The role of financial literacy and advice in financial decision making

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A B S T R A C T

Financial decision making is complex and individuals either need to have the financial knowledge to make the correct decisions, or they need to ask for advice from experts. However, there are two key questions pertaining to financial advice. Firstly, do financially unsophisticated individuals know that they need advice, and do they therefore ask for assistance? Secondly, if they do ask for advice, are financially unsophisticated individuals able to assess the quality of the advice received? A growing body of research is focused on determining to what extent financial advice can act as a substitute for low levels of financial literacy. To date, studies have found conflicting results. This study used data from a national survey of South Africans to determine whether advice could substitute for low levels of financial sophistication. Additionally, the quality of advice in pre-retirement cash-out decisions was assessed using survey data collected at a university. The results indicate that professional financial advice complements financial literacy, while advice from other sources could substitute for low levels of financial sophistication. Furthermore, the study found that with respect to pre-retirement cash-out decisions, financially unsophisticated individuals followed advice from human resources departments or fund administrators and received quality advice.

Key words: financial decision making; financial literacy; bounded rationality; financial advice; financial sophistication

Introduction

In a world of increasingly complex financial products and services, individuals are faced with a variety of decisions and choices in terms of securing their financial

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future. Even though some individuals may have sufficient financial knowledge to overcome the computational complexity of this decision-making environment, studies worldwide have found that the majority of individuals displayed low levels of financial literacy and knowledge (Lusardi & Mitchell 2011). Interventions therefore seem to be required to ensure optimal decision making, either through efforts to increase financial literacy levels or through the provision of decision guidance and advice. While there has been much focus on increasing financial literacy as a way of improving decision making and while some interventions have been successful (e.g. Clark, d'Ambrosio, McDermed & Sawant 2006), there are concerns that, in many instances, interventions to enhance financial literacy may not be effective (Fernandes, Lynch & Netemeyer 2014). Given these concerns, another area of investigation has focused on understanding the role that advice plays in the decision-making process in order to determine whether advice can act as a substitute for those with low levels of financial literacy (Collins 2012). However, in this regard, a key problem is that those who are financially unsophisticated may not ask for advice, while a second concern is that financially unsophisticated individuals may not be able to assess the quality of the advice received (Bernheim 2002).

This study first assesses the relationship between financial literacy and advice in a multivariate model using data from a national survey of 2 972 South Africans. The study then focuses on understanding the use of advice in a specific decision by using survey data collected from individuals who had recently made a decision about preserving or cashing out accumulated retirement funds when changing jobs. The aim of the study was twofold: (1) to investigate which factors predict whether an individual follows various forms of advice, and therefore, whether advice is a substitute for low levels of financial sophistication; and (2) to assess the ultimate decision made in order to provide some indication of the quality of the advice from various sources. The study adds to the growing empirical research base which considers the relationship between financial literacy and advice, and focuses specifically on retirement savings decisions, an area of increasing concern over decision-making ability and how to assist individuals. In addition, the study considers advice from a range of sources, facilitating a more in-depth understanding of the relationship between financial literacy and advice. Finally, by considering the quality of advice, additional insight is provided into the value of advice from a variety of sources.

The first part of this article provides the theoretical foundation for the study based on the relevant literature. Thereafter, the research instrument used in the study is explained and the data analysis is described. The final parts of the article contain the results and a discussion of the theoretical and practical implications of the research.

Theoretical foundation

Financial decision making is complicated and often requires individuals to solve complex problems to determine what the optimal decision should be. Usually, when confronted by difficult computations, the human brain uses heuristics or mental shortcuts to solve problems. However, this process is only useful if there are good heuristics or rules of thumb to apply, which is generally not the case in many financial decisions (Thaler 1994). In the absence of useful heuristics, another source of information for individuals who are trying to establish what to do is to seek advice from experts or other role models such as peers (Duflo & Saez 2002; Thaler 1994).

Alternatively, some authors suggest that those who are more financially literate might be better equipped to make financial decisions (Bernheim 2002; Broadbent, Palumbo & Woodman 2006; Thaler 1994). A number of studies found positive relationships between financial literacy and savings (Bernheim, Garrett & Maki 2001; Lusardi & Mitchell 2009; Peng, Bartholomae, Fox & Cravener 2007). This appears to imply that financially literate or knowledgeable individuals may be better equipped to cope with the computational complexity of financial decisions. Financial literacy can be defined as "the knowledge of basic concepts of personal finance with respect to borrowing/debt, and saving/investments that leads to better lifetime financial decision-making" (Fernandes et al. 2014). In general, individuals with higher levels of financial literacy, and who are more exposed to financial decision making, are considered to be financially sophisticated, and are generally wealthier, earn higher incomes and have higher levels of education (Van Rooij, Lusardi, & Alessie 2011).

In light of the above, it seems that the computational complexity of financial decision making can be overcome either as a result of high levels of financial literacy and financial sophistication, or the provision of advice to those who do not have the requisite levels of financial literacy. This then raises the question of whether advice can be viewed as a substitute or a complement for financial literacy (Collins 2012). In the first instance, if it is viewed as a substitute, then those with lower levels of financial literacy will ask for advice, and provided the advice is of sufficient quality, they will make optimal decisions. However, if only those with higher levels of financial literacy actually ask for advice, then it is viewed as a complement to these decisions and cannot be used to counteract low levels of financial literacy.

Previous research relating to the use of financial advice has generally focused on socio-economic and demographic variables as well as financial attitudes and behaviours (Joo & Grable 2001; Marsden, Zick & Mayer 2011). However, determining whether financial advice is a substitute for financial literacy is a relatively new area of research and initial studies have provided conflicting findings (Calcagno & Monticone 2015).

A number of studies found support for advice as a complement for those with already high levels of financial sophistication (Bachmann & Hens 2015; Bhattacharya, Hackethal, Kaesler, Loos & Meyer 2012; Calcagno & Monticone 2015; Collins 2012). However, there is also evidence that advice may act as a substitute. A study that focused on retirement decision making found that those with low levels of financial sophistication were more likely to seek advice, lending support to the idea of advice as a substitute (Chalmers & Reuter 2012). In further support of the idea of advice as a substitute, a recent study found that those whose self-perceived financial knowledge was low, were more likely to rely on advice, provided that they trusted the advisor (Georgarakos & Inderst 2014). Another study also found support for the substitutability of advice because those who were less financially literate asked for advice (Hung & Yoong 2010). It has also been found that specific advice, such as credit counselling, can act as a substitute for low levels of financial literacy (Disney, Gathergood & Weber 2015).

While many studies focus on the use of advice from a financial advisor, there are additional formal sources of advice which an individual might use, particularly in a retirement decision-making context, such as human resources departments or the administrators of the retirement fund. In addition, informal sources such as peer and social networks are another potential source of advice. However, a key concern regarding the advice of peers is that those who are consulted may not necessarily have the expertise to assist (Benartzi & Thaler 2007). Hence when considering other sources of advice, the quality of advice is a key factor which needs to be assessed to determine whether individuals who rely on peer networks, or other sources of advice, actually benefit from this advice.

Previous studies which considered advice from a variety of sources found that those with high levels of financial literacy were more likely to use financial advisors, while those with low levels of financial literacy tended to rely on family and friends as sources of advice (Van Rooij et al. 2011). A link between socio-economic status and source of advice was demonstrated by Chang (2005), who found that social networks were most commonly used by the least wealthy households as a means of obtaining advice. If this is the case, the complementary nature of advice, specifically from a financial advisor, may be linked to the cost of advice, and it is not necessarily true that individuals with low financial literacy levels do not think they need to ask for help. Therefore, sources of free advice need to be considered to better understand whether advice can act as a substitute for financial literacy. A study which considered the provision of free and unbiased advice to retail investors found that those who most needed advice did not make use of it, providing preliminary confirmation that less sophisticated investors did not appear to access even free advice (Bhattacharya et al. 2012). Further exploration of this phenomenon is required to determine whether the same is true in other financial decision-making contexts.

In this regard, pre-retirement cash-out decisions provide an opportunity to explore decision making in an environment in which advice is available from a variety of sources, including free advice from human resources departments and fund administrators. In addition, the quality of advice can also be assessed.

Pre-retirement cash-outs are increasingly recognised as a key issue that may result in insufficient savings at retirement as employees cash out their accumulated retirement savings when moving jobs. Despite taxes and penalties to dissuade individuals from cashing out funds, the majority of individuals in South Africa do not preserve their funds (South Africa, National Treasury 2007). This trend was also observed in the USA (Engelhardt 2002; Munnell, Golub-Sass & Muldoon 2009).

The preservation decision requires that an individual has the ability to understand the tax implications of his or her decision, and the ability to apply the impact of compounding over a future time period. Owing to the computationally complex environment, individuals either need to have the financial knowledge to determine the optimal choice or they need to ask for advice. Given the impact of taxes imposed on pre-retirement withdrawals and missing out on the benefits of compounding of returns over future time periods, it is assumed that "good quality advice" would in most instances be to preserve funds controlling for other factors playing a role in the decision, as identified in previous studies, where it has been found that those who are older, with higher incomes, who are more educated and who are married, are more likely to preserve funds (e.g. Bassett, Fleming & Rodrigues 1998; Moore & Muller 2002; Poterba, Venti & Wise 1998). Therefore understanding whether those with low levels of financial literacy seek assistance in this situation, and, if they do, whether they receive good advice, would provide additional insights into the relationship between financial literacy and advice.

The aim of this study was to determine whether financially unsophisticated individuals ask for help, and if so, whether they receive quality advice. The objective of the study was twofold: (1) to investigate whether advice is a substitute for low levels of financial sophistication; and (2) to assess the ultimate decision made to provide some indication of the quality of the advice from various sources.

Research method

Data

The study used data from two different sources to achieve the research objective. In Study A, a nationally representative sample of South Africans was used to consider whether, in general, financially unsophisticated individuals ask for help. Study B

considered the use of advice in a sample of individuals who had recently made a pre-retirement cash-out decision, and investigated the quality of advice received. In Study A, data from the South African Social Attitudes Survey (Human Sciences Research Council 2011) was used to assess the use of advice in a national survey of 2 972 South Africans. The survey collected information on various aspects of financial literacy using questions developed by the International Network on Financial Education (OECD INFE 2011). It also collected information relating to sources of financial advice accessed by individuals. The data provided an opportunity to assess the role that financial literacy plays in seeking advice across a nationally representative sample of South Africans.

The second part of the study (Study B) sought to investigate advice in a real-world financial decision-making context to assess the role of financial literacy, and also to gain insight into the quality of advice obtained. Study B used data from survey responses to a questionnaire concerning pre-retirement cash-out decisions. The target population for this study was active retirement fund members in South Africa who had recently made a pre-retirement cash-out decision. Owing to the difficulties experienced in accessing a database of all active retirement fund members who had recently made at least one job move, probability sampling in the form of random selection was not possible – hence the decision to implement a non-probability sampling procedure.

A purposive sample was drawn from academic and non-academic staff members employed by a tertiary education institution in South Africa. Those included in the sample had joined the institution in the past five years and were therefore more likely to have made a recent preservation decision. A total of 716 individuals were included in the original sample. Of the total, 432 completed and returned the paper questionnaire, providing a response rate of 60 percent. Approximately one-third of the collected questionnaires were completed by staff members who had not made a preservation decision, reducing the final sample for analysis to 256. Since the respondents in this study were restricted to a sample of employees at a tertiary education institution, the results from this part of the study are exploratory in nature, and thus not generalisable to the broader South African population.

Data analysis

In both Study A and Study B, logistic regression analysis was used to determine the relative importance of factors (including an objective measure of financial literacy and a subjective assessment of financial knowledge) in predicting whether an individual would use advice from each advice source. In Study B, when determining

the quality of advice, logistic regression analysis was also used. However, in this instance, the focus was on assessing the role of various forms of advice with respect to predicting the ultimate decision to preserve or cash out funds.

The logistic regression analysis is similar to the ordinary least squares regression technique, but it allows for a dichotomous outcome variable and can accommodate categorical predictor variables (Menard 2010). The generalised form of the logistic regression model is as follows: $\text{logit}(\pi) = \ln(\pi/(1-\pi)) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_p X_p$

The equation is interpreted so that for a given β the natural logarithm of the odds of the outcome occurring increases by that β value for a one unit increase in the predictor variable. This study used the Wald test to assess the statistical significance of the predictor variables. The test statistic follows a chi-squared distribution (Azen & Walker 2011). Odds ratios were used to interpret the direct impact of a predictor variable on the outcome variable. The statistical software package used for data analysis was IBM SPSS Statistics version 23.

Study A: Source of advice variables

Outcome variable: The respondent's answer to the following question was used to determine the source of advice: "If you need financial advice, who do you normally ask for help?" The respondent could select from a list of 15 different advice sources (multiple responses were allowed). For the purpose of the study, advice sources were combined into the following main categories: (1) financial advisor; (2) bank or insurance company; (3) peers or community; or (4) no advice. Because multiple responses were allowed and to ensure there was no overlap between categories, those who selected multiple sources of advice including financial advisor were only included in Category 1. Those who selected a bank or insurance company and advice from peers or community were only included in Category 2. Those who only selected advice from peers or community were included in Category 3. Category 4 consisted only of individuals who selected no advice.

Based on the type of advice followed, the following three different models were specified:

Model 1: Those who responded that they had asked for advice from a financial advisor were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Model 2: Those who responded that they had asked for advice from a bank or insurance company were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Model 3: Those who responded that they had asked for advice from peers or community were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Predictor variables: Based on previous studies, measures were included for both objective and subjective measures of financial literacy. For the purpose of the study, objective financial literacy was measured using the eight questions of the "Knowledge and understanding" domain of the OECD INFE (2011) questions, the variable included in the model was the percentage correct scores of the respondents. These questions have been used in previous studies and are considered to be valid and reliable measures of financial literacy (Atkinson & Messy 2011). To obtain a subjective assessment of financial knowledge, respondents were asked to rate their level of financial knowledge on a scale of one to five, where one is not at all knowledgeable and five is very knowledgeable. In addition, socio-economic (i.e. income and education) and demographic (i.e. age, gender, marital status, race and number of dependants) variables were included as predictor variables.

Study B: Source of advice variables

Outcome variable: The respondent's answer to the following question was used to determine the source of advice: "Did you follow the advice of any of the following people when you made your decision regarding what to do with your accumulated funds?" The respondent could select from a list of six different advice sources. For the purpose of the study, advice sources were combined into the following main categories: (1) financial advisor; (2) human resources or fund administrator; (3) peers; or (4) no advice. Because multiple responses were allowed, and to ensure there was no overlap between categories, those who selected multiple sources of advice, including financial advisor, were only included in Category 1. Those who selected human resources or fund administrator and advice from peers were only included in Category 2. Those who only selected advice from peers were included in Category 3. Category 4 consisted only of individuals who selected no advice.

Based on the type of advice followed, three different models were specified:

Model 1: Those who responded that they had followed advice from a financial advisor were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Model 2: Those who responded that they had followed advice from human resources or the fund administrator were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Model 3: Those who responded that they had followed advice from peers were coded 1, and those who had used all other advice types (including no advice) were coded 0.

Predictor variables: Objective and subjective measures of financial literacy were included as predictor variables. In this study, objective financial literacy was measured using the 13 questions developed by Lusardi and Mitchell (2009), which include both basic and sophisticated financial literacy questions. The variable included in the model was the percentage correct scores of the respondents. These questions are deemed reliable and valid measures of financial literacy and have been used in other studies (Bateman, Eckert, Geweke, Louviere, Thorp & Satchell 2011; Van Rooij, Lusardi & Alessie 2012). For the subjective measure, the respondents' self-reported level of financial knowledge on a scale ranging from very bad to very good was used.

Socio-economic (i.e. income and education) and demographic (i.e. age, gender, marital status and race) variables were included as predictor variables. In addition, a variable was included which recorded the amount of accumulated retirement funds that the individual had to decide to preserve or cash out when moving jobs.

Study B: Quality of advice variables

Outcome variable: If an individual indicated that he or she had preserved accumulated retirement funds when moving jobs, this was coded 1, while the cash-out of accumulated retirement funds was coded 0.

Predictor variables: The various sources of advice were included as a predictor variable to determine the role played by advice in the decision to preserve funds. Control variables were selected on the basis of the socio-economic and demographic variables identified in previous studies as having a relationship with the decision to preserve funds. These variables were as follows: income, education level, age, gender, marital status, race, reason for moving jobs and amount of accumulated retirement funds available at the time of moving jobs. Objective and subjective measures of financial literacy were also controlled for.

Findings

Characteristics of the sample

Table 1 provides an overview of the characteristics of the sample for Study A, while Table 2 provides the characteristics of the sample for Study B.

Table 1: Descriptive statistics of sample for Study A

Characteristic	Frequency (%)	Mean (std deviation)
Source of advice (n = 2 802)[a]		
Financial advisor	16.6	
Bank or insurance company	16.4	
Peers or community	48.0	
No advice	19.0	
Financial literacy score (%) (n = 2 635)[c]		60.5 (25.1)
Self-reported financial knowledge (n = 2 863)		
Not at all knowledgeable (1)	13.5	
2	18.2	
3	27.3	
4	25.2	
Very knowledgeable (5)	15.8	
Household monthly salary (n = 2 248)		
Less than R1 000[b,]	18.3	
R1 001 – R2 000[b]	22.8	
R2 001 – R5 000[b]	24.7	
R5 001 – R10,000[b]	15.8	
More than R10 000[b]	18.3	
Highest educational qualification (n = 2 897)		
Primary or no schooling[b]	20.2	
Some secondary schooling[b]	35.2	
Completed secondary schooling	31.9	
Tertiary education[b]	12.7	
Age (years) (n = 2 966)		40.5 (16.1)
Gender (n = 2 971)		
Female	56.1	
Male	43.9	
Marital status (n = 2 905)		
Married (incl. customary marriage)[b]	38.8	
Not married[b]	61.2	
Race of respondent (n = 2 971)		

Characteristic	Frequency (%)	Mean (std deviation)
Black/African	62.6	
Mixed race	15.1	
Indian or Asian	9.6	
White	12.7	
Number of dependants (n = 2 881)		1.2 (1.4)
Notes: *a Sample size differs as a result of missing data for some of the characteristics. The unweighted responses were used in this study.* *b Underlying categories were combined, based on the sample distribution and low numbers of respondents in some categories.* *c Financial literacy score is the percentage correct score for the 8 questions developed by the OECD INFE (2011).*		

Source: Author's calculations derived from the Human Sciences Research Council's (2011) database

For Study A, the respondents were part of a nationally representative sample of approximately 3 000 individuals aged 16 and older from across South Africa. However, for study B, the respondents were a purposive sample of employees at a tertiary education institution and are therefore not representative of the overall South African population. In particular, these individuals differ from the general South African population in that they are all employed, they have higher income and education levels, and the majority are married. In addition, females and whites are overrepresented in Study B when compared to the general South African population.

Table 2: Descriptive statistics of sample for Study B

Variable	Frequency (%)	Mean (std deviation)
Source of advice (n = 256)[a]		
Financial advisor	27.7	
Human resources (HR) or fund administrator	14.5	
Peers	23.8	
No advice	34.0	
Financial literacy score (%) (n = 256)[c]		58.8 (22.8)
Self-reported financial knowledge (n = 256)		
Bad/Very bad[b]	8.6	
Satisfactory	46.1	
Good	31.2	
Very good	14.1	
Household take-home monthly salary (n = 246)		
Less than R20 000[b]	37.0	
R20 001 – R30 000	20.3	
R30 001 – R40 000	16.3	
More than R40 000[b]	26.4	
Education (n = 254)		
High school or lower	11.4	
Diploma/Undergraduate degree[b]	33.1	
Honours/Master's[b]	38.2	
Doctorate	17.3	
Age (n = 254)		36.8 (8.4)
Gender (n = 256)		
Male	39.1	
Female	60.9	
Marital status (n = 256)		
Married/long-term relationship	72.3	
Single/divorced/separated/widowed[b]	27.7	
Race		
Black	39.0	
White	42.9	
Other[b]	18.1	
Pre-retirement cash-out decision		
Preserved funds	39.5	
Took a cash payout	60.5	
Reason for moving job		
Better job opportunity	70.6	
Not a better job opportunity	29.4	
Amount of retirement funds available at time of job move (n = 245)		
R100 000 and below[b]	50.7	

Variable	Frequency (%)	Mean (std deviation)
R100 001 – R500 000	32.2	
R500 001 – R1 000 000	10.2	
More than R1 000 000	6.9	
Notes: *a Sample size differs as a result of missing data for some of the characteristics.* *b Categories were combined, based on the sample distribution and low numbers of respondents in some categories.* *c Financial literacy score is the percentage correct score for the 13 questions developed by Lusardi and Mitchell (2009).*		

Source: Author's calculations

Study A findings: Source of advice

Table 3 provides an overview of the findings of the logistic regression for Study A for each of the models specified. For multiple category variables, reference (omitted) categories were chosen, based on which groups prior studies had identified as groups that were most likely to use advice.

The resultant logistic regression equation for these models is generically specified as follows: $\ln(\pi/(1-\pi))$ = constant + Financial literacy score x β_1 + Self-assessed financial knowledge score x β_2 + Household income level x β_3 + Education level x β_4 + Age x β_5 + Gender x β_6 + Marital status x β_7 + Race x β_8 + Number of dependants x β_9

Table 3: Multivariate analysis for type of advice in Study A models 1 – 3 (n = 1 908)

Variable	Model 1 (Financial advisor)		Model 2 (Bank or insurance company)		Model 3 (Peers or community)	
	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio
Financial literacy score	0.007* (0.004)	1.007	0.000 (0.003)	1.000	-0.002 (0.002)	0.998
Self-assessed financial knowledge (reference: very knowledgeable (5))						
Not at all knowledgeable (1)	-1.084** (0.464)	0.338	-1.150*** (0.308)	0.317	0.305 (0.197)	1.356
2	-0.354 (0.290)	0.702	-0.456** (0.232)	0.634	0.789*** (0.185)	2.201
3	0.084 (0.214)	1.088	-0.117 (0.192)	0.890	0.654*** 0.171)	1.924
Knowledgeable (4)	0.274 (0.204)	1.315	-0.217 (0.193)	0.805	0.621*** (0.174)	1.860
Household income (reference: R10 000 +)						
<1 000	-1.304*** (0.344)	0.272	-0.939*** (0.295)	0.391	0.614*** (0.217)	1.847
R1 001 – R 2000	-1.257*** (0.309)	0.284	-0.401 (0.253)	0.670	0.697*** (0.207)	2.008
R2 001 – R5 000	-0.886*** (0.232)	0.412	-0.086 (0.218)	0.918	0.667*** (0.190)	1.949
R5 001 – R10 000	-0.425** (0.197)	0.654	0.097 (0.203)	1.102	0.392** (0.189)	1.480
Education (reference: tertiary education)						
Primary or no schooling	-2.263*** (0.367)	0.104	0.073 (0.289)	1.076	1.496*** (0.250)	4.466
Some secondary schooling	-1.601*** (0.228)	0.202	0.058 (0.237)	1.060	1.359*** (0.223)	3.892
Completed secondary schooling	-1.130*** (0.190)	0.323	0.331 (0.212)	1.392	0.970*** (0.215)	2.639
Age	0.009 (0.006)	1.009	-0.007 (0.005)	0.993	-0.001 (0.004)	0.999
Male	-0.030 (0.148)	0.971	0.150 (0.131)	1.161	-0.073 (0.102)	0.929
Married	0.172 (0.159)	1.187	0.406*** (0.141)	1.501	-0.370*** (0.110)	0.691

Variable	Model 1 (Financial advisor)		Model 2 (Bank or insurance company)		Model 3 (Peers or community)	
	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio
Race (reference: white)						
Black African	-0.757*** (0.224)	0.469	0.482* 0.252)	1.619	0.353 (0.220)	1.424
Mixed race	-1.076*** (0.285)	0.341	0.657** 0.278)	1.929	0.476** (0.240)	1.609
Indian/Asian	-0.906*** (0.249)	0.404	0.327 (0.279)	1.387	0.761*** (0.248)	2.141
Number of dependants	-0.099 (0.061)	0.906	-0.003 (0.046)	0.997	0.041 (0.034)	1.042
Constant	0.129 (0.468)		-1.684 (0.436)		-2.402 (0.377)	
Model fit and classification						
Hosmer and Lemeshow test	χ2 =13.223 (8)	*p = .104*	χ2 = 8.501 (8)	*p = .386*	χ2 = 5.806 (8)	*p = .669*
Area under the ROC curve	*.850*	*p < 0.01*	*.667*	*p < 0.01*	*.688*	*p < 0.01*
Notes: * $p < .10$; ** $p < .05$; *** $p < .01$						

Source: Author's calculations

For the purposes of interpreting the direction of the relationship between the predictor and the outcome variable, the sign of beta coefficient is taken into account. Therefore in Model 1, a positive sign on the beta coefficient of the financial literacy score indicates that a higher score increases the likelihood of a person seeking advice from a financial advisor. The negative beta coefficient on "not at all knowledgeable" indicates that the reference group (very knowledgeable) is more likely to seek advice than an individual who rates himself or herself as not at all knowledgeable.

The statistically significant predictors associated with seeking advice from a financial advisor were as follows: high financial literacy scores, self-assessed level of financial knowledge "very knowledgeable" (when compared with lowest category "not at all knowledgeable"), race: white (when compared with all other race groups), high household income and high education levels.

The statistically significant predictors associated with seeking advice from a bank or insurance company were as follows: self-assessed level of financial knowledge "very knowledgeable" (when compared with lowest two categories of self-assessed

financial knowledge), race: black African and mixed race (when compared with white), married and highest level of household income (when compared with lowest income category).

The statistically significant predictors associated with seeking advice from peers were as follows: lower self-assessed level of financial knowledge (with the exception of those in the lowest category, all others, when compared with the "very knowledgeable" category, were more likely to consult with peers), race: mixed race, Indian and Asian (when compared with white), not married, lower levels of household income and lower levels of education.

All three models demonstrate a good model fit as indicated by the non-significance of the Hosmer and Lemeshow goodness of fit test statistic. From a classification perspective, the area under the receiver operating characteristic (ROC) curve indicates that Models 2 and 3 provide a fair level of discrimination between groups, while Model 1 provides very good levels of discrimination between those who seek advice from financial advisors and those who do not.

Study B findings: Source of advice

Table 4 provides an overview of the findings of the logistic regression for Study A for each of the models specified. For multiple category variables, reference (omitted) categories were chosen, based on which groups prior studies had identified as groups that were most likely to use advice.

The resultant logistic regression equation for these models is generically specified as follows: $\ln(\pi/(1-\pi)) = \text{constant} + \text{Financial literacy score} \times \beta_1 + \text{Self-assessed financial knowledge score} \times \beta_2 + \text{Household income level} \times \beta_3 + \text{Education level} \times \beta_4 + \text{Age} \times \beta_5 + \text{Gender} \times \beta_6 + \text{Marital status} \times \beta_7 + \text{Race} \times \beta_8 + \text{Amount of funds} \times \beta_9$

Table 4: Multivariate analysis for type of advice in Study B models 1 – 3 (n = 229)

Variable	Model 1: Advice from financial advisor		Model 2: Advice from HR and fund administrator		Model 3: Advice from peers	
	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio
Financial literacy score	-0.012 (0.010)	0.988	-0.003 (0.011)	0.997	0.007 (0.010)	1.007
Self-assessed financial knowledge (reference category: "Very good")						
Bad/Very bad	-1.506 (1.009)	0.222	2.832** (1.189)	16.971	-0.375 (0.954)	0.688
Satisfactory	-0.008 (0.502)	0.992	1.670 (1.086)	5.314	0.972* (0.581)	2.644

Variable	Model 1: Advice from financial advisor		Model 2: Advice from HR and fund administrator		Model 3: Advice from peers	
	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio	Beta coefficient (SE)	Odds ratio
Good	-0.304 (0.538)	0.738	1.522 (1.109)	4.580	0.803 (0.621)	2.232
Household income (reference category: R40 000+)						
Less than R20 000	-0.139 (0.575)	0.870	0.686 (0.789)	1.985	0.339 (0.588)	1.404
R20 001 – R30 000	-0.388 (0.532)	0.678	0.979 (0.714)	2.663	0.563 (0.560)	1.756
R30 001 – R40 000	-0.302 (0.530)	0.739	-0.161 (0.874)	0.852	0.781 (0.567)	2.183
Education (reference category: PhD)						
Grade 12 or lower	-1.659 (1.199)	0.190	-1.159 (0.857)	0.314	-0.622 (0.769)	0.537
Diploma/Undergraduate degree	-0.180 (0.570)	0.835	-1.082 (0.713)	0.339	-0.072 (0.592)	0.930
Honours/Master's	0.324 (0.504)	1.383	-0.858 (0.664)	0.424	-0.384 (0.563)	0.681
Age	0.019 (0.025)	1.019	-0.015 (0.034)	0.986	-0.021 (0.026)	0.980
Male	-0.112 (0.389)	0.894	-0.006 (0.445)	0.994	0.060 (0.360)	1.061
Married	0.449 (0.488)	1.567	-0.206 (0.472)	0.814	0.175 (0.410)	1.192
Race (reference category: white)						
Black	-0.580 (0.481)	0.560	0.675 (0.590)	1.963	0.198 (0.470)	1.220
Other	-0.796 (0.550)	0.451	0.270 (0.673)	1.310	0.733 (0.505)	2.081
Amount of funds (reference category: R1 000 000+)						
R100 000 and below	-1.983** (0.778)	0.138	0.815 (1.304)	2.259	1.033 (0.974)	2.810
R100 001 – R500 000	-0.752 (0.668)	0.471	0.789 (1.214)	2.201	0.019 (0.919)	1.019
R500 001 – R1 000 000	0.371 (0.772)	1.449	0.377 (1.374)	1.458	-0.088 (1.053)	0.916
Constant	0.418 (1.761)		-3.349 (2.498)		-2.562 (1.961)	
Model fit and classification						
Hosmer and Lemeshow test	$\chi2 = 4.337$ (8)	*p = .825*	$\chi2 = 4.044$ (8)	*p = .853*	$\chi2 = 13.442$ (8)	*p = .098*
Area under the ROC curve	*.811*	*p < 0.01*	*.729*	*p < 0.01*	*.729*	*p < 0.01*
Notes: * $p < .10$; ** $p < .05$; *** $p < .01$						

Source: Author's calculations

For Model 1, the statistically significant predictor associated with seeking advice from a financial advisor was having a high amount of accumulated retirement funds compared with those with low amounts of accumulated funds.

In Model 2, the statistically significant predictor associated with seeking advice from human resources or the fund administrator was having a low subjective assessment of financial knowledge (those who rated themselves as having bad or very bad levels of knowledge compared with those who rated themselves as having very good levels of knowledge).

For Model 3, those whose subjective assessment was that they had satisfactory financial knowledge levels were statistically significantly more likely to seek advice from peers than those who rated themselves as having very good levels of knowledge.

All three models demonstrate a good model fit as indicated by the non-significance of the Hosmer and Lemeshow goodness of fit test statistic. From a classification perspective, the area under the receiver operating characteristic (ROC) curve indicates that Models 2 and 3 provided a good level of discrimination between groups, while Model 1 provided very good levels of discrimination between those who seek advice from financial advisors and those who do not.

Study B findings: Quality of advice

Table 5 provides an overview of the findings of the logistic regression for Study B for quality of advice as determined by the decision to preserve funds. For the advice variable, the omitted category was those who did not follow any advice. For the other multiple category variables, reference (omitted) categories were chosen, based on which groups prior studies had identified as groups that were most likely to preserve funds.

The resultant logistic regression equation for this model is generically specified as follows: $\ln(\pi/(1-\pi)) = $ constant $+$ Advice type x β_1 $+$ Financial literacy score x β_2 $+$ Self-assessed financial knowledge score x β_3 $+$ Household income level x β_4 $+$ Education level x β_5 $+$ Age x β_6 $+$ Gender x β_7 $+$ Marital status x β_8 $+$ Race x β_9 $+$ Amount of funds x β_{10} $+$ Reason for job move x β_{11}

Table 5: Multivariate analysis for preservation decision in Study B (n = 228)

Variable	Beta coefficient (SE)	Odds ratio
Advice from (reference category: no advice)		
Peers	-0.003 (0.535)	0.997
HR or fund administrator	1.906*** (0.593)	6.725
Financial advisor	1.513*** (0.484)	4.542
Financial literacy score	-0.008 (0.011)	0.992
Self-assessed financial knowledge (reference category: "Very good")		
Bad/Very bad	-0.426 (0.861)	0.653
Satisfactory	-0.215 (0.560)	0.807
Good	-0.386 (0.578)	0.680
Household income (reference category: R40 000+)		
Less than R20 000	-0.630 (0.615)	0.532
R20 001 – R30 000	-1.083* (0.602)	0.339
R30 001 – R40 000	-0.726 (0.574)	0.484
Education (reference category: PhD)		
Grade 12 or lower	-3.356*** (1.216)	0.035
Diploma/Undergraduate degree	-1.645** (0.642)	0.193
Honours/Master's	-1.164* (0.596)	0.312
Age	-0.026 (0.028)	0.974
Male	-0.184 (0.403)	0.832
Married	-0.360 (0.472)	0.698
Race (reference category: white)		
Black	-1.379*** (0.517)	0.252
Other	-0.383 (0.580)	0.682
Amount of funds (reference category: R1 000 000+)		
R100000 and below	-3.166** (1.268)	0.042
R100 001 – R500 000	-2.601** (1.188)	0.074
R500 001 – R1 000 000	-1.877 (1.264)	0.153
Moved to a better job	1.075** (0.433)	2.931
Constant	5.214 (2.375)	
Model fit and classification		
Hosmer and Lemeshow test	χ2 = 4.116 (8)	*p = .846*
Area under the ROC curve	*.870*	*p < 0.01*
Notes: *$p < .10$; **$p < .05$; ***$p < .01$		

Source: Author's calculations

The statistically significant predictors associated with preserving funds were as follows: following advice from human resources, a fund administrator or a financial advisor (compared with not following advice), higher levels of education, higher amount of accumulated retirement funds, race: white (when compared with black African), high household income (when compared with middle-income category) and moving to a better job.

Source of advice is therefore a key predictor of preservation in a multivariate context. Advice from a financial advisor, human resources or the fund administrator increased the odds of preserving funds compared with those who did not follow advice. To assess practical significance, in interpreting the odds ratio, holding all other variables constant:

Obtaining advice from human resources or the fund administrator increased the odds of preserving retirement funds by 573 percent, compared with someone who did not obtain any advice.

Obtaining advice from a financial advisor increased the odds of preserving retirement funds by 354 percent, compared with someone who did not obtain any advice.

There was no statistically significant difference in preservation between those who followed advice from peers and those who did not follow any advice.

The model demonstrates a good model fit as indicated by the non-significance of the Hosmer and Lemeshow goodness of fit test statistic. From a classification perspective, the area under the receiver operating characteristic (ROC) curve indicates that the model provides very good levels of discrimination between those who preserved their funds and those who did not.

Discussion

Both studies considered whether financially unsophisticated individuals ask for help, with Study A focusing on a national sample, while Study B considered the use of advice in a sample of individuals who had recently made a pre-retirement cash-out decision. In addition, Study B investigated the quality of advice that individuals receive from difference sources when they do ask for help.

In Study A, professional financial advice and advice from banks or insurance companies appeared to be complementary and were more likely to be used by those with higher levels of financial sophistication, because individuals with higher levels of self-assessed financial knowledge, higher salaries and higher levels of education were more likely to consult these advice sources. This finding confirms what was found in a number of other studies (Calcagno & Monticone 2015; Collins 2012). While a high

level of objectively measured financial literacy was a significant predictor ($p <$ .1) for following advice from a financial advisor, high levels of subjective assessment of financial knowledge showed higher levels of statistical significance as predictors of following advice from financial advisors ($p <$ .05) and banks or insurance companies ($p <$ .05). This finding supports previous research that distinguishes between the role played by subjective assessment of financial literacy and objective measurement in the context of advice and financial decision making (Georgarakos & Inderst 2014; Hung & Yoong 2010).

Study A also found that, in many instances, financially unsophisticated individuals asked for help, but generally they did not ask for help from financial advisors. Those with lower levels of self-assessed financial knowledge, lower salaries and lower education levels followed advice from other sources such as community-based organisations and peer networks, indicating that advice, other than from a financial advisor, could act as a substitute for individuals with low levels of financial sophistication. This finding supports other studies which established that those with low levels of financial literacy used peer networks (Van Rooij et al. 2011). However, it should be noted that those who had the worst level of self-assessed financial knowledge were not more likely to seek advice from peers. This could indicate that those who most needed it did not ask for any help, even from peers.

For Study B, those with lower subjective assessment of financial knowledge followed advice from human resources or from peers. The only statistically significant predictor of following advice from a financial advisor was having a high amount of funds available at the time of the job move. This appears to imply that seeking advice might be driven by what is at stake, with those who had higher accumulated amounts seeking formal advice from a financial advisor. In this respect, those with lower amounts of funds available might have felt it was not worth the effort or cost to obtain professional advice. In addition, as the tax on withdrawal of accumulated funds is based on a sliding scale, higher amounts are more heavily taxed if withdrawn, which might prompt an individual to seek professional advice before making a decision when larger amounts are involved. The amount of funds also gives an indication of salary and age, as those who have higher salaries or who are older, are more likely to have accumulated higher amounts of funds. It could therefore also indicate that those who are financially more sophisticated are more likely to follow advice. This was confirmed in other studies, which found that wealth and age were positively related to seeking financial advice (Bhattacharya et al. 2012; Collins 2012).

Hence there would appear to be some indication that financially unsophisticated individuals are aware of their shortcomings, and ask for advice. However, they generally do not consult a financial advisor. This could perhaps be due to the costs associated with accessing professional advice. While this finding is in line with other

studies that found that financially unsophisticated individuals used peer networks (Chang 2005), it provides preliminary evidence that these individuals also consult other more formal advice channels such as human resources or fund administrators.

The nature of the sample used in Study B may introduce some limitations because the explanatory power of predictor variables may not necessarily correspond to the importance of the predictor in determining the use of advice as there may be limited variation in the predictors being measured in the sample. In particular, all respondents in Study B were currently employed, with higher levels of education and income when compared with the general population considered in Study A. In light of these potential limitations, further testing of other samples would be required before these results could be generalised in terms of factors predicting the use of advice in retirement preservation decisions.

In addition, for both Study A and Study B, the potential of measured financial literacy being endogenous may also introduce some limitations. The key problem relates to reverse causality in the relationship between financial literacy and financial advice, because those who seek financial advice may learn from their interactions with financial advisors and therefore end up with higher levels of financial literacy. Some studies have overcome this problem through the use of prior economics or mathematical education as proxies for financial literacy and the use of an instrumental variables approach. However, this was not possible in the current study because no suitable proxy variables were collected in either Study A or Study B.

Considering the quality of advice, higher preservation levels were found when advice from a financial advisor, the administrator of the fund or the human resources department was followed. In this regard, the odds of preserving funds for those consulting human resources and fund administrators increased by 573 percent compared with those who did not follow any advice. The finding that those with low levels of self-assessed financial knowledge sought advice from human resources and fund administrators provides preliminary evidence that it is possible for individuals with low levels of financial knowledge to receive good advice. However, following advice from peers did not result in higher preservation levels when compared with individuals who did not follow any advice. This seems to support the view that advice needs to be sought from the correct sources because peers may not necessarily have the requisite skill to assist in decision making (Benartzi & Thaler 2007).

There are potential limitations in terms of the measure of quality of advice because preserving funds may not necessarily be the optimal decision in all cases, in particular for those who are young and liquidity constrained, and who have lower amounts of funds available. However, by controlling for these factors in the multivariate model, the relationship between source of advice and the decision to preserve funds provides an indication of the quality of advice received.

Conclusion

The study found that individuals with both high and low levels of financial sophistication followed advice, but the source of advice differed. Professional financial advice appears to be complementary to financial literacy, and the advice is more likely to be used by those with higher levels of financial sophistication. Those with lower levels of financial sophistication followed advice from formal sources such as human resources departments and fund administrators, or informal sources such as peer networks. These findings indicate that advice, other than from a financial advisor, may act as a substitute for financial literacy among individuals with low levels of financial sophistication.

Therefore, while in most instances, financial advice from professional sources is not used as a substitute by those with low levels of financial literacy, financially unsophisticated individuals do ask for help. Many appear to be aware of their shortcomings and want advice, but they tend to rely on peers and community organisations where the risk is that they may not receive quality advice.

However, when considering the use of advice in retirement preservation decisions, individuals with the lowest levels of self-assessed financial knowledge accessed advice from human resources departments and fund administrators where preliminary indications were that they received quality advice. This has significant implications for the opportunity to assist in decision making, especially in the context of retirement decision making, where many individuals are able to access advice from these sources. New draft retirement regulations in South Africa appear to support the use of advice at the time of decision making as a way to assist individual decision making (South Africa, National Treasury 2015). In terms of these regulations, individuals need to consult a retirement benefits counsellor before being given access to accumulated retirement funds when moving jobs.

The question is not necessarily whether financially unsophisticated individuals know to ask for help, because many individuals in the study appeared to be aware of their shortcomings and wanted advice; rather, the focus should be on finding effective ways to provide affordable quality advice to financially unsophisticated individuals.

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