>df</i> = 17; 3,426)	22.438***	49.606***	83.951***

Note: FWB = CFPB's Financial Well-Being.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

we modeled response to a fee calculation skill question (column 1) (see Figure 4); we examined the value of the index in explaining ownership of any financial investments (“Investors”; column 2); as our broadest outcome of interest, we examine the relationship between the index and the CFPB’s Financial Well-Being (FWB) metric (see Consumer Financial Protection Bureau, 2017; column 3). For ease of demonstrating the complementarity between overall financial literacy and mutual fund knowledge, the sum of correct questions for each were normalized. For ease of exposition, outcomes were modeled using a linear probability model (LPM) or ordinary least squares (OLS), as appropriate.¹⁸ Covariates included were: gender, age, education, income, race/ethnicity, net worth, and general financial literacy (see Table 5).

4.5. Fee calculation skill

We presented survey respondents with information showing a hypothetical fund fee presentation, and response options that offered a total fee calculation with a rationale for each response. Respondents were asked to identify the response option that correctly approximated the amount of fees paid to the fund’s management company in a year. We developed this question to eliminate challenges associated with numerical ability, while at the same

Table 5 Specification of co-variates

Co-variate specification
Gender (male, or not)
Age
18–29 (omitted)
30–44
45–59
60+
Race/ethnicity
White non-Hispanic (omitted)
African American non-Hispanic
Hispanic
Other
Education
No high school diploma (omitted)
HS graduate or equivalent
Some college
BA or above
Income
Less than \$35,000 (omitted)
\$35,000–\$59,999
\$60,000–\$99,999
\$100,000 or more
Net worth
In debt (omitted)
Zero
Greater than zero
Fee calculation (correct, or not)
Financial well-being
Top 40% of scores
Financial literacy score (0–3)
Low literacy = 0 correct
High literacy = 3 correct

time requiring knowledge of fee calculation and approximate valuation.¹⁹ Only a single option was correct. This question proximally relates to optimal decision making in mutual fund investment contexts since fees directly affect net fund returns (e.g., see Elton et al., 1993; Elton & Gruber, 2013; Elton et al., 2011; Gruber, 1996). Nevertheless, this question has proved challenging for most respondents; in initial trials, we found that only 20% of survey participants correctly answered this question (Scholl & Fontes, 2019), and in the current survey only 21.6% answered correctly.

Our model suggests that higher scores on our index are associated with correct calculation of the mutual fund fee. A 1 *SD* increase in mutual fund knowledge scores corresponds to an increase in the likelihood of correctly answering the question by 10.4 percentage points (Table 4, column 1). The complementary between our knowledge index and general financial literacy is highlighted by the fact that the coefficient on our knowledge score is strong and significant when general financial literacy and other covariates are included in the regression model. In terms of relative explanatory impact, the coefficient on mutual fund knowledge was roughly five times that of general financial literacy (0.02). The adjusted R^2

for the regression is 0.096, and analysis of variance (ANOVA) analysis suggests that 8.9% of the total sum of squares is explained by mutual fund knowledge, relative to 0.004% explained by variation in general financial literacy (mean squared error of 49.8 vs. 2.3; F -statistic of 308.45 and 14.45, respectively).

These results suggest that the mutual fund knowledge index rank orders respondents by fee calculation skill proficiency, which is highly important in investment decision making. While general financial literacy remains an important factor in predicting a correct response to the fee calculation question, the much larger relationship with mutual fund literacy supports the idea that a specific measure of knowledge related to mutual funds is more relevant to modeling decision making. Furthermore, controlling for other demographic characteristics, only with a perfect score on our knowledge index is an individual more likely to correctly answer our fee calculation question than to get it wrong—only 1.3% of respondents scored this high.

4.6. *Investor status (investor participation)*

If our index is appropriately measuring mutual fund knowledge, we expect to find that higher scores are associated with a higher likelihood of owning financial securities investments. As per Scholl and Hung (2018), mutual funds overwhelmingly dominate the composition of investors' investment holdings. Mutual fund owners are likely to have more experience with the products, resulting in higher knowledge scores, while those with less knowledge may be disinclined to purchase mutual funds. As presented in Table 4 (column 2), a 1 SD increase in our knowledge score is related to a 5.3 percentage point increase in the probability of owning financial investments (p -value < 0.001). Surprisingly, unlike our descriptive model predicting for the fee calculation question, general financial literacy did not explain variation in investor participation. The R^2 for the regression is strong at 0.198. ANOVA results suggest mutual fund knowledge alone explains approximately 7.5% of the variation in participation.

These findings are somewhat surprising in that general financial literacy has been used to explain broad financial outcomes in a variety of contexts and our measure of participation is not simply a measure of ownership of mutual funds or exchange traded funds, but rather of financial investments overall. Results support the idea that while general financial literacy is important in measuring many financial behaviors, a more targeted measure of mutual fund literacy may be important in understanding investment behavior.

4.7. *Financial well-being*

Using the CFPB's FWB score allows us to investigate the relationship between the mutual fund knowledge index and a much broader measure of overall financial wellness. The linkage between mutual fund knowledge and financial well-being is less direct than our prior two outcomes. As in the case of a household's overall net worth, financial investments may only represent a portion of a household's overall financial well-being. Rent and mortgages, debt, a family's employment situation and life circumstances all arguably play a larger role

than financial investments for most families; Consumer Financial Protection Bureau (2017) notes, in particular, that liquid savings provided the biggest differentiation between respondents with different levels of FWB. Nevertheless, our knowledge measures may be a better proxy than other measures for latent knowledge components that are important to overall financial health.

We found a positive relationship between the index score and increased financial well-being. Table 4 column 3 reports that a 1 *SD* increase in our mutual fund knowledge index equates to an increase in FWB of 0.753, and the coefficient is highly significant despite the presence of several other potentially important covariates such as general financial literacy, age, income, and net worth. The point estimate on mutual fund knowledge is somewhat modest given the standard deviation of FWB in our sample is 13.6, but the R^2 for this model is overall 0.29. ANOVA results indicate that the knowledge index alone explains 8.7% of overall variation in FWB, with a mean sum of squares 2.3 times higher than the next most consequential covariate (net worth). Of note, the coefficient on general financial literacy was not quite significant at the 95% confidence level ($p = .06$) in our regression.

4.8. Conclusion and discussion

We developed and deployed an 11-question index of mutual fund knowledge questions that is easy to deliver and has relatively low respondent burden, and fielded the module with a large, nationally representative, address-based probability sample to obtain credible population estimates of mutual fund knowledge. We developed the questions to reflect varying degrees of difficulty in mutual fund subject matter; all questions represented important choice-relevant topics in mutual fund selection and features that regulatory bodies routinely ascribe as important features for the investing public to consider when selecting investments. We refined the index with qualitative interviewing and extensive expert input, factor analysis and descriptive regression validation.

While our results indicate the index is helpful in explaining important overall financial well-being, investor participation, and the highly important fee calculation skill, respondent performance on this battery is worrisome. A substantial fraction of respondents were no more accurate in their responses than if they had guessed at random and many respondents were unable to accurately answer a single true-false question. Our estimates suggest that only the top 11.4 respondents could achieve a score of nine or higher, which we broadly consider a high level of knowledge. Only the top 1.3% of respondents with a perfect score were more likely to correctly answer our fee calculation question than to get it wrong. In the context of the secular shift from defined benefit to defined contribution retirement plans in the United States, mutual funds in principle offer cheap diversification opportunities for most investors. Troublingly, we find that about eighty percentage of our respondents probably do not understand enough about mutual funds to make informed choices.

In the context of regulatory and disclosure efficacy, our index provides context to the realities of the regulatory environment. The regulatory environment puts the onus of investment selection to investors; our battery of questions tests knowledge we identified as crucial to avoiding poor investment selection from the pool of available mutual funds and ETFs. As

discussed, poor selection within this class of investments can have severe consequences for investors.

Even for subgroups one would a priori expect to perform better (e.g., investors and high general financial literacy individuals), knowledge of key fund characteristics is not very robust. While these higher literacy and experience groups performed reasonably well on our market options and risk questions, they performed extremely poorly on questions about fees and the relationship of past and future performance. The limited understanding of fees in particular is perhaps the most worrisome finding in that fees and expenses are widely viewed as perhaps the single most important aspect of the investor's investment decision. It also suggests that financial intermediaries, the educational system, and regulators are not doing enough to prepare people to make decisions crucial to their own well-being; or alternatively, it could indicate that the investment marketplace itself is simply too complex for broad segments of the population to navigate successfully.

Other research, including Scholl (2020) and a related set of experiments, provide evidence that more sophisticated investors have higher mutual fund knowledge (see Chin, Scholl, & VanEpps, 2021). General financial literacy correlates with higher mutual fund knowledge ($\rho = 0.44$), but nearly one-third of high financial literacy individuals still did worse on the question battery than the expected value from answering randomly. This highlights the fact that our knowledge index can serve to supplement general financial literacy measures in selected contexts researchers in understanding decision-making pathologies, and policymakers in terms of assessing population vulnerabilities and checking assumptions about baseline investor knowledge. We believe financial regulatory authorities' disclosure objectives relate to disclosures that help investors make informed investment decisions in investment contexts. Our results suggest that in the context of inhibiting informed decision making by investors, the availability of information may be less important than investors' (in)ability to interpret it.

Notes

- 1 This article will discuss knowledge of properties largely common to mutual funds and Exchange Traded Funds (ETFs). Henceforth; we will simply refer to these as "mutual funds." While there are technical differences between the two (e.g., how they are traded), these differences are of little consequence to our context here).
- 2 Unless otherwise noted, facts described here are documented in (Scholl & Hung, 2018), including facts about ownership of mutual funds and ETFs, account types, and the prevalence of funds in educational and retirement accounts.
- 3 Direct communication with investors is only one purpose for disclosures, and disclosures are vital to helping markets to operate in other ways. For example, they also communicate critical information to financial professionals who may serve as intermediaries for the investors.
- 4 Funds fall into the purview of other regulators in certain contexts. For example, the Department of Labor has jurisdiction over certain types of accounts that typically are comprised of mutual funds and exchange traded funds.

- 5 Gruber (1996), Elton et al. (1993), Elton and Gruber (2013), Elton et al. (2011).
- 6 See, for example, the recommendation of the SEC's Investor Advisory Committee on fee disclosures: <https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-mf-fee-disclosure-041916.pdf>.
- 7 Scholl and Fontes (2019, 2020) provide subgroup analysis in greater depth.
- 8 Alexander, Jones, and Nigro (1998) only sample individuals in mutual fund owning households.
- 9 Technical documentation for AmeriSpeak is available at: <https://amerispeak.norc.org/Documents/Research/AmeriSpeak%20Technical%20Overview%202019%2002%2018.pdf>. A list of publications using AmeriSpeak data can be found at: <https://amerispeak.norc.org/research/Pages/default.aspx>.
- 10 NORC's National Frame is used for the AmeriSpeak Panel, as well as other federal surveys including the Survey of Consumer Finances and the General Social Survey.
- 11 Results presented in this article do not use survey weights that would bring these demographics more in line with the U.S. population.
- 12 The index presented in this article treats skipped questions and incorrect answers as incorrect answers. In previous work, we also constructed a penalty-adjusted version of the score, which penalized incorrect answers. The two scores are highly correlated, with the penalty-adjusted scores providing more separation between subgroups, but are overall highly correlated. Many of the additional questions that were proposed are discussed in Scholl and Fontes (2019).
- 13 As of 1996, states do not technically register mutual funds, but they do collect certain fees associated with mutual fund filings. The intent of this question was to measure whether investors believe that the regulatory environment prevents the loss of money, not to test their knowledge of the specific responsibilities of individual regulators or the division of state/federal roles. This question phrasing was adopted because it was deemed possible that individuals might not know how to distinguish between state and federal powers and roles as they have evolved over time. Testing did not reveal any particular focus on the first clause in the question (example regulators), respondents' attention appeared to have been placed on the second clause (whether or not you "cannot lose money").
- 14 "Past performance does not guarantee future results."
- 15 This result may suggest that mutual fund warning labels are ambiguous, ineffective, ill placed or not understood, but it could also reflect the fact that investors struggle to identify specific characteristics that help determine how a mutual fund will perform and are left to contemplate past performance when no other alternative discernment features present themselves. We leave interpretation to additional research.
- 16 "Don't know" responses are treated as incorrect responses. We used the oblimin rotation (see Clarkson & Jennrich, 1988). Correlation between the two factors was -0.55 .
- 17 See also Joint Research Centre-European Commission (2008) and Consumer Financial Protection Bureau (2017).

- 18 LPM estimates provided for convenience. We also estimated models using logistic regression (not reported); these were nearly identical when marginal probabilities were calculated.
- 19 Additional specifications on the fee calculation question (not presented) controlled for numeracy and survey design effects, but were virtually identical to those reported. We preferred to keep specifications largely consistent across our three outcome variables.

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Do as i tell you, not as i do: financial advisors and personal financial decision-making

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Abstract

We describe the financial behavior of financial advisors and whether they follow the advice they give clients. We focus on the following areas of comprehensive financial planning as they relate to advisor behavior: (1) cash flow, (2) debt, (3) retirement planning, (4) investments, and (5) estate planning. The primary goal is to investigate whether financial planners practice what they preach. A secondary goal is to identify the characteristics associated with the advisors that best plan their own financial lives. We find that financial advisors generally follow their own advice; as a group they are more likely to be prepared for retirement, have less debt, higher liquidity, covered insurance needs, and have an estate plan in place. © 2022 Academy of Financial Services. All rights reserved.

Keywords: Financial advisors; Retirement planning; Investments; Debt; Estate planning

1. Introduction and motivation

The use of financial advisors has been associated with better preparedness for retirement, higher financial confidence, and an increased sense of financial well-being. For example, a 2014 survey conducted by the Insured Retirement Institute claims that baby boomers who use financial advisors are twice as likely to feel confident about their retirement savings as those who do not use an advisor.¹

A strand of literature suggests that financial advisors provide value to their clients with regard to behavioral biases and investments. Shapira and Venezia (2001) analyze investment patterns of clients of a major Israeli brokerage house and compare investment decisions of those making independent decisions to those managed by professionals. They conclude

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professional training and experience may reduce judgmental biases, and that professionally managed accounts are more diversified and less correlated with the market/more profitable than those of independent accounts. Cici, Kempf, and Sorhage (2017) compare the tax-avoidance behavior of investors who operate under the guidance of financial advisors with investors who do not have financial advisors. They document tangible benefits in the form of useful tax-management advisory services to mutual fund investors, helping those investors engage in tax-avoidance strategies such as tax-loss selling. Financial planners also help clients match self-indicated risk tolerance with ownership of investment assets. Park and Yao (2016) suggest that financial planners provide significant value to households on the consistency of their financial risk attitude and behavior.

Park and Yao (2016) find that financial planners provide significant value to households by matching financial risk attitude to actual savings and investments behavior. In addition, professional financial planners can still benefit from a third-party assessment to provide more objective recommendations on personal financial planning or to de-bias behavioral issues. Common behavioral biases include under-diversification, local and home bias, and the disposition effect.² For instance, Seasholes and Zhu (2010) point out that investors who demonstrate local stock bias do not earn superior returns, and. Hoechle et al (2017) find that financial planners help better diversify portfolios and reduce local bias.

At the same time, another strand of literature questions the effectiveness of financial advisors to bring value. This could be explained by the agency problem; the inherent conflict of interest in the advisor-client relationship that makes it hard for the advisor to align her interests with the client. Although advisors should act in the client's best interest, some research questions advisor motivations. For example, Hackethal, Haliassos, and Jappelli (2012) point out that advisors with commission-based incomes prefer to devote time to customers likely to trade on a bigger scale. Mullainathan, Noeth, and Schoar (2012) show that advisors fail to de-bias their clients and often reinforce biases that are in their interests. They also find that advisors encourage return-chasing behavior and push for actively managed funds that have higher fees, even if the client starts with a well-diversified, low-fee portfolio. Hoechle et al. (2017) examine the performance of advised and independent trades by comparing them trade-by-trade with in-person analysis. They conclude financial planners help reduce the behavioral biases to which retail investors are subject, but that advised trades still perform worse than independent trades. Similarly, Chalmers and Reuter (2020) use changes in retirement plans to examine the choice between broker advice and target date funds. They find that brokers recommend higher-commission options and that investors most worried about bear market risk will invest in target date funds when available, with better outcomes than the broker-advised portfolios.

A 2013 survey from the Society of Actuaries shows that 52% of pre-retirees and 44% of retirees consult with a financial advisor.³ Alyousif and Kalenkoski (2017) examine five types of financial advice sought by the general population: debt counseling, saving/investment, mortgage/loans, insurance, and tax planning. They find no significant differences across sub-samples defined by gender, age, and financial literacy and that income and risk tolerance are positively related to demand for financial advice. They also find that low awareness of financial knowledge, perhaps a proxy for self-confidence, and financial fragility decrease the probability of seeking financial advice.

Overall, financial literacy is found to have a significant impact on portfolio diversification and investment outcomes. A high degree of financial literacy increases the usage of financial planning services, although investors who seek advice may not strictly follow guidance and therefore do not improve their portfolio efficiency. Von Gaudecker (2015) examines portfolio diversification and finds a significant relationship between good investment outcomes and financial literacy and/or reliance on professional financial advice. Compared with those groups, households with below-median financial literacy that trust their own decision-making capabilities underperform those who do not. Calcagno and Monticone (2015) analyze the effect of investors' financial literacy on their decision to seek financial advice. They conclude a high degree of financial literacy increases the likelihood that investors consult with financial advisors. Battacharya et al. (2012) use German brokerage data to examine the efficacy of unbiased investment advice. They find investors who most need financial advice are the least likely to obtain it. In addition, their research suggests that the 5% of investors who do seek advice barely follow the advice and do not significantly improve portfolio efficiency.

Financial planners are a group of individuals with a high degree of financial literacy. According to Nofsinger and Varma (2007), who survey over 100 financial planners to assess their reasoning mode, financial planners are more analytical than the general population with regard to intertemporal choices, risk aversion and preferences, and framing focus. However, many financial planning professionals do not have business plans, retirement plans, or successions plans in place, and Doviak (2016) discusses how advisors struggle to cope with emotional stress using behavioral finance.⁴ It is useful to examine whether financial planners handle their personal finances as well as they advise their clients and whether they follow through with execution plans.

This article investigates how advisors make their own financial decisions and whether the advice they give is consistent with their own behavior. We focus on the following areas of comprehensive financial planning as they relate to advisor behavior: (1) cash flow, (2) debt, (3) retirement planning, (4) investments, and (5) estate planning. A secondary goal is to identify characteristics associated with the advisors that plan their own financial lives according to best financial practices.

We examine financial planners' financial decisions with respect to debt and savings, and whether they handle their own personal finances efficiently. In addition, we investigate whether financial planners rely on professional services, such as hiring tax professionals or financial planners. We find that financial planners mostly preach what they practice. As a group, planners are more likely to be prepared for retirement, have less debt, higher liquidity, covered insurance needs, and an estate plan in place. As a result, the general population could benefit financially by hiring planners. These results are consistent with those found by Linnainmaa, Melzer, and Previtero (2021), who examine a sample of financial planners in Canada. They conclude that the personal investments of advisors are similar to client advice, even when the advice may be expensive and inefficient. Dvorak (2015) also finds that advisors' plans are comparable to their clients' plans; they tend to hold identical funds and use the same fund families and fund categories. Outlaw and Outlaw (2017) focus on the investment aspect and compare the advisors' own trading activity with that of their clients. They

find that advisors do their best for the clients, as they do for themselves, but sales incentives may influence the quality of advice.

2. Survey design

We collect information from financial advisors via survey in summer 2018.⁵ Advisors are recruited through targeted Facebook pages (such as XYPN), NAPFA, and FPA. The responses are anonymous and voluntary, with no remuneration. The survey consists of 33 questions, categorized as follows: demographic information, cash flow questions (budget existence and use, emergency savings and consumer debt), insurance questions (need assessment and implementation), estate planning (existence and household preparedness for emergencies), investments (existence and decision-making in terms of time and investment style), taxes (knowledge and preparation), and an overall assessment of the satisfaction with past financial choices.

We obtained 124 complete responses during the summer of 2018, a response rate of 82%. By design, the sample is biased towards planners who do not exclusively charge commissions. Our sample mirrors the overall gender distribution of financial advisors well. Of the respondents, 68% are male and 83% are married, 34% of the respondents are under 34, and 5% are over 65. 88% consider themselves a comprehensive financial advisor and 63% have earned the Certified Financial Planner (CFP) designation.

3. Results

3.1. Descriptive statistics

Table 1 presents descriptive statistics by category. For cash flow, our expectation is that everyone will have a budget, given how consistently this topic is enforced in financial planning. We find that 67% of advisors do have a personal budget, but out of those, despite having a budget in name, 20% do not track or enforce it consistently. Similarly, 67% of U.S. households prepare a monthly budget.⁶ Overall, only 47% of planners elevate their own budget to the same level of responsibility they ask their clients to follow.⁷

In terms of liquidity, 9% of the respondents have less than \$3,000 in liquid assets saved for emergencies, 23% have somewhere between \$3,000-\$10,000, and 23% have more than \$50,000. Although liquidity is an important component of financial planning, we do not have an expectation for an optimal level. Still, the 9% that have less than \$3,000 accessible for emergencies is much less than the typical advice of three to six months of liquid assets. By comparison, 45% of U.S. adults have no savings, and 70% have less than \$1,000 in savings.⁸

As a side note, we ask questions about the ability of partners to find the financial records of their spouse. For example, if a spouse were to die, would the second partner be able to access all the accounts, and know who to call for pension plans and insurance, and so forth?

Table 1 Descriptive statistics

Variables	Mean	Standard deviation	Min	Max	N
Gender	0.6820	0.4672	0	1	123
Budget	0.8644	0.7151	0	2	118
Age	2.3220	1.2529	1	5	124
MarriageStatus	0.8307	0.37658	0	1	124
AdvisorType	0.8065	0.60723	0	1	124
CFPCode	0.6363	0.4830	0	1	121
LiquidAssets	3.3559	1.3173	0	5	118
Income	3.5213	1.3808	1	5	117

Note. Independent variables are as follows: male is equals 1 and otherwise, 0. Budget is represented by a code where 1 identifies advisors who have a personal budget and review is regularly, 2 represents advisors who have a budget but do not review is regularly and 0, advisors who do not have a formal budget for themselves. Age is represented by a code from 1 to 5 where one is less than 35, two is 36–45, three is 46–64, four is 55–64, and five is over 65. MarriageStatus is equal to 1 if married and 0 otherwise. AdvisorType is equal to 1 if the person is a comprehensive financial planner and 0 otherwise. CFPCode is equal to one if the person is a CFP and 0 otherwise. Liquid assets range between 1 to 5, depending on the amount of available assets. One is less than \$3,000, two is between \$3,000–\$10,000, three is \$10,000–\$20,000, four is \$20,000 to \$50,000, and five is more than \$50,000. Income is a range between one and five where one represents less than \$50,000 per year, two represents \$50,000–\$100,000, three represents \$100,000–\$150,000, four represents \$150,000–\$200,000, and five represents more than \$200,000.

Given that one person in the relationship is a financial advisor, we expect the respondents to be able to easily access the information for their spouse. We find that 67% of advisors have a document in place for their spouse's accounts but 10% do not know what is available or where to access files. On the flip side, 54% of respondents have a document in place for their non-advisor spouse, 21% have no formal document but have shared the accounts and accessibility, and 25% have not prepared the information for their spouse. Across older Americans, 32% have not informed their family where to find legal, medical, and financial documents.⁹

We ask advisors to compare the amount of time and effort they spend on their client portfolios compared with time spent on their own portfolios: 56% of advisors spend the same amount of time on their client portfolios as they do on their own, and only 8% spend significantly more time. Interestingly, 35% stated that they spend significantly less time on their own portfolio.

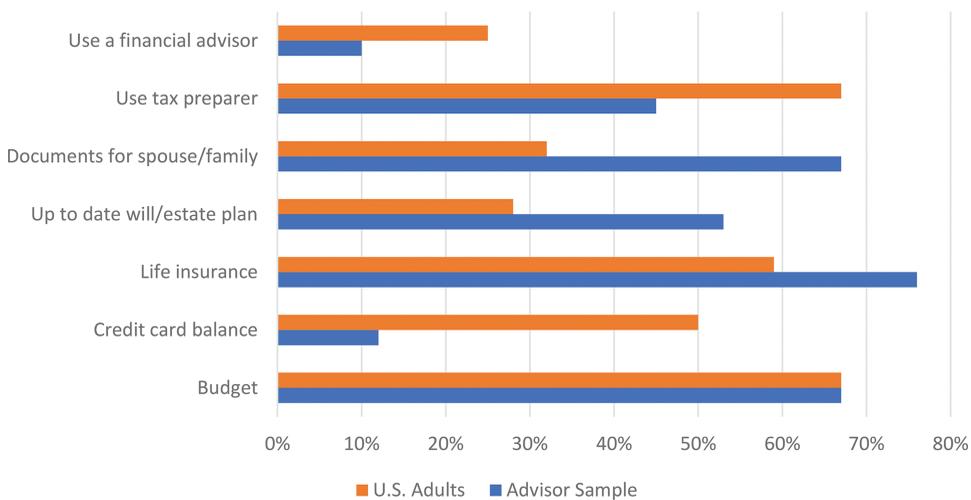
Because financial advisors sell professional services and experience, we also expect advisors to use such services. Even though advisors have the expertise to manage their own finances, adding a neutral, unbiased third party would be very beneficial for the behavioral aspect of money management. To assess this topic, we ask if they (1) prepare their own taxes

and (2) use a financial advisor themselves; 45% of respondents have someone else to do their taxes while 55% prepare their own. Of the advisors who prepare their own taxes, only 33% have a tax qualification like an EA or CPA. By comparison, only 10% of advisors have their own financial advisor. For the general population, 33% file their own taxes and 75% manage their own finances.^{10,11}

We also ask advisors if they had made a financial decision in the past that was different from the advice they dispense to their clients; 50% of the respondents answered yes. The most common mistakes are (1) not avoiding debt, and particularly accumulating credit card debt, (2) having investments they would not include in their clients' portfolios, (3) buying a house with a very low-down payment while on a strict budget (house poor), and (4) cashing out a Roth IRA.

Exhibit 1 Summarizes the Differences in Financial Planning Behavior between Our Sample of Financial Advisors and the General Population

Exhibit 1: Sample of Financial Advisors vs. U.S. Adults



Sources: CNBC, debt.com, GOBankingRates, People Press, Wells Fargo

3.2. Multivariate analysis

Table 2 presents the regression results. The dependent variables are as follows: the existence and enforcement of a budget in Model 1, the amount of liquid assets in Model 2, the assessment of insurance needs in Model 3, the amount of credit card debt in Model 4, and the existence of an estate plan in Model 5. Models 6 and 7 break the existence of an estate plan into questions regarding whether the spouse knows about how to access financial

Table 2 Financial planning

Variables	Model 1 coefficient p-Value	Model 2 coefficient p-Value	Model 3 coefficient p-Value	Model 4 coefficient p-Value	Model 5 coefficient p-Value	Model 6 coefficient p-Value	Model 7 coefficient p-Value
Gender	-0.002 (0.991)	-0.294 (0.332)	-0.315 (0.103)	-0.038 (0.842)	0.192 (0.404)	-0.322 (0.112)	-0.062 (0.720)
Age	-0.127 (0.052)*	0.184 (0.064)*	0.034 (0.687)	0.063 (0.374)	0.318 (0.000)***	0.001 (0.990)	0.026 (0.758)
MarriageStatus	-0.256 (0.292)	0.515 (0.415)	-0.344 (0.401)	-0.384 (0.247)	0.095 (0.840)		
AdvisorType	-0.342 (0.260)	-0.011 (0.978)	-0.305 (0.316)	-0.192 (0.375)	-0.583 (0.115)	-0.868 (0.001)***	-0.582 (0.029)**
CFPCode	0.020 (0.918)	0.432 (0.230)	-0.661 (0.005)***	0.459 (0.047)**	0.088 (0.711)	0.203 (0.014)**	-0.265 (0.169)
LiquidAssets	-0.105 (0.169)		0.092 (0.163)	-0.473 (0.000)***	0.147 (0.116)	0.203 (0.303)	0.119 (0.169)
Income	0.057 (0.382)	0.304 (0.029)**	-0.029 (0.665)	-0.006 (0.929)	-0.017 (0.848)	0.231 (0.785)	0.004 (0.952)
Constant	1.904 (0.000)***	1.431 (0.131)	2.376 (0.000)***	2.328 (0.000)***	1.330 (0.079)*	1.673 (0.010)***	1.853 (0.003)***
Observations	79	79	79	78	79	72	72
Prob > F	0.0489**	0.0010***	0.0066***	0.0000***	0.0002***	0.0023***	0.0363***
R ²	0.1278	0.2345	0.2268	0.4127	0.2698	0.2071	0.1194

Note. The dependent variables are as follows: The existence and enforcement of a budget in model 1, the amount of liquid assets in Model 2, the assessment of insurance needs in Model 3, the amount of credit card debt in Model 4, and the existence of an estate plan in Model 5. Models 6 and 7 break the existence of an estate plan into the questions whether the spouse knows about how to access financial information in case of the advisor's death, and whether the advisor knows how to access the spouse's financial information in case of his or her death.

Independent variables are as follows: male is equals 1 and otherwise, 0. Age is represented by a code from 1 to 5 where one is less than 35, two is 36-45, three is 46-64, four is 55-64, and five is over 65. MarriageStatus is equal to 1 if married and 0 otherwise. AdvisorType is equal to 1 if the person is a comprehensive financial planner and 0 otherwise. CFPCode is equal to one if the person is a CFP and 0 otherwise. Liquid assets range between 1 to 5, depending on the amount of available assets. One is less than \$3,000, two is between \$3,000-\$10,000, three is \$10,000-\$20,000, four is \$20,000 to \$50,000, and five is more than \$50,000. Income is a range between one and five where one represents less than \$50,000 per year, two represents \$50,000-\$100,000, three represents \$100,000-\$150,000, four represents \$150,000-\$200,000, and five represents more than \$200,000.

Table 3 Professional services

Variables	Model 1 coefficient <i>p</i> -Value	Model 2 coefficient <i>p</i> -Value	Model 3 coefficient <i>p</i> -Value
TaxPerson		−2.501 (0.001)***	−0.141 (0.012)**
Gender	0.168 (0.147)	0.351 (0.488)	−0.143 (0.514)
Age	0.013 (0.785)	−0.129 (0.559)	−0.003 (0.886)
MarriageStatus	0.054 (0.792)	−0.338 (0.640)	−0.344 (0.674)
AdvisorType	0.213 (0.149)	0.067 (0.902)	0.126 (0.240)
CFPCode	−0.221 (0.070)*	0.604 (0.311)	−0.007 (0.911)
LiquidAssets	0.089 (0.039)**	−0.547 (0.006)***	0.001 (0.939)
Income	−0.014 (0.768)	0.263 (0.195)	−0.006 (0.767)
Constant	1.264 (0.006)***	6.852 (0.002)***	0.674 (0.733)
Observations	114	111	111
Prob > <i>F</i>	0.0101**	0.0001***	0.3786
<i>R</i> ² / <i>P</i> seudo	0.1286	0.2185	0.971

Note. The dependent variables are as follows: In Model 1, the dependent variable is the amount of time spent on advisor investments compared with client investments. Model 2 explores the tax preparation strategies of advisors and Model 3 explores which advisors have their own financial advisors (where 1 equals having an outside advisor and 0, otherwise).

Independent variables are as follows: TaxPerson equals to one if the advisor is also a CFP or EA and 0 otherwise, Gender is represented by male that equals 1 and otherwise, 0. Age is represented by a code from 1 to 5 where one is less than 35, two is 36–45, three is 46–64, four is 55–64, and five is over 65. MarriageStatus is equal to 1 if married and 0 otherwise. AdvisorType is equal to 1 if the person is a comprehensive financial planner and 0 otherwise. CFPCode is equal to one if the person is a CFP and 0 otherwise. Liquid assets range between 1 to 5, depending on the amount of available assets. One is less than \$3,000, two is between \$3,000–\$10,000, three is \$10,000–\$20,000, four is \$20,000 to \$50,000, and five is more than \$50,000. Income is a range between one and five where one represents less than \$50,000 per year, two represents \$50,000–\$100,000, three represents \$100,000–\$150,000, four represents \$150,000–\$200,000, and five represents more than \$200,000.

information in case of the advisor's death, and whether the advisor knows how to access the spouse's financial information in case of his or her death.

Overall, we find a direct relationship between age and preparedness for retirement. Older advisors are more likely to have higher liquid assets and have an estate plan in place. They are also less likely to follow a budget, which is understandable given the higher resources and experience. Both age and liquidity are associated with higher income.

It is notable that having a CFP designation is less likely to be associated with having assessed the advisor's own insurance needs. This could have two explanations. It is possible that advisors who work in insurance are more likely to buy insurance and those advisors are less likely to have a CFP designation. Or, it is possible that the CFP designees are younger

and do not have the same need for life insurance. This is a point that requires further analysis and investigation.

We are not surprised to find a very strong positive association between age and having an estate plan, but it is surprising to see the relationships when we break the plan into Models 6 and 7. In case of the advisor's death, the spouses who are prepared to take over the financial affairs seamlessly are those who have married a CFP who considers themselves a comprehensive financial planner. This result carries over to the opposite scenario, the untimely death of the non-advisor spouse and the ability of the advisor to be able to access the deceased spouse's accounts. This result is particularly encouraging as it shows that getting comprehensive financial planning could lead to efficiency benefits beyond finances. Advisors who look at the big picture are more likely to have conversations with their clients about such scenarios, and as a result, leave the clients better prepared to deal with unforeseen events.

Table 3 presents the results of more specific questions. In Model 1, the dependent variable is the amount of time spent on advisor investments compared with client investments. Model 2 explores the tax preparation strategies of advisors, and Model 3 explores which advisors have their own financial advisors.

We find that advisors who do not have tax certifications are less likely to do their own taxes. Although these results can be explained, they are still surprising as many advisors do have more tax expertise than the average adult. Additionally, advisors who have more liquid assets are less likely to prepare their own taxes. This might imply that the value of time an advisor puts on his or her own time is more than the time spent on preparing the tax return.

We are not able to draw any conclusions about the use of financial advisors because (1) a small subsample of the advisors uses a third party for their own financial planning, and (2) with a F value of 0.3786, the overall model is not significant. Only 9.64% of respondents identified as having a financial advisor, a number that we suspect is higher than the actual industry representation. Univariate analysis shows that those advisors also tend to have their estate plan in place, have a significant amount of liquid assets, and tend to budget consistently. About half of them are fee-only advisors, and about half have a CFP designation. Their income ranges widely, from less than \$50,000 per year to over \$200,000.

3.3. Additional questions

One of our goals is to gather more information about the type of financial decisions in which advisors' actions diverge from what they tell their clients. As a result, we asked if respondents had ever made personal decisions contrary to advice they give their clients. From the 116 advisors who answered this question, 50% answered yes. We categorized the answers along investment issues, debt issues, and liquidity issues. 51% of the answers referred to investment decisions, 12% can be categorized as a debt issue, 17% revolve around a liquidity issue, and 20% can be categorized as "other."

On the investment side, most of the answers involve higher portfolio risk compared with their clients, with as much as 100% in equity and speculative, bitcoin-type investments.

Many advisors pick individual stocks for themselves while investing their clients' assets only in funds. On the liquidity side, the answers oscillate between not having enough and having too much liquidity compared with client advice. The debt responses involve carrying too much credit card debt as well as cashing Roth IRAs and taking 401k loans to pay off debt. Finally, in the "other" category, the answers range from not buying disability insurance to inadequate college planning for children.

When it comes to debt and liquidity, the most common answers were buying houses with low down payments or on a stretched income, buying expensive "dream" cars, taking on credit card debt, inadequate emergency funds, financing children even at the detriment of their own lives, and avoiding debt even when it makes sense to increase debt. Even though advisors are trained to be able to avoid these mistakes, many still commit them. Clients may ask "why hire an advisor if the person won't follow his or her own advice?" Ross (2013) argues investment advisors should acknowledge their fallibility and uncertainties regarding financial markets to their clients.

3.4. Implications and conclusion

Although very few survey respondents choose to retain a financial advisor, we still strongly believe in the value of financial advice and our recommendation is that the advisors themselves should have their own advisors. There is an enormous psychological component when it comes to dealing with financial choices and having a third party who can offer an independent assessment is invaluable.

Overall, we find that advisors do largely follow their own advice when dealing with their personal finances. Although exceptions exist, as a group they are more likely to be prepared for retirement, have less debt, higher liquidity, covered insurance needs, and an estate plan in place. We suggest that the general population should consider hiring a third-party independent advisor to organize and improve finances.

Our results also point out that the agency problem does not explain advice and behavior of financial advisors. Planners tend to do what they recommend to their clients, and generally follow their own advice. Although much discussion in the financial literature is focused on agency problems and the tensions that exist between conflicts of interest, we do not find support in our analysis. Further study focused on different dimensions of advisor characteristics such as fees, sophistication, and fiduciary status may shed more light on this topic.

Notes

- 1 https://www.myirionline.org/docs/default-source/research/state-of-the-insured-retirement-industry-20149AACCE1232CA.pdf?sfvrsn=8620a8c1_2
- 2 See Goetzmann and Kumar (2008), French and Poterba (1991), Grinblatt and Keloharju (2001), and Odean (1998).
- 3 <https://www.prnewswire.com/news-releases/society-of-actuaries-release-new-survey-report-on-retirement-risks-235014281.html>

- 4 See *Journal of Financial Planning*, 28(12), p. 10 (2015) “Succession: Why Aren’t Planners Planning?” and *Journal of Financial Planning*, 27(2), p. 10 (2014) “Planners Fail to Plan.”
- 5 Survey is available upon request.
- 6 Debt.com 2019 budgeting survey.
- 7 It is important to note that due to omitted variable bias we do not directly compare advisors to the general population; the numbers are presented to put our results in context.
- 8 GOBankingRates 2019 survey.
- 9 https://www08.wellsfargomedia.com/assets/pdf/commercial/retirement-employee-benefits/perspectives/ElderNeedsWhitePaper-IRT_WP_ADA.pdf
- 10 <https://www.people-press.org/2013/04/11/a-third-of-americans-say-they-like-doing-their-income-taxes/>
- 11 CNBC and Acorns 2019 “Invest in You” Savings Survey.

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Financial advisor use, life events, and the relationship with beneficial intentions

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Abstract

This study investigated whether working with a financial advisor and incurring a recent life event were associated with having beneficial financial planning intentions. In a final sample of 953 online survey respondents, no relationship was found between working with a financial advisor and beneficial intentions over the next 12 months. Life events that incurred within the prior year, however, were positively related to beneficial intentions and when interacted with working with an advisor, had a positive moderating effect. These results suggest that planning for difficult life transitions is an important benefit of working with a financial advisor. © 2022 Academy of Financial Services. All rights reserved.

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1. Introduction

According to a recent poll of more than 1,500 Americans, only 30% have a paid financial advisor (Godbout, 2021). Among those who do not have a financial advisor, perceived costs and lack of need were significant deterrents. Yet, 95% of respondents who work with a financial advisor believe the services are well worth the price. The lack of advisor use is surprising given that a large portion of the U.S. population is uneducated regarding fundamental money management matters. According to a survey conducted by the National

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Financial Educators Council (2020), individuals lost, on average, \$1,634 in the prior year due to their lack of knowledge about personal finances.

One possible way to increase advisor use is for industry stakeholders to clearly communicate the advantages of engaging with a highly trained and skilled professional. The literature provides examples of how working with a financial advisor can yield important benefits, although these benefits have largely focused on incremental returns (Kitces, 2016). While important, return generation is only one aspect of the many advantages financial advisors offer. Recently, research has explored various qualitative benefits. These qualitative benefits, include advisors acting in the role of a “money doctor” who encourages clients to follow through on agreed upon action steps (Gennaioli, Shleifer, & Vishny, 2015), or as an “emotional manager” to help clients remain calm during periods of stock market volatility (Prati & Prati, 2009).

One domain that may warrant further research is the role of having beneficial intentions. The study of intentions is important because intentions precede behavior (Ajzen, 1991). In the context of financial planning, intentions are found to be related to various behaviors including online stock trading (Gopi & Ramayah, 2007) and credit card decisions (Xiao et al., 2011). An empirical link between financial advisor use and having beneficial intentions may further refine industry messaging and help convince individual investors to engage with a financial professional.

Asebedo’s (2019) Financial Planning Client Interaction Theory (FPCIT) was used to help guide this study. This framework suggests that each client has a unique set of inputs that determine their ability to obtain certain objectives such as financial stability, goal achievement, and financial satisfaction. These inputs include time, human capital, the financial social environment, and other personal characteristics that comprise the client’s scope of functioning. Similarly, a financial planner also possesses unique inputs, such as experience and knowledge, that comprise their scope of functioning. According to the theory, a client will only engage with a financial planner if it is believed that the relationship will increase the client’s scope of functioning and result in progress toward a particular objective. Working with a financial advisor was, therefore, hypothesized to be positively related to beneficial intentions.

Prochaska and DiClemente’s (1982) Transtheoretical Model of Change was also used to help guide this study. Prior research suggests that incurring major life events results in “consciousness raising” (O’Neill & Xiao, 2012; Rowley, Lown, & Piercy, 2012). This process helps individuals transition from the pre-complementation to the complementation stage of change. This study anticipated that life events incurring within the prior year would have a positive relationship with beneficial financial planning intentions. Further, having a financial advisor was expected to have a positive moderating effect on the relationship between life events and intentions.

An online survey was administered to 1,001 U.S. households in the spring of 2019, resulting in a final sample of 953 respondents. The purpose of this survey was, in part, to determine respondent financial planning intentions over the next 12 months. Surprisingly, no relationship was found between working with a financial advisor and beneficial intentions. Incurring life events within the last year did, however, have a positive relationship with beneficial financial planning intentions. Additionally, having a financial advisors had a positive

moderating effect on the relationship between life events and intentions. These results suggest that helping individuals adjust for life transitions is an important advantage of working with a financial advisor. Industry stakeholders are encouraged to use this study's findings to educate the investing public about the challenges of life events and the assistance financial advisors can provide during these difficult periods.

2. Literature review

Many financial advisors have long provided clients certain services such as a more efficiently allocated portfolio, income tax reduction strategies, and a comprehensive estate plan (Finke, Huston, & Winchester, 2011). While these services remain critically important, the profession appears to be changing in ways that are expanding the depth and breadth of how advisors provide value to their clients. This enhanced value proposition not only provides expertise, but also encourages the necessary behaviors to help clients reach their goals. Incurring major life events has also been linked to new behaviors. These life events may include changing jobs, retirement, marriage, divorce, birth of a child, and death of a spouse. The following literature review discusses the evolving role of financial advisors and how life events have been linked to behavioral changes.

2.1. *The evolving role of financial advisors*

The relationship between financial advisors and clients has traditionally been based upon the transfer of information (Vlaev, Nieboer, Martin, & Dolan, 2015). More recently, however, it has been recognized that advisors not only need to inform clients, but also help clients translate their intentions into actions. The ability to influence clients to take action, provided legal and ethical requirements are satisfied, is an indispensable part of the financial planning process. For example, Plewa, Sweeney, and Michayluk (2014) suggest that in addition to technical expertise, advisors provide the motivation some clients may need to adopt favorable behaviors. Dubofsky and Sussman (2009) suggest that advisors act as a client's mentor and confidant to overcome financial hurdles in life. Prati and Prati (2009) discuss the role of financial advisors as an "emotion manager." In this role, advisors are charged with helping clients stay invested, despite the ups and downs of the financial markets. Bae and Sandager (1997) conclude that knowledge and information alone are not what individuals want from a financial planner, but also, the ability to help clients meet their goals. Gennaioli et al. (2015) refer to financial advisors as "money doctors." Similar to how a trusted doctor would prescribe medical treatment to an unknowledgeable patient, financial advisors help clients implement sound financial strategies. Montmarquette (2015) finds that having a financial advisor for at least four years has a positive and significant impact on financial assets after controlling for close to 50 various factors. Most importantly, the study finds that increases in wealth are not explained by returns alone, but also by increased savings over time.

Industry whitepapers have emerged that attempt to quantify the impact behavioral interventions have on client outcomes. Using a concept called "gamma," Blanchett and Kaplan (2013) estimate that advisors provide an additional return of 1.82% by assisting with

portfolio construction. One component of gamma is to encourage clients to adopt a dynamic, rather than static, withdrawal strategy. This strategy can aid the long-term sustainability of a portfolio, but clients must be reminded and coached to reduce spending during periods of depressed market valuations. A second effort that quantifies the value of behavioral interventions is called Advisor's Alpha (Kinniry et al., 2019). This research estimates the economic benefits of a financial advisor's advice to be as much as 3% per year. Areas of value include asset location and tax savvy withdrawals, however, half of the incremental return is attributable to "behavioral coaching." This benefit is calculated by comparing returns of self-directed investors to target-date investors. The buy-and-hold tendency of the latter led to better returns over time. Kitces (2016) offers a continuum of the potential economic benefits advisors provide to their clients. Although the hardest benefit to measure, the ability for advisors to encourage clients to execute specific recommendations is described as "priceless." The researcher states, "In some cases, a task that is delegated [to an advisor] is simply more likely to be done than the client could do for themselves but realistically will just procrastinate about instead."

2.2. Life events and behavioral changes

While the life cycle hypothesis offers a helpful framework to understand saving behavior over time, not all individuals will follow its prediction of saving during a working career and dissaving during retirement (O'Neill & Brennan, 1997). Life events such as marriage, birth of a child, divorce, retirement, and death of a spouse may cause a deviation from life cycle hypothesis' anticipated behaviors. The literature finds that these life events often serve as a catalyst for people to adopt positive behavioral changes. In a qualitative study involving female focus groups, Rowley et al. (2012) finds that 13 out of 17 participants who experienced a life event planned to make positive financial changes. The life events included divorce, having a child, entering or leaving the school, moving, and entering or leaving the workforce. The researchers note that a life event was not essential to making a positive financial change but was a significant factor in the majority of cases. In a study about experiencing a negative financial shock during the Great Recession, O'Neill and Xiao (2012) find that individuals were more likely to incorporate better saving and budgeting behaviors after the recession compared with before the recession. Palmer, Bhargava, and Hong (2006) conclude that a positive association exists between becoming a widow, being diagnosed with cancer, retiring, and having an increase in assets with executing a will or trust. In a study of college students, Fiksenbaum, Marjanovic, and Greenglass (2017) find a positive relationship between perceived financial threats and positive financial behavioral changes such as working more, spending less, and reducing debt.

In addition to behavioral changes, life events have also been linked to professional help-seeking behavior. Using the 2009 FINRA Financial Capabilities Study, Collins (2012) finds that individuals who experienced a drop in income were more likely to seek professional advice regarding debt, investing, insurance, and tax planning. Letkiewicz, Robinson, and Domian (2016) find that planning to retire within five years and fear of job loss are positively related to seeking help from a financial professional. According to Cummings and

James (2014), becoming a widow(er) and increases in net worth are positively associated with hiring an advisor while getting married is negatively associated with firing an advisor.

3. Conceptual framework and research hypotheses

The first conceptual framework used to guide this study was the Financial Planning Client Interaction Theory (Asebedo, 2019). This theory was formulated to help stakeholders better understand how clients and financial planners derive utility from their relationships. Measuring the impact these relationships have on utility is important to quantify the value financial planners and the industry provide. At its core, the FPCIT is about the unique relationship that exists between a client and financial planner. Absent this relationship, the financial planning process would consist solely of disseminating technical information and executing transactions. A graphical representation of the FPCIT can be found in Fig. 1.

The FPCIT assumes that clients wish to achieve financial stability, financial satisfaction, and personal goals (Asebedo, 2019). Obtaining these objectives leads to higher levels of well-being and overall life satisfaction. The client relies on existing inputs such as time, knowledge, both tangible and intangible human capital, psychological traits, and social environment. These factors, in combination, form the client’s scope of functioning and determine the maximum utility that can be achieved. To realize additional gains, the client can either make the necessary investment to increase their scope of functioning or hire a financial planner who possesses a larger scope of functioning. If a financial planner is engaged, the expectation is that the client or planner interaction will increase the client’s scope of functioning. Clients will maintain the relationship with their financial planner only if the actual gains are greater than what the client believes would be gained if the financial planner is fired or replaced.

The primary reason working with a professional may increase the likelihood of achieving higher utility is because many financial planners possess “advanced inputs” (Asebedo, 2019). For example, while almost all financial professionals receive basic training, financial planners

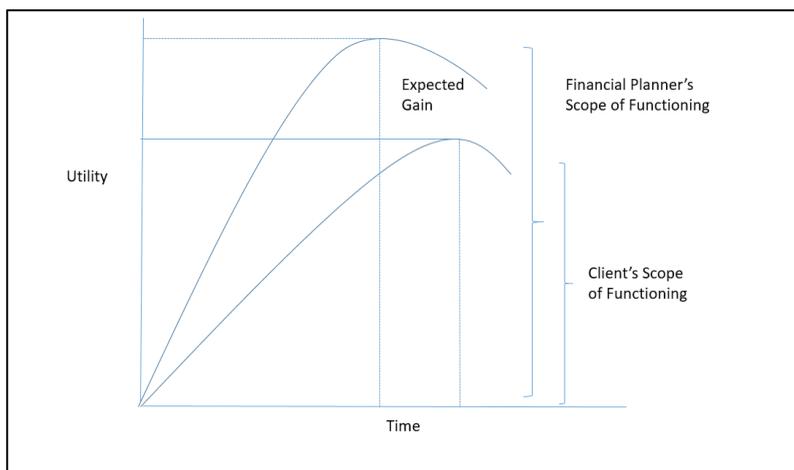


Fig. 1. Financial Planning Client Interaction Theory (Asebedo, 2019).

with a large scope of functioning have many years of experience, obtained specialized certifications, and possess superior relationship building skills. Also, while communicating with clients is a common job function within the industry, financial planners who possess a large scope of functioning may be able to convey highly technical information in ways that resonate with clients and compel desired behavioral changes. Finally, financial planners are more likely than clients to have an extensive network of professionals including CPAs, attorneys, and insurance agents with whom they may consult regarding unique situations.

Based upon the FPCIT, it is expected that respondents who work with an advisor possess a larger scope of functioning. As a result, these respondents are likely more aware of and motivated to address their financial deficiencies compared with respondents who do not work with an advisor. In the context of this study, advised respondents are hypothesized to have beneficial financial planning intentions as they strive toward achieving financial stability, financial satisfaction, and/or specific financial goals. Formally stated, therefore, the first research hypothesis is:

Hypothesis 1: There is a positive relationship between working with a financial advisor and having beneficial financial planning intentions.

One of the challenges facing individuals regarding the adoption of better financial behaviors is their inability or unwillingness to change. Prochaska and Prochaska (1999) suggest “people don’t change because they can’t, don’t want to, don’t know how to, or don’t know what to change.” The second theory used in this study, therefore, was The Transtheoretical Model of Change (Prochaska & DiClemente, 1982). According to the model, people progress through five distinct stages: pre-contemplation (not intending to make changes in the next six months), contemplation (intending to make a change within the next six months), preparation (intending to make a change within the next 30 days), action (made a change less than six months ago), and maintenance (made a change more than six months ago). The model also identifies 10 major processes of change that help people move from one stage to the next.

Between the pre-complementation and contemplation stages is the conscientiousness raising process of change (Prochaska & DiClemente, 1982). Conscientiousness raising means learning about new ideas and concepts that may provide better outcomes. This process provides the necessary insights that help individuals move from not having thought about making a change to being aware of the problem and intending to make a change in the future. Prior research has hypothesized that the financial implications of life events leads to a raised conscientiousness, helping individuals progress to the complementation stage of change (O’Neill & Xiao, 2012; Rowley et al., 2012). The second hypothesis, therefore, is:

Hypothesis 2: There is a positive relationship between life events and beneficial financial planning intentions.

Separately, both working with a financial advisor and incurring a life event are expected to have a positive relationship with beneficial intentions. The relationship should be even more pronounced when these factors are combined. It is anticipated, therefore, that having a financial advisor will have a positive moderating effect on the relationship between incurring a recent life event and beneficial intentions. A moderator is defined as a variable that effects the direction and/or strength of the relationship between two variables (Baron & Kenny, 1986). If working with a financial advisor has a positive moderating effect on the

relationship between life events and beneficial intentions, the relationship will be stronger for advised respondents compared with unadvised respondents. Formally stated, therefore, the third hypothesis is:

Hypothesis 3: The relationship between incurring recent life events and beneficial financial planning intentions is moderated by working with a financial advisor.

4. Method

4.1. Data

An online survey instrument was completed by 1,001 U.S. households ages 18 and older during the period of March 25 through March 29, 2019. The survey was administrated by ENGINE Insights, a global market research and business intelligence firm. Janus Henderson Investors, a global asset manager, was the financial sponsor of the survey. While the primary purpose of the survey was to understand respondent expectations and planned actions regarding their most recent federal income tax filing, the survey did contain additional items including whether the respondent works with a financial advisor, incurred a recent life event, and intends to change various financial planning behaviors over the following 12-month period.

The survey used a nonprobability quota system to ensure a nationally representative sample. Among the 1,001 respondents who completed the survey, 48 declined to provide their investable assets. Because this group represented less than 5% of the sample, these respondents were dropped from the analysis. The final sample was 953. A review of this study's demographics found similarities with the 2019 Survey of Consumer Finances (Board of Governors of the Federal Reserve System, 2020) regarding the distribution of age, education attainment, race, homeownership, income, and financial assets. The survey instrument is provided in the Appendix.

4.2. Dependent variable

The dependent variable used to test the research hypothesis was created based upon responses to the following question, "What changes do you plan for 2019 regarding tax and financial planning? [Select as many as apply]." Responses included change my withholding, change my quarterly payments, contribute more to a retirement account, donate more to charity, invest more tax efficiently, pay down debt, establish an emergency fund, reevaluate my insurance policies, and none of these. The total number of responses for each respondent were summed and a continuous variable was created.

4.3. Variables of interest

The first variable of interest was a binary variable created from the question, "Do you work with a financial planner or financial advisor?" The binary variable was coded as '1'

works with an advisor, ‘0’ otherwise. The second variable of interest was created from the question, “Did any of the following life events occur in 2018 that may have had an impact on your taxes?” The choices were got married, got a divorce, had a child, bought a house, earned a promotion, lost a job, moved, child started college, other, and none of these. The total number of responses for each respondent were summed and a continuous variable was created.

4.4. Control variables

A number of demographic questions were included in the survey such as gender, age, marital status, education attainment, employment status, income, investable assets, ethnicity, home ownership, and whether children under age 18 live at home. All demographic variables were coded as categorical variables.

4.5. Empirical model

To test the research hypothesis, an ordinary least squares (OLS) regression was performed. This analysis is appropriate when the dependent variable is a continuous variable (Ott & Longnecker, 2004). For the first model, let y = the number of beneficial financial planning intentions:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 w_i + \beta_3 z_i + \epsilon$$

where x is whether the respondent works with an advisor, w is the number of life events incurred in the last year and z is a vector of control variables. For the second model, let y = the number of beneficial financial planning intentions:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 w_i + \beta_3 x_1 w_i + \beta_4 z_i + \epsilon$$

where x is whether the respondent works with an advisor, w is the number of life events incurred in the last year, xw is the interaction term of whether the respondent works with an advisor and the number of life events incurred in the past year, and z is a vector of control variables.

5. Results

5.1. Descriptive results

An analysis of the data collected by the survey instrument is found in Tables 1, 2, and 3. Table 1 displays the number of intentions per respondent. Approximately 35% of respondents had no financial intentions planned over the next 12 months, 36% had one financial planning intention, and 16% had two financial planning intentions. Approximately 12% of respondents indicated that they had three or more financial planning intentions. The mean

Table 1 Number of intentions per respondent

Number of Intentions	Total Sample (%) <i>n</i> = 953	Advisor-Yes (%) <i>n</i> = 181	Advisor-No (%) <i>n</i> = 772
0	35.47	26.52	37.56
1	36.31	37.57	36.01
2	15.74	18.23	15.16
3	8.08	13.81	6.74
4	3.46	2.76	3.63
5	0.42	0.55	0.39
6	0.31	0.00	0.39
7	0.10	0.55	0.00
8	0.10	0.00	0.13
Mean	1.11	1.33	1.06

number of intentions was 1.11. An interesting observation from Table 1 is a lower percentage of respondents who work with an advisor had no intentions (27%) compared with respondents who do not work with an advisor (38%). Similarly, respondents who work with an advisor had a higher mean number of intentions (1.33) compared with respondents who do not work with an advisor (1.06).

Table 2 displays the types of intentions selected by respondents. Among the sample, the three most cited intentions were to reduce debt (34%), save for retirement (18%), and establish an emergency fund (17%). A higher percentage of respondents who work with an advisor intended to save for retirement (23% vs. 17%), change tax withholding (20% vs. 11%), invest tax efficiently (15% vs. 8%), donate to charity (9% vs. 8%), reevaluate insurance (13% vs. 5%), and change quarterly tax payments (9% vs. 4%) compared with respondents who do not work with an advisor. On the other hand, a higher percentage of respondents who do not work with an advisor intended to reduce debt (36% vs. 27%). The same percentage of respondents (17%) intend to establish an emergency fund.

The descriptive statistics are found in Table 3. Among all respondents, 19% work with an advisor and 81% do not work with an advisor. The mean number of life events

Table 2 Type of intentions selected by respondents

Type of Intention	Total sample (%) <i>n</i> = 953	Advisor-Yes (%) <i>n</i> = 181	Advisor-No (%) <i>n</i> = 772
None	35.47	26.52	37.56
Reduce debt	34.10	27.07	35.75
Save for retirement	18.15	22.65	17.10
Emergency fund	16.89	16.57	16.97
Change tax withholding	12.91	19.89	11.27
Invest tax efficiently	9.44	14.92	8.16
Donate to charity	8.60	9.39	8.42
Reevaluate insurance	6.51	13.26	4.92
Change quarterly tax payments	4.83	9.39	3.76

Table 3 Descriptive statistics ($N=953$)

Variables	Total sample (%) $n = 953$	Advisor-Yes (%) $n = 181$	Advisor-No (%) $n = 772$
Works with an advisor			
Yes	18.99	—	—
No	81.01	—	—
Number of life events (mean)	0.46	0.53	0.44
Gender			
Male	50.89	54.14	50.13
Female	49.11	45.86	49.87
Age			
Younger than 30	20.04	22.10	19.56
Between 30 and 39	20.67	16.02	21.76
Between 40 and 49	15.84	12.71	16.58
Between 50 and 59	18.89	15.47	19.69
Older than 59	24.55	33.70	22.41
Marital status			
Married	60.02	64.64	58.94
Never married	25.81	22.65	26.55
Divorced	10.70	8.84	11.14
Widow	3.46	3.87	3.37
Education attainment			
High school	31.79	15.47	35.62
Some college	26.44	24.31	26.94
Undergraduate degree	23.92	29.28	22.67
Graduate degree	17.84	30.94	14.77
Employment status			
Full-time	40.61	52.49	37.82
Part-time	10.60	11.60	10.36
Self-employed	6.51	5.52	6.74
Not working	23.71	9.39	27.07
Retired	18.57	20.99	18.02
Income			
Less than \$25,000	17.84	9.39	19.82
\$25,000-\$50,000	28.12	16.57	30.83
\$50,001-\$100,000	29.28	33.70	28.24
Over \$100,000	24.76	40.33	21.11
Investable assets			
None	12.49	1.66	15.03
Less than \$50,000	40.92	12.71	47.54
\$50,000-\$250,000	27.18	34.25	25.52
Over \$250,000	19.41	51.38	11.92
Ethnicity			
White	69.98	76.24	68.39
Black	10.49	7.73	11.14
Hispanic	7.35	6.63	7.51
Other	12.28	9.39	12.95
Home ownership			
Yes	61.07	79.56	56.74
No	38.93	20.44	43.26
Children under 18 living at home			
Yes	31.58	32.04	31.48
No	68.42	67.96	68.52

incurred by the sample within the last 12 months was 0.46. Examining the control variables, the sample was evenly split by gender. Approximately 41% of the sample were younger than age 39, 34% were between ages 40 and 59, and 25% were older than age 59. About 60% were married and 69% attained an education level beyond high school. The majority of the sample were employed (57%), while 24% were out of the workforce, and 19% were retired. Slightly more than half the sample had income above \$50,000 (54%) and slightly less had investable assets of \$50,000 or more (47%). The majority of the sample were White (70%) and homeowners (61%), while a minority (32%) had children under age 18 living at home.

A higher percentage of respondents who work with a financial advisor, compared with respondents who do not work with a financial advisor, were male (54% vs. 50%), married (65% vs. 59%), had an education attainment level beyond high school (85% vs. 64%), and either were employed or retired (91% vs. 73%). A higher percentage of advised respondents had income greater than \$50,000 (74% vs. 49%) and investable assets of \$50,000 or more (85% vs. 37%). Lastly, a higher percentage of these respondents were White (76% vs. 68%) and owned a home (80% vs. 57%).

5.2. OLS regression results

The results of the OLS regression models can be found in Table 4. The first model reported an R^2 of 0.182. No relationship was found between works with an advisor and beneficial financial planning intentions ($\beta = 0.129$, $p = .202$). A positive relationship was found, however, between life events and beneficial financial planning intentions ($\beta = 0.232$, $p < .001$). Specifically, for each one unit increase in the number of life events, there was a 0.232 increase in the number of financial planning intentions. Among the control variables, respondents younger than age 30 were positively related to beneficial financial planning intentions compared with the reference group of respondents between ages 50 and 59 ($\beta = 0.214$, $p = .010$). On the other hand, respondents older than age 59 were negatively related to intentions ($\beta = -0.261$, $p = 0.041$). Respondents who obtained an undergraduate degree were positively related to intentions compared with the reference group of respondents who only completed high school ($\beta = 0.314$, $p = .002$). Respondents not in the workforce and retired were negatively related to intentions compared with the reference group of full-time employment status ($\beta = -0.403$, $p < .001$ and $\beta = -0.443$, $p < .001$, respectively). Lastly, respondents with income less than \$25,000 and investable assets over \$250,000 were negatively related to intentions ($\beta = -0.433$, $p = .002$ and $\beta = -0.220$, $p = .050$, respectively)

The second model reported an R^2 of 0.187. This model tested the interaction between number of life events and works with an advisor and found a positive moderating effect on the relationship with beneficial financial planning intentions ($\beta = 0.263$, $p = .016$). The relationship between works with an advisor and beneficial intentions remained insignificant in model two ($\beta = -0.021$, $p = .857$) while the relationship between life events and beneficial intentions remained positive ($\beta = 0.174$, $p = .001$).

Table 4 Ordinary least squares regression models predicting the relationship between advisor use and life events with the number of beneficial planning intentions ($N = 953$)

Variables	Model 1		Model 2	
	β	Standard error	β	Standard error
Works with an advisor (ref: no)	0.129	0.101	-0.021	0.118
Number of life events	0.232	0.049	0.174	0.054
Number of life events * Works with an advisor	—	—	0.263	0.109
Male (ref: female)	-0.123	0.074	-0.131	0.074
Age (ref: btw 50–59)				
Younger than 30	0.214	0.129	0.217	0.129
Between 30 and 39	0.134	0.119	0.145	0.119
Between 40 and 49	0.101	0.124	0.116	0.124
Older than 59	-0.261	0.127	-0.243	0.127
Marital status (ref: married)				
Never married	-0.159	0.098	-0.163	0.098
Divorced	0.148	0.122	0.144	0.122
Widowed	-0.079	0.303	-0.081	0.202
Education attainment (ref: high school)				
Some college	0.129	0.094	0.129	0.095
Undergraduate degree	0.314	0.102	0.308	0.102
Graduate degree	0.214	0.118	0.212	0.118
Employment status (ref: full-time)				
Part-time	-0.107	0.127	-0.101	0.127
Self-employed	-0.167	0.152	-0.163	0.152
Not working	-0.403	0.101	-0.394	0.101
Retired	-0.443	0.133	-0.441	0.133
Income (ref: over \$100,000)				
Less than \$25,000	-0.433	0.141	-0.453	0.141
\$25,000–\$50,000	-0.190	0.115	-0.211	0.115
\$50,001–\$100,000	-0.053	0.103	-0.067	0.103
Investable assets (ref: \$50,000–\$250,000)				
\$0	-0.182	0.131	-0.189	0.131
Less than \$50,000	-0.037	0.010	-0.039	0.095
Over \$250,000	-0.220	0.112	-0.212	0.112

(continued on next page)

Table 4 (Continued)

Variables	Model 1			Model 2		
	β	Standard error	p-value	β	Standard error	p-value
Ethnicity (ref: White)						
Black	0.106	0.114	0.354	0.099	0.0114	0.387
Hispanic	-0.001	0.116	0.998	-0.007	0.116	0.950
Other	0.034	0.114	0.764	0.028	0.114	0.807
Home ownership (ref: no)	0.072	0.082	0.381	0.056	0.082	0.497
Children under age 18 living at home (ref: no)	0.009	0.088	0.923	-0.001	0.088	0.996
Constant	1.266	0.163	<0.001	1.315	0.164	<0.001
R^2	0.182			0.187		

6. Discussion

The first main finding of this study was that no relationship was found between working with a financial advisor and beneficial intentions. Based upon the Financial Planning Client Interaction Theory (Asebedo, 2019), it was hypothesized that respondents who work with an advisor would rely on their advisor's experience and expertise to identify areas of improvement related to their financial situation. These respondents would be better equipped and more motivated, therefore, to have beneficial financial planning intentions over the upcoming 12-month period. Although the direction of the relationship was accurately predicted, the results were not significant. No support, therefore, was found for Hypothesis 1. One possible explanation for these results may be that some respondents who work with a planner or advisor may not be in the habit of forming intentions, but rather, take real time action upon receiving a recommendation from their trusted financial professional. Another possibility may be that respondents who work with planners or advisors may not have had any intentions because the strategies listed had already been addressed.

Based upon The Transtheoretical Model (Prochaska & DiClemente, 1982), it was anticipated that life events would result in a raised conscientiousness that would help respondents move from the pre-contemplation to contemplation stage. Similar to the findings of O'Neill and Xiao (2012), a positive relationship was found between incurring life events and beneficial intentions. Strong support, therefore, is found for Hypothesis 2. This study's primary contribution to the literature, however, is finding that working with a financial advisor moderated the relationship between working with recent life events and beneficial intentions as predicted by Hypothesis 3. These results suggest that one of the primary advantages of working with an advisor is to help individuals make the necessary adjustments to their financial affairs following major life transitions.

Among the control variables, the youngest respondents had more beneficial intentions while the oldest respondents had fewer beneficial intentions. These results suggest that young adults realize the need to plan for their financial futures, while mostly older individuals may have, in large part, already addressed their financial needs. Respondents with higher levels of education had more beneficial intentions, perhaps attributable to higher levels of financial literacy. Respondents out of the workforce and retired had fewer beneficial intentions, indicating less ability and/or need to strive towards positive behaviors. Lastly, respondents with the lowest levels of income had fewer beneficial intentions as did those with the greatest level of investable assets. Respondents with lower income levels may not be in an ideal position to address their long-term financial security while those with the greatest amount of assets may have already addressed the list of intentions provided in the survey instrument.

6.1. Limitations

One of the primary limitations of this study may have been respondent misperceptions of the titles financial planner and financial advisor. The survey instrument only asked whether respondents worked with these professionals but did not provide additional guidance

regarding the customary roles and responsibilities of financial planners and financial advisors as compared with stockbrokers or insurance agents. This lack of additional information is important because the literature has documented consumer confusion regarding industry titles (Tharp, 2019). For example, some financial advisors provide investment and asset allocation advice but fall short of providing comprehensive financial planning services. In these particular cases, a respondent who indicated that they work with a financial advisor may not have any more beneficial intentions than a respondent who does not work with a financial advisor. Tharp (2019) recommends industry stakeholders adopt clearer disclosures allowing consumers to make more informed decisions when selecting a financial professional.

A second limitation was that the survey instrument excluded two important life events: retirement and death of a spouse. These omissions were due to the survey's primary interest regarding changes in the respondents' year-over-year tax liability. The transition to retirement presents many challenges, and specific strategies recommended may include increased savings, potential downsizing of the family home, elimination of debt, and a review of health and long-term care insurance policies (O'Neill & Brennan, 1997). Similarly, upon the death of a spouse, recommended actions may include downsizing the family home (West & Worthington, 2018) or increased savings and paying down debt (Rehl et al., 2016). Including the transition to retirement and death of a spouse in the survey instrument may have yielded different results than those reported.

6.2. Implications and conclusion

The primary implication of this study is that individuals who incur recent life events appear motivated to address their long-term financial security. Further, while having an advisor is not related to having beneficial intentions, the combination of having an advisor and incurring multiple life events is related to a greater number of beneficial intentions. Industry stakeholders are encouraged to use these findings to better articulate the advantages of engaging with a financial advisor. For example, the CFP Board of Standards (2021) public outreach initiative, "Let's Make a Plan," discusses at length how a financial planner helps clients achieve short- and long-term financial goals. While goal setting is a critical part of the financial planning process, the results of this study would suggest placing a greater emphasis on life events. The public should be made aware that challenges resulting from life events may be financial (Rowley et al., 2012) but can also result in heightened levels of financial stress (Letkiewicz et al., 2016) and anxiety (Sommer et al., 2020). Messaging that emphasizes an advisors' ability to assess and offer timely recommendations regarding difficult life transitions may offer a more compelling reason for individuals to engage with a financial professional.

Common life events often include family and professional changes. Experiencing a negative financial shock, however, may also constitute a life event (O'Neill & Xiao, 2012). Presently, many clients may need to reevaluate their financial position given the coronavirus (COVID-19) pandemic. While the financial impact of COVID-19 is most pronounced among lower income households, upper- and middle-income households have not been entirely spared (Parker, Menasce-Horowitz, & Brown, 2020). According to their report, the number

of upper-income households that are having difficulty paying their bills in the current month compared with a typical month has increased from 7% to 11% and for middle-income households, the number increased from 19% to 26%. Further, 32% of upper-income households reported a job loss or pay reduction due to COVID-19 (42% for middle-income households). The potentially negative impact COVID-19 has had on upper- and middle-income households may offer financial advisors an opportunity to help clients make the necessary mid-course corrections.

While the primary interest of this study was beneficial intentions, there is no guarantee that respondents will actually follow through on their reported plans. To help financial advisors transition their clients from intentions to action, several frameworks have emerged in the literature. Although The Transtheoretical Model of Change (Prochaska & DiClemente, 1982) was used in this study to conceptualize the relationship between life events and beneficial intentions, the theory has also been operationalized to guide advisors in the areas of financial counseling (Kerkmann, 1998) and consumer education programs (Xiao et al., 2004). Another framework that has emerged is ‘MINDSPACE’ (Vlaev et al., 2015). ‘MINDSPACE’ consists of nine constructs: messenger, incentives, norms, defaults, salience, priming, affect, commitments, and ego. Each construct provides advisors with practical applications for generating positive interactions and engagement with clients. For example, norms is defined as “we are strongly influenced by what others do.” The suggested application is to elicit desired behaviors by explaining to clients the actions of their peer group. Additional research regarding reasons individuals succeed or fail to implement their stated financial planning intentions would offer valuable insights to the financial services profession.

This study contributes to the existing body of research by identifying another benefit of financial advisor engagement—having an advisor during periods of difficult life transitions is related to having a higher number of beneficial intentions. Using this conclusion to articulate the benefits of working with an advisor could offer individuals struggling with challenging life events an additional catalyst to engage with a financial professional.

Appendix

Survey Instrument (demographic questions are excluded)

1. How familiar are you with the 2017 Tax Cuts and Jobs Act?
Please respond on a scale of 1 through 5 with 1 equal to “not familiar at all” and 5 equal to “very familiar.”
2. Suppose in 2019 your property taxes are \$4,000 and your state income taxes are \$8,000. What is the maximum deduction you are allowed for these two items?
 - a. \$12,000
 - b. \$10,000
 - c. \$0
 - d. Not sure
3. As a result of the 2017 Tax Cuts and Jobs Act, did you adjust your tax withholding (or quarterly payments if self-employed)?
 - a. Yes
 - b. No

4. Did any of the following life events occur in 2018 that may have had an impact on your taxes? (select as many as apply)
 - a. Marriage
 - b. Divorce
 - c. Had a child
 - d. Bought a new home
 - e. Child started college
 - f. Earned a promotion
 - g. Lost a job
 - h. Moved
 - i. Other
 - j. None of these

5. What was your expectation regarding your 2018 federal tax liability (consider amounts withheld during 2018 in addition to any potential liability/refund)?
 - a. I would pay much more than 2017
 - b. I would pay a little more than 2017
 - c. I would pay about the same as 2017
 - d. I would pay a little less than 2017
 - e. I would pay much less than 2017

6. What was your actual experience regarding your 2018 federal tax liability (consider amounts withheld during 2018 in addition to any actual liability/refund)?
 - a. Total taxes paid were much more than expected
 - b. Total taxes paid were a little more than expected
 - c. Total taxes were what I expected to pay
 - d. Total taxes paid were a little less than expected
 - e. Total taxes paid were much less than expected

7. If you are receiving a refund, what plans to you have with the money? (select as many as apply)
 - a. Spend it
 - b. Save it
 - c. Invest it
 - d. Gift it
 - e. Lend it
 - f. Not sure
 - g. I am not receiving a refund

8. If you owe taxes for 2018, where will the money be drawn from? (select as many as apply)
 - a. Checking account
 - b. Savings account
 - c. Retirement account
 - d. Borrow from a financial institution
 - e. Borrow from a family member
 - f. Not sure
 - g. I don't owe taxes for 2018

9. Do you work with a CPA or tax advisor?
 - a. Yes
 - b. No

10. Did your CPA or tax advisor help you plan accordingly for the changes brought about in 2018?
 - a. Yes
 - b. No

11. Do you work with a financial planner or financial advisor?
 - a. Yes
 - b. No

12. Did your financial planner or financial advisor help you plan accordingly for the changes brought about in 2018?
 - a. Yes
 - b. No

13. What changes do you plan for 2019 regarding tax and financial planning professionals?
 - a. Hire a CPA
 - b. Replace my CPA
 - c. Hire a financial advisor.
 - d. Replace my financial advisor.
 - e. None of these

14. What changes do you plan for 2019 regarding tax and financial planning? (select as many as apply)
 - a. Change my withholding
 - b. Change my quarterly payments
 - c. Contribute more to a retirement account
 - d. Donate more to a charity
 - e. Invest more tax efficiently
 - f. Pay down debt
 - g. Establish an emergency fund
 - h. Reevaluate my insurance policies
 - i. None of these

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1. In “Mutual Fund Knowledge Assessment for Policy and Decision Problems” by Scholl and Fontes, which of the following groups had the highest levels of mutual fund knowledge?
 - a. Investors
 - b. Non-investors
 - c. Those with high levels of general financial knowledge
 - d. Those with low levels of general financial knowledge
2. Based on the findings of Scholl and Fontes, respondents answered questions related to _____ incorrectly most frequently.
 - a. Fees
 - b. Performance history
 - c. Risk
 - d. Disclosure
3. According to Scholl and Fontes, respondents with higher levels of financial well-being had _____ levels of mutual fund knowledge.
 - a. Lower
 - b. About the same
 - c. Higher
 - d. None of the above
4. In “Financial Advisor Use, Life Events, and the Relationship with Beneficial Intentions” by Sommer, Lim, and MacDonald, the study conceptualized life events as a motivation for individuals to move from the pre-contemplation to contemplation stage of change. According to the study, life events result in:
 - a. Social liberation
 - b. Dramatic relief
 - c. Self-reevaluation
 - d. Consciousness-raising
5. According to Sommer, Lim, and MacDonald, the most frequently cited beneficial financial planning intention planned for the upcoming 12 months is:
 - a. Establish an emergency fund
 - b. Reduce debt
 - c. Save for retirement
 - d. Reevaluate insurance



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