Age and Financial Capability: Implications for Lifespan Financial Education

Jing Jian Xiao, University of Rhode Island[1]
Cheng Chen, Renmin University of China[2]
Lei Sun, Renmin University of China[3]

Abstract

The purpose of this study is to examine age differences in financial capability. Financial capability is measured by three sets of variables: financial literacy, financial behavior, and perceived financial capability. Financial literacy has both objective and subjective measures. Financial behavior includes both desirable and risky financial behaviors. Financial capability is expected to increase with age. Specifically, we expect older consumers will demonstrate higher levels of both objective and subjective financial literacy, more desirable financial behaviors, fewer risky financial behaviors, and a higher level of perceived financial capability. Data from the 2012 National Financial Capability Study were used to examine the associations between age groups and financial capability variables. One-way ANOVA was used to examine age differences in financial capability variables. Then multiple regressions were used to examine age differences after control variables were used. The results indicated that age differences in five financial capability variables showed different patterns. After controlling for demographic, life cycle, economic, and other characteristics, young adults age 18-24 had the lowest scores of objective financial literacy, subjective financial literacy, and perceived financial capability. Young adults (age 18-35) had more risky financial behaviors compared to their older counterparts. The results have implications for consumer educators to provide effective financial education for all age groups.

Introduction

In recent years, a social movement promoting financial capability among consumers has been emerging, first in developed countries and then in developing countries. In the US, the movement is actively promoted by the President's Advisory Council on Financial Capability (PACFC, 2013). Many governmental and nongovernmental organizations work together to promote financial literacy and capability among American consumers (Fox & Bartholomae, 2008). In Europe, many countries have national initiatives to measure and improve consumer financial capability (see a description in Taylor, 2011). In 2006, the UK launched the national survey on financial capability (Atkinson, McKay, Kempson, & Collard, 2006), which was the first of this type worldwide. Later, many countries followed suit and conducted similar surveys such as Austria (Fessler, Schürz, Wagner, & Weber, 2007), Ireland (O'Donnell & Keeney, 2009), the US (FINRAIEF, 2009), and Canada (Arrowsmith & Pignal, 2010). The financial capability movement is motivated by current socioeconomic trends that government-managed economic safety nets are weakening, which requires more individual responsibility for long-term economic security such as retirement security. For example, in the US, the traditional retirement income source is the Social Security system, but it will be underfunded in the coming years. Company-sponsored pension systems are also changing from mainly defined benefit retirement plans to mainly defined contribution retirement plans (Campbell, Jackson, Madrian, & Tufano, 2011; Hanna & Chen, 2008). These trends suggest that ordinary consumers should worry about their long-term economic security and start to manage their retirement savings in the early years of their working careers.

[1] Professor, Department of Human Development and Family Study, Transition Center, 2 Lower College Road, University of Rhode Island, Kingston, RI, USA. Phone: 401-874-2547. Email: xiao@uri.edu.
[2] Ph.D. Student, Business School, 59 Zhongguancun Street, Renmin University of China, Beijing, China. Phone: +8610 82509141. Email: ccxchengzi@gmail.com.
[3] Ph.D. Student, Business School, 59 Zhongguancun Street, Renmin University of China, Beijing, China. Phone: +8610 82509141. Email: sunlei9010@googlemail.com.

Financial capability refers to people's ability to manage and take control of their finances (Taylor, 2011). Financial capability can be demonstrated by a certain level of financial literacy and performance of desirable financial behaviors. Therefore, financial literacy and financial behavior are closely related to financial capability. In the emerging literature on financial capability, researchers have used three types of measures for financial capability—a set of financial behavior measures (Atkinson et al. 2006), a mix of behavior and outcome measures (Taylor, 2011), and a set of comprehensive measures that include financial literacy, financial behavior, and perceived financial capability (Xiao, Chen, & Chen, 2013). The purpose of this study is to examine age differences in financial capability using a set of comprehensive measures.

This study contributes to the literature on financial capability by exploring age differences in multiple measures of financial capability that include both objective and subjective financial literacy, both desirable and risky financial behaviors, and perceived financial capability. The findings will provide helpful information for consumer educators to develop and provide effective financial education for all age groups of consumers.

Theoretical Framework and Hypotheses

The traditional life cycle hypothesis assumes that consumers are rational and strive to maximize life cycle utility to smooth their consumption over the lifespan (Hanna & Chen, 2008; Modigliani, 1986). Incorporating advances of modern psychological research, economists developed behavioral life cycle models to more accurately describe consumer life cycle consumption and saving behaviors such as the hyperbolic model (Angeletos, Laibson, Repetto, Tobacman, & Weinberg, 2001; Laibson, 1997). According to this model, consumers have dual personalities, acting impatiently in the short term but patiently in long term. Consumer finance becomes more complicated by consuming, borrowing, and saving as people age. When consumer finance becomes more complicated, we assume that consumers' financial capability is also increasing due to receiving formal or informal financial education and learning from real world financial life by engaging in more financial activities.

Financial capability can be measured in a variety of ways (Atkinson et al. 2006; Taylor, 2011). In this study, we measure financial capability in three dimensions, financial literacy, financial behavior, and perceived financial capability (Xiao, Chen, & Chen, 2013).

Financial literacy is assumed to be closely related to financial capability (Lusardi, 2011). A higher level of financial capability is related to not only having financial knowledge but also application of financial knowledge (Huston, 2010). Both objective and subjective financial literacy can be used to predict financial behavior (Allgood & Waterstad, 2013; Robb & Woodyard, 2011; Xiao, Tang, Serido, & Shim, 2011). Since financial literacy can be learned and accumulated from both educational and financial life settings, we expect both objective and subjective financial literacy levels are positively associated with age.

Financial behaviors refer to human behaviors relevant to money management (Xiao, 2008). In the context of financial capability, higher financial capability is associated with more desirable financial behaviors and fewer risky financial behaviors. As mentioned before, some researchers used desirable financial behaviors as proxy variables for financial capability (e.g., Atkinson et al. 2006). Higher financial capability should be associated with desirable or positive financial behaviors. Desirable financial behavior should result in financial well-being. Financial behaviors that cause negative consequences and hurt financial well-being are undesirable, labeled risky or negative behaviors. Previous research has indicated financial behaviors are associated with financial outcomes (Dew & Xiao 2011; Xiao, Tang, & Shim, 2009). We assume consumers are rational, and if they are financially capable, they should increase the number of desirable financial behaviors and decrease the number of risky financial behaviors as they age.

Perceived financial capability can be considered as financial self-efficacy. Self-efficacy is an important psychological factor that influences human behaviors. According to the author of this important concept, "Perceived self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). Self-efficacy is incorporated into the theory of planned behavior as an important determinant of human behavior, perceived control (Ajzen, 1991). The concept is also used in the transtheoretical model of behavior

change (TTM) as an indicator measuring behavior change processes (Prochaska, DiClemente, & Norcross, 1992). In the domain of consumer finance, financial self-efficacy is assumed to be a proxy for the true financial capability that helps consumers effectively manage their finances. As consumers age, their actual financial capability should increase along with their more complicated financial lives, and so does their perceived financial capability.

Based on the above discussion, we test the following hypotheses in this study:

H1. The level of objective financial literacy increases with age.
H2. The level of subjective financial literacy increases with age.
H3. The number of desirable financial behaviors increases with age.
H4. The number of risky financial behaviors decreases with age.
H5. The level of perceived financial capability increases with age.

Method

Data

Data used in this study were from the 2012 National Financial Capability Study (FINRAIEF, 2013). In consultation with the U.S. Department of the Treasury and the President's Advisory Council on Financial Literacy, the FINRA Investor Education Foundation commissioned the first national study of the financial capability of American adults in 2009. The 2012 study is a replicated one that included 25,509 American adults (roughly 500 per state, plus the District of Columbia) and 1,000 military service members through online surveys. The data set is available for public use from the website of the FINRA Investor Education Foundation.

Variables

The dependent variables were three sets of financial capability variables. The first set is related to objective financial literacy and subjective financial literacy. The second set is about desirable and risky financial behaviors. The third set includes a single variable, perceived financial capability. Independent variables include the focal variable, age group, and a set of demographic, life cycle, economic, and several other relevant variables. See Table 1 for variable specifications.

Data Analyses

Correlation analyses were conducted to examine associations between financial capability related variables. One-way ANOVA was conducted to examine age differences in financial capability variables. Multiple OLS regressions were used to examine age differences after adding control variables. Unweighted samples were used in the analyses.

Results and Discussion

Results of Correlation Analyses

Correlation analyses of the financial capability variables were conducted (Table 2). All correlations of these variables were expected except for the association between desirable and risky financial behaviors. We expected that the number of desirable financial behaviors should be negatively associated with that of risky financial behaviors but the result showed that the correlation is positive, suggesting the number of either desirable or risky financial behavior may imply the activeness of financial activities instead of the level of financial capability.

Table 1

Variable Specifications

Variable Label	Attribute
Financial capability	
Objective financial literacy	0 - 5, the sum of correct numbers for financial literacy questions. The original financial literacy variables (m6 - m10) were recoded to binary variables in which 1 = correct answer, 0 = otherwise and then the new variables were summed to form the score.
Subjective financial literacy	1 - very low, 7 - very high
Desirable financial behavior[a]	The sum of 12 desirable financial behaviors
Risky financial behavior[b]	The sum of 10 risky financial behaviors
Financial capability[c]	1 - strongly disagree, 7 - strongly agree
Variable of interest	
Age	6 age groups
Control variables	
Being male (vs. female)	1 = male, 0 = female
Education level	6 education levels
Being married	1 = married, 0 = not married
Having dependent children	1 = yes, 0 = no
Income level	8 income levels
Working	1 = yes, 0 = no
Financial satisfaction	1 - not at all satisfied, 10 - extremely satisfied
Experiencing income drop	1 = yes, 0 = no
Having checking account	1 = yes, 0 = no
Having savings, MMA and CD	1 = yes, 0 = no
Having other investments	1 = yes, 0 = no
Having a 401k plan	1 = yes, 0 = no
Owning a home	1 = yes, 0 = no
Having a mortgage	1 = yes, 0 = no
Having credit card	1 = yes, 0 = no
Perceived having too much debt	1 = strongly disagree, 7 = strongly agree
Perceived math ability	1 = strongly disagree, 7 = strongly agree
Received financial education	1 = yes, 0 = no

[a] Twelve desirable financial behaviors are saving for children's college education, saving for emergency, checking credit reports, checking credit scores, using advice on financial services (debt counseling, investment, mortgage, insurance, and taxes), contributing to 401k plans, comparison shopping for credit card, calculating retirement needs. All of these variables are binary variables. [b] Ten risky financial behaviors are overspending, overdrawing from checking accounts, borrowing a 401k loan, hardship withdrawing from a 401k plan, paying late on mortgage payments, engaging risky credit card behaviors (keeping a balance, making minimum payment, paying late, being charged over limit fee, and using cash advance). All of these variables are binary. [c] "I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses."

Results of One-way ANOVA

Figures 1a-1e demonstrate associations of five financial capability variables by age group. In Figures 1a and 1b, both objective and subjective financial literacy showed positive associations with age group. Results of the one-way ANOVA analysis show some interesting patterns. (The tables are not shown in this paper because of space considerations but are available upon request from the lead author). Both objective and subjective financial literacy variables are positively associated with age group but the associations have differential patterns. For objective financial literacy, the scores of all age groups are statistically different from each other, but for subjective financial literacy, the scores of three adult groups (age 25-34, 35-44, 45-54) show no statistical differences.

Figures 1c and 1d show age differences in the number of desirable financial behaviors and the number of risky financial behaviors, respectively. Those in the youngest age group (age 18-24) have the fewest desirable financial behaviors. One-way ANOVA results indicate that three age groups are statistically different, age 18-24, age 45-54, and all other age groups as one group. Those in the young adult age group (age 25-34) have the highest number of risky financial behaviors. One-way ANOVA results indicate that, once the six original age groups are collapsed into four statistically different groups, those age 65+ have the lowest number, those age 18-24 and age 55-64 have the second lowest number, those age 45-54 have the second highest number, and those age 25-34 and age 35-44 together have the highest number of risky financial behaviors.

Figure 1e demonstrates the association between perceived financial capability and age. One-way ANOVA results show that scores of all age groups are statistically different from each other. Those in the youngest age group have the lowest score and those in the oldest group have the highest score on perceived financial capability.

Results of Multiple OLS Regressions

Multiple OLS regressions were conducted to examine age differences in the five financial capability variables controlling for demographic, life cycle, economic, and other relevant variables (Table 3). The results for objective financial literacy show the same pattern as that of the one-way ANOVA; compared to the youngest group (age 18-24), all older age groups have higher scores on objective financial literacy (Table 3, column 1). After controlling for other variables, all age groups show higher scores for subjective financial literacy compared to the youngest group (age 18-24) (Table 3, column 2), which is slightly different from the result of one-way ANOVA in which scores of several age groups are not statistically different. These results support H1 and H2.

Patterns in the number of desirable financial behaviors by age group are different from the one-way ANOVA results. The regression results show that compared to the reference category (those aged 18-24 years), those aged 25-34 years have the highest number, while other older age groups have lower numbers of desirable financial behaviors (Table 3, column 3), which is inconsistent with the result of one-way ANOVA and with H3. To explore the inconsistency, we conducted additional regressions by adding control variables one by one to the model. The results show that at the beginning, when no control variables were used, the youngest age group had the lowest number of desirable financial behaviors. After several economic and life cycle control variables were entered into the model, the results started to show the pattern in Table 3, column 3. These results suggest that control variables are important to detect age differences in the number of desirable financial behaviors.

The regression results show that those in age groups older than age 35 had lower numbers of risky financial behaviors than the those in the youngest group (age 18-24) while young adults age 18-24 and aged 25-34 years were not statistically different in terms of the number of risky financial behaviors (Table 3, column 4), which is similar to the result of one-way ANOVA, which supports H4.

Table 3, column 5 presents the regression results in terms of perceived financial capability. These results are consistent with the one-way ANOVA results that age is positively associated with perceived financial capability, supporting H5.

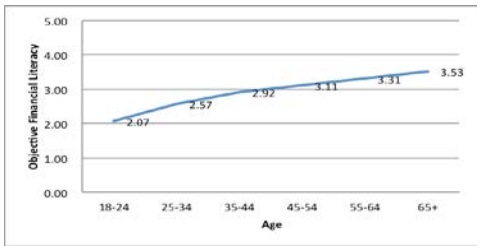
Table 2

Correlations of Financial Capability-Related Variables

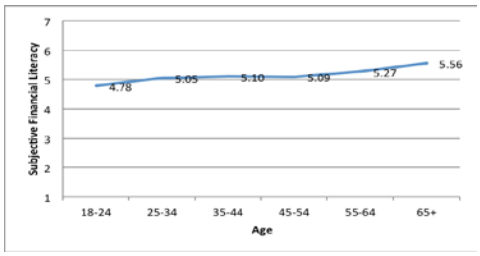
	Objective Financial Literacy	Subjective Financial Literacy	Desirable Financial Behavior	Risky Financial Behavior
Subjective financial literacy	.248			
Desirable financial behavior	.317	.305		
Risky financial behavior	-.029	-.028	.150	
Perceived financial capability	.259	.421	.206	-.122

Note. N = 25,509. $p < .01$, two-tailed.

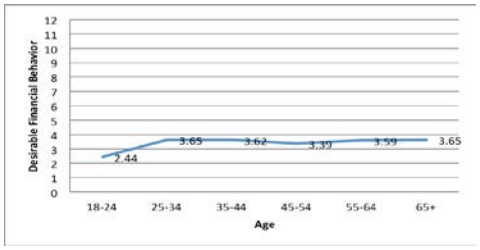
a. Objective financial literacy by age



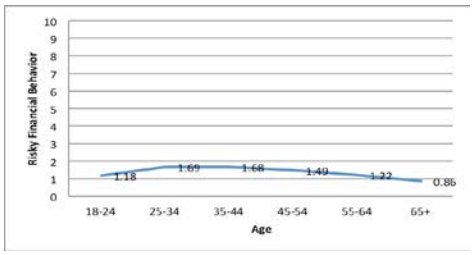
b. Subjective financial literacy by age



c. Number of desirable financial behaviors by age



d. Number of risky financial behaviors by age



e. Perceived financial capability by age

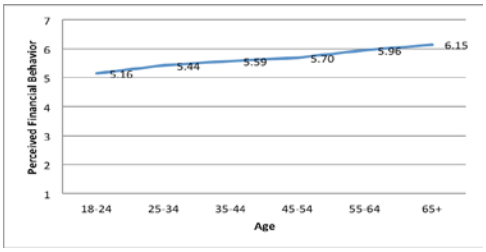


Figure 1. Financial capability variables by age.

Table 3

Results of OLS Regression on Objective Financial Literacy (N = 25,509)

Variable	Objective Financial Literacy (1)	Subjective Financial Literacy (2)	Desirable Financial Behavior (3)	Risky Financial Behavior (4)	Perceived Financial Capability (5)
(Constant)	.432***	2.702***	-1.061***	-.419***	2.019***
Age 25-34	.138***	.134***	.135*	-.037	.196***
Age 35-44	.357***	.145***	-.239***	-.118**	.248***
Age 45-54	.513***	.137***	-.356***	-.204***	.320***
Age 55-64	.585***	.227***	-.206***	-.244***	.409***
Age 65 or older	.702***	.344***	-.338***	-.313***	.401***
Male	.416***	.063***	.058*	.016	-.229***
Education	.160***	.006	.141***	-.037***	-.011
Married	.028	.033*	-.066*	-.107***	.005
Have dependent children	-.100***	.085***	.614***	.320***	-.046*
Income	.082***	-.003	.140***	-.049***	-.010
Working	-.012	.022	.259***	.131***	-.036*
Financial satisfaction	-.061***	.114***	.137***	-.057***	.047***
Experience income drop	-.051**	.118***	.629***	.517***	-.079***
Have checking account	.184***	.053	.018	.407***	.418***
Have savings, MMA and CD	.113***	.050**	.514***	-.025	.133***
Have investment	.297***	.153***	1.176***	-.077***	.037
Have 401k account	.153***	-.045**	.695***	.142***	-.042*
Own home	.027	.082***	.087*	-.066*	.047*
Have mortgage	.084***	.029	.417***	.352***	.017
Have credit card	.171***	.155***	.773***	1.477***	.161***
Perceived having too much debt	-.038***	-.006	.003	.253***	-.038***
Perceived math ability	.157***	.216***	.043***	-.049***	.519***
Have received financial education	.251***	.361***	.654***	.095***	.084***
F	541.156	382.114	775.202	583.938	684.607
P	.000	.000	.000	.000	.000
R^2	.336	.266	.420	.353	.391

Note: Reference category is age 18-24. *p <.05. **p <.01. ***p <.001.

Conclusion

This study has examined age differences in financial capability by using data from the 2012 National Financial Capability Study. Financial capability is measured by three sets of factors and five specific variables, which are objective financial literacy, subjective financial literacy, the number of desirable financial behaviors, the number of risky financial behaviors, and perceived financial capability. Results show that both objective financial literacy and subjective financial literacy increase with age even after controlling for demographic, life cycle, economic, and other relevant factors. The same pattern is also found in perceived financial capability. The patterns of the numbers of desirable financial behavior are complicated. Bivariate analyses show that young adults (age 18-24) have the lowest number of desirable financial behaviors while multiple regression results show that this age group has the highest number after entering control variables, which needs future research to clarify the issue. Both bivariate and multivariate analyses show that those aged 24-34 years have the highest number of risky financial behaviors.

Implications

The results of this study have important implications for consumer financial educators. The findings suggest that age is an important factor for financial capability. Three of the five financial capability variables are positively associated with age. The results suggest that accumulation of financial capability is happening as consumers age. Consumer educators should be aware of this pattern and provide age specific financial education to different age groups. The results also suggest young adults, especially those aged 25-34 years, need to receive effective financial education to reduce risky financial behaviors. At this stage of the life cycle, consumers may have serious credit constraints and greater likelihood of incurring many types of debts. To ensure these consumers' financial well-being, educators need to teach effective strategies to borrow smartly and to avoid debt traps to these young adult consumers.

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