Financial Capability and Wellbeing in the US: A Decade Comparison (2009-2018) Based on National Financial Capability Study

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Introduction

In the past year, the pandemic changed all aspects of people's life worldwide including economic life. Because of the stagnation of economies, many consumers lost jobs or reduced income substantially. In the U.S., the situation is worse than many other countries in terms of confirmed covid-19 cases and related deaths. How to support American people during the health and resulting financial crises is a challenge for consumer science researchers. Within the context of financial capability, Financial Literacy and Education Commission (FLEC) has invested critical efforts in financial literacy and education as a key to unlocking the economic opportunity and powering a strong and resilient economy during this pandemic era (U.S. Financial Literacy and Education Commission, 2020). Identifying factors that may improve consumer financial capability and wellbeing is the urgent need for researchers. This study attempts to respond to this important social demand.

The purpose of this study is to compare financial capability of American consumers between 2009 and 2018 using data from the National Financial Capability Study (NFCS) and examine to which extent financial capability indicators are associated with financial wellbeing and whether these associations change after a decade (2009-2018). The findings of this study have implications for better meeting consumer financial education needs during the current crises. In the existing literature, financial capability is defined in various ways by different researchers (e.g., Atkinson et al., 2007; Huston, 2010; Johnson & Sherraden, 2007; Lusardi & Mitchell, 2007). In this study, financial capability refers to the consumer ability to apply appropriate financial knowledge and engage in desirable financial behavior for achieving financial wellbeing (Xiao et al., 2014).

UK is the first country to start the national survey of financial capability and published its results in 2007 (Atkinson et al., 2007). Later many countries follow the suit (Xiao, 2015). US started its first National Financial Capability Study sponsored by FINRA Investor Education Foundation (IEF) in 2009 and then repeated it every three years until the latest one in 2018 (Mottola & Kieffer, 2017). This dataset is used widely by researchers to study financial capability and wellbeing of American consumers (e.g., Babiarz & Robb; 2014; Kim & Xiao, 2020; Kim et al., 2019; Lusardi & Mitchell, 2011; Robb & Woodyard, 2011; also see a review by Xiao, 2020). Researching financial capability has both theoretical and practical significances. Based on the standard economic theory, consumers are fully informed and able to make optimal decisions over the lifecycle (Modigniani, 1986). However, much evidence shows that consumers are not fully informed evidenced by low financial literacy (Lusardi & Michell, 2014) and unable to make rational decisions but financial mistakes (Campbell, 2016). Improving consumer financial literacy and encourage consumers to engage in desirable consumer behaviors would help improve their financial capability and change from a behavioral agent to a rational agent (Campbell, 2016). In additional, many behavioral patterns of consumer finance can be used to enrich the development of behavioral economic theories (Thaler, 2018). From the practical aspects, the current socioeconomic trends demand consumers to have more knowledge and engage in desirable behaviors since they need to take care of their long-term economic security especially at retirement and face increasingly more complex financial products in borrowing and saving/investing in marketplaces (Atkinson et al., 2007).

Previous research suggests that financial capability indicators are contributing to consumer wellbeing to various degrees (Xiao et al., 2014; Xiao & O'Neill, 2018; Xiao & Porto, 2017). In this study, we are interested in exploring if these results are stable after a decade. In addition, we would like to know if the associations between financial capability and wellbeing are the same or different among different age groups (Lusardi & Mitchell, 2007; Xiao et al., 2015). Specifically, we propose the following hypotheses:

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H1: Associations between financial capability indicators and financial wellbeing vary by financial capability indicators.
H2: Potential effects of financial capability indicators on financial wellbeing are stable among different age groups.

Method

Dataset

This study used the 2009 and 2018 National Financial Capability Studies (NFCS) dataset released by the FINRA Investor Education Foundation. The NFCS dataset has collected detailed variables on financial capability, financial status and various financial behaviors. The total sample of the 2009 and 2018 NFCS are 28,146 and 27,091, respectively. The analytic samples have 25,097 (2009 NFCS) and 23,936 (2018 NFCS) observations.

Dependent variable

The dependent variable was an indicator of financial wellbeing based on the following question, "Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition?" The financial wellbeing variable was ranged from 1 (not at all satisfied) to 10 (extremely satisfied).

Financial capability variables

The dependent variables were four indicators of financial capability and one index variable following previous studies on financial capability (e.g., Xiao & O'Neill, 2016). The full description of financial capability measurements is available from authors upon request due to the space limit, but we specified the corresponding variable numbers. Given the availability of dataset in both 2009 and 2018 NFCS, we used the following four indicators; (a) objective financial knowledge ranged 0 to 5 (M6, M7, M8, M9, M10), (b) subjective financial knowledge ranged 1 to 7 (M4), (c) perceived financial capability ranged 1 to 7 (M1_1) and (d) desired financial behavior ranged 0 to 6 (short-term 0-3, B4, J3, J5; long-term 0-3, B14, C1, J8 or J9). Lastly, the financial capability index was estimated using the sum of *z*-scores from four financial capability variables.

Control variables

Given the availability in both 2009 and 2018 NFCS dataset, the following set of control variables are included in our analyses; age (18-24, 25-34, 35-44, 45-54, 55-64, age 65 or older), gender (male, female), marital status (married, single, separated/divorced /widowed), the presence of dependent children (yes, no), race (white, non-white), education (high school or lower, some college, bachelor, post-bachelor), employment status (full-time worker, self-employed, part-time worker, homemaker, student, disabled, unemployed, retired), household income, substantial income drop (yes, no) and banking status (yes, no), homeownership (yes, no), state of residence (i.e., state code).

Empirical specification

To test our research hypotheses, we conducted the following empirical analyses. First, we used t-test analyses to compare financial wellbeing and financial capability between 2009 and 2018. Further, we utilized OLS regressions in each survey wave separately to check the associations between financial capability variables and financial wellbeing after controlling for various household characteristics. Lastly, we conducted similar regression analyses to check the robust of the association across six different age groups and compare results between 2009 and 2018 as heterogeneity analyses.

Results

Descriptive results

Table 1 shows T-test results of financial wellbeing and financial capability variables. We found that financial wellbeing variable had significantly higher in 2018 compared to 2009. Further, compared to 2009, financial capability indicators increased significantly in 2018 except for objective financial knowledge.

Multivariate results

Table 2 presents results of OLS regressions on financial wellbeing from 2009 and 2018 NFCS separately. All financial capability indicators are positively associated with financial wellbeing except for objective financial knowledge and we found the consistent pattern between two survey waves. Among financial capability indicators, the size of effect was largest for desired financial behavior. In particular, the

level of financial capability increased by .6008 (2009 NFCS) and .6542 (2018 NFCS) as one unit increase in desired financial behavior. By contrast the financial wellbeing decreased, surprisingly, by .2031 (2009 NFCS) and .2695 (2018 NFCS) as one unit increase in objective financial knowledge. Thus, our hypothesis 1 was supported.

In addition, we conducted similar regression analyses using a comprehensive index of financial capability and results are reported in Table 3. Results indicated that financial capability was positively associated with financial wellbeing scores. Specifically, the level of financial wellbeing increased by .3051 (2009 NFCS) and .3968 (2018 NFCS) as one unit increase in the financial capability index.

Lastly, we conducted additional regression analyses to check the robustness of our results and heterogeneity of the association between financial capability and wellbeing. Table 4 show summary regression results from two survey waves across six age groups (i.e., Panel A to Panel F). We found consistent and robust results indicating that financial capability indicators were positively associated with financial wellbeing except for objective financial knowledge. However, the effect of perceived financial capability was not consistent between 2009 and 2018 NFCS in four age groups (25-34, 35-44, 55-64 and 65 or older). Our research hypothesis 2 was supported partially.

Discussion and Implications

This study compared the data between 2009 and 2018 NCFS to examine to which extent financial capability indicators are associated with financial wellbeing and whether the associations are changed over the decade. The results show that financial capability indicators such as subjective financial literacy, desirable financial behaviors, and perceived financial capability are positively associated with financial wellbeing, even their potential effects are varied, among which financial behavior shows the largest, subjective financial literacy shows the second largest, and perceived financial capability shows the smallest potential effect. Surprisingly, objective financial literacy is negatively associated with financial wellbeing, which is also found in previous research (e.g., Xiao et al., 2014) and needs to be explored in future research. The associations between financial capability indicators and financial wellbeing between 2009 and 2018 are fairly stable. As heterogeneity analyses, we conducted similar regression analyses among six age groups. The results are similar with the full sample with some exceptions.

Findings of this study have implications for financial education policy makers and educators. First, the results suggest financial behavior may play the most active role in financial wellbeing. Financial education policy makers may encourage action-oriented education programs when they make relevant policies. Financial educators may also beware of these findings and design more action intensive education programs for their students and target groups. Second, the findings suggest that subjective financial knowledge would contribute to financial wellbeing, and this is a positive signal for financial education policy makers and educators. Financial education may provide multiple benefits for students including raising their confidence which is important based on the theory of self-efficacy. Third, findings of this study suggest the associations between financial capability indicators and financial wellbeing are similar among different age groups with some exceptions. For example, based on the 2018 data in table 4, for younger groups (44 years or younger), results suggest that subjective financial knowledge has a larger potential effect than financial behavior on financial wellbeing but the situation in the older group (45 years or older) is opposite. These differences can be considered when financial education policies are made, and education programs are designed and delivered.

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Table 1. T-test results of selected variables, 2009 and 2018 NFCS

Variables	2009	2018	Difference (2018-2009)	P-value
Financial wellbeing	4.4767	5.7373	+1.2606	<.0001
Financial capability variables				
Objective financial knowledge (0-5)	3.1268	2.8527	-0.2741	<.0001
Subjective financial knowledge (1-7)	4.9529	5.1488	+0.1958	<.0001
Perceived financial capability (1-7)	5.6322	5.789	+0.1568	<.0001
Desired financial behavior (0-6)	3.0754	3.488	+0.4126	<.0001

Weighted results.

Table 2. OLS regression on financial wellbeing, 2009 and 2018 NFCS

Variables	2009 NFCS		2018 NFCS	
	Coefficient	Standard Error	Coefficient	Standard Error
Financial capability variables				
Objective financial knowledge	-0.2031***	0.0119	-0.2695***	0.0114
Subjective financial knowledge	0.3862***	0.0123	0.5379***	0.0125
Perceived financial capability	0.0364***	0.0093	0.0993***	0.0110
Desired financial behavior	0.6008***	0.0111	0.6542***	0.0114
Constant	2.2240***	0.1435	1.8656***	0.1500
Control variables	Included		Included	
State of residence	Included		Included	
Adjusted r-squared	0.3816		0.4632	
F-value	185.39***		246.85***	

Weighted results. Significance level: *p < .05, **p < .01, ***p < .001. Control variables include age, gender, marital status, presence of dependent children, race, education, employment status, household income, substantial income drop, banking status and homeownership.

Table 3. OLS regression on financial wellbeing, 2009 and 2018 NFCS

Variables	2009 NFCS		2018 NFCS	
	Coefficient	Standard Error	Coefficient	Standard Error
Financial capability index (sum of z-scores)	0.3051***	0.0063	0.3968***	0.0066
Constant	5.5853	0.1429	6.5108	0.1542
Control variables	Included		Included	
State of residence	Included		Included	
Adjusted r-squared	0.3152		0.3795	
F-value	143.59***		181.73***	

Weighted results. Significance level: *p < .05, **p < .01, ***p < .001. Control variables include age, gender, marital status, presence of dependent children, race, education, employment status, household income, substantial income drop, banking status and homeownership

Table 4. Summary results from OLS regressions on financial wellbeing across different age groups, 2009 and 2018 NFCS

Variables	2009 NFCS		2018 NFCS	
	Coefficient	Standard Error	Coefficient	Standard Error
Panel A: Age 18-24				

Objective financial knowledge	-0.1578***	0.0340	-0.1342***	0.0390
Subjective financial knowledge	0.3161***	0.0359	0.5308***	0.0392
Perceived financial capability	0.0796**	0.0286	0.1544***	0.0347
Desired financial behavior	0.5235***	0.0362	0.3796***	0.0400
Comprehensive index	0.2720***	0.0187	0.3649***	0.0209
Panel B: Age 25-34				
Objective financial knowledge	-0.2387***	0.0273	-0.4216***	0.0282
Subjective financial knowledge	0.4524***	0.0289	0.6060***	0.0292
Perceived financial capability	0.0249	0.0219	0.1026***	0.0261
Desired financial behavior	0.5824***	0.0262	0.5137***	0.0278
Comprehensive index	0.2989***	0.0150	0.3546***	0.0165
Panel C: Age 35-44				
Objective financial knowledge	-0.2331***	0.0265	-0.3982***	0.0290
Subjective financial knowledge	0.3983***	0.0270	0.6220***	0.0303
Perceived financial capability	0.0416*	0.0202	0.0459	0.0271
Desired financial behavior	0.6039***	0.0245	0.5945***	0.0293
Comprehensive index	0.3158***	0.0140	0.3575***	0.0167
Panel D: Age 45-54				
Objective financial knowledge	-0.1822***	0.0263	-0.3453***	0.0280
Subjective financial knowledge	0.3433***	0.0259	0.5210***	0.0295
Perceived financial capability	0.0462*	0.0198	0.0632*	0.0265
Desired financial behavior	0.5531***	0.0235	0.6879***	0.0286
Comprehensive index	0.2938***	0.0134	0.3612***	0.0160
Panel E: Age 55-64				
Objective financial knowledge	-0.1930***	0.0315	-0.1587***	0.0258
Subjective financial knowledge	0.3743***	0.0315	0.4791***	0.0299
Perceived financial capability	-0.0032	0.0239	0.0695**	0.0262
Desired financial behavior	0.6396***	0.0280	0.7465***	0.0260
Comprehensive index	0.3010***	0.0167	0.4129***	0.0150
Panel F: Age 65 or older				
Objective financial knowledge	-0.2247***	0.0335	-0.0966***	0.0239
Subjective financial knowledge	0.4180***	0.0368	0.4906***	0.0284
Perceived financial capability	0.0338	0.0272	0.0881***	0.0248
Desired financial behavior	0.6861***	0.0325	0.6724***	0.0239
Comprehensive index	0.3213***	0.0183	0.4269***	0.0148

Weighted results. Significance level: *p < .05, **p < .01, ***p < .001. Control variables include age, gender, marital status, presence of dependent children, race, education, employment status, household income, substantial income drop, banking status and homeownership.