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Exploring financial behaviors of military households: Do financial knowledge and financial education matter?

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Abstract

This study explores short-term and long-term financial behaviors of military and civilian households in the United States. We investigate the role of financial knowledge and financial education on financial behaviors. Using the 2018 National Financial Capability Study (NFCS), results indicated military households had higher financial knowledge scores, greater receipt of financial education, and higher financial behaviors. Multivariate analyses show that objective and subjective financial knowledge were associated positively with short-term and long-term financial behaviors of military and civilian households. Experiencing financial education was positively associated with the long-term behaviors of military households. This study provides insights for policymakers and financial practitioners.

JEL classifications: G510; G530

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1. Introduction

Despite the attention of both the popular press and the government on the topic of finances in military households, there is still limited empirical research in this area (Carlson et al.,

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2015; Skimmyhorn, 2016a). Developing a better understanding of the financial behaviors of military households is an important topic as it may facilitate ways to help military personnel reduce stress and strain (Luther et al., 1998). Commonly reported among all types of American households is that money, work, and the economy are very or somewhat significant sources of stress in their lives (American Psychological Association, 2017). Given the Great Recession, housing market struggles, the complexity of financial products, as well as the economic impact of the COVID-19 pandemic, it is important to consider ways to improve the financial well-being of Americans, especially our military households, now and into the future.

Financial behaviors, including financial management, savings behavior, and investments have been analyzed for the general (civilian) population (e.g., Henager & Cude, 2016; Xiao, 2008). Additionally, specific sub populations have been investigated including the college-aged population and Millennials (e.g., Henry et al., 2001; Kim et al., 2019; Lee & Kim, 2020). Unfortunately, less is known about the military population, as the limited research has focused on descriptive analyses rather than multivariate analyses.

Research from the military has identified that financial management skills and well-being are positively affected by financial knowledge (Bell et al., 2014, 2009). Further, younger members of the military had greater financial security than their civilian counterparts (FINRA IEF, 2016). Carlson and colleagues (2015) found that financial behaviors were positively impacted by high levels of financial knowledge (subjective), high self-mastery, and lower levels of financial anxiety for military members. Additionally, they found that soldiers with emergency savings had better financial behaviors than those without emergency savings, while soldiers with credit card debt had worse financial behaviors than those without credit card debt.

This study is aimed to explore financial behaviors of military households in the United States in two ways; short-term and long-term financial behaviors. The focus for short-term behaviors is emergency savings, spending within one's limits, managing a checking account, and budgeting while the focus for long-term behaviors is retirement planning, savings, investments, and having a will. Further, we investigate the role of financial knowledge and financial education as salient factors for these financial behaviors. Empirical results will provide an important insight into policymakers as well as financial practitioners. While prior work on military households has provided this study a groundwork on the roles of financial knowledge and financial behaviors, little work has investigated the differences among short-term and long-term financial behaviors and financial education.

2. Literature review

2.1. Financial behaviors, knowledge, and education

Understanding the role of financial knowledge and financial education on financial behaviors is important as decisions made throughout the life course can have lasting effects on a households' present and future financial decision making. Having higher levels of financial

literacy when younger leads to better financial decisions and improved quality of life later in life (James et al., 2012).

There is a growing body of literature identifying the relationship between financial knowledge and financial behaviors. Behaviors such as having a checking and/or savings account, making payments on time, having an emergency fund, and tracking expenses are associated with higher levels of financial knowledge (Hilgert et al., 2003). Additionally, higher financial knowledge was associated with ownership of investments and saving for long-term goals (Moore, 2003) and retirement planning (Delavande et al., 2008). Having a will is an important component of estate planning and older adults with more assets were more likely to plan for wealth transference using a will (Goetting & Martin, 2001). However, planning for a lifetime of wealth transference should begin when an individual is young and be updated over time (Garman & Forgue, 2012). Research has found that respondents with higher levels of financial knowledge were more likely to plan and to succeed in their planning (Lusardi & Mitchell, 2007, 2011). Whereas, having low financial knowledge has been found to negatively impact long-term financial behaviors as well as daily financial management (Braunstein & Welch, 2002). Specifically, more negative financial behaviors (e.g., high interest rate mortgages, limited savings and investments, and over borrowing) are associated with low levels of financial knowledge (Lusardi, 2008).

When investigating short-term and long-term financial behaviors, both subjective and objective financial knowledge was positively associated with both types of financial behaviors (Henager & Cude, 2016). In addition to objective financial knowledge, subjective financial knowledge has been linked to greater likelihood to plan (Hadar et al., 2013), participate in best financial practices (Robb & Woodyard, 2011), and better credit card practices (Allgood & Walstad, 2016). The body of literature has also identified that socio-demographic status is important when examining financial behaviors. For example, gender, age, race, marital status, dependent children, employment status, educational attainment, and income have all been found to impact financial behaviors (Fernandes et al., 2014; Henager & Cude, 2016; Lee & Kim, 2020; Robb & Woodyard, 2011; Xiao et al., 2015; Zick et al., 2012).

Financial education programs generally include both prevention and intervention strategies to improve financial knowledge, engagement, and communication in an effort to increase financial wellness (Borden et al., 2016). The principle idea behind financial education programs is that many individuals and households lack the financial knowledge needed to make appropriate financial decisions (Tang & Baker, 2016). Literature regarding the impact of financial education on financial knowledge shows mixed results; some researchers have found a significant positive association (Kaiser et al., 2021; Tang & Peter, 2015) while others have found no significant association between financial education courses and financial knowledge (Mandell, 2008, Xiao et al., 2011 Despite this, the potential benefit of financial education is often viewed as one of many approaches to increasing financial knowledge (Gale & Levine, 2010).

As a result of concern for financial well-being and low levels of financial knowledge, government, business, and nonprofit entities have started developing programs aimed at improving financial knowledge with the goals of improving financial behaviors (Fernandes et al., 2014). Such programs are available specifically to military members through programming

developed within each service branch as well as nonprofits targeting military members (Borden et al., 2016).

2.2. Finances in military households

Proper management of finances is important for all types of families, as it may reduce financial strain and distress. Both civilian and military families experience similar amounts of financial stress (Skimmyhorn, 2014); however, there are differences that need to be considered (e.g., Griffith, 2015). Military families experience stressors that civilian families do not usually experience, including deployment and frequent moves required by the military (Hosek & Wadsworth, 2013). Having confidence in their deployment support (e.g., trust in chain of command and available support options) was associated with decreased financial difficulties while deployed (Griffith, 2015). Conversely, having seen others wounded or killed in combat or post-deployment experiences (e.g., anger, frustration) was associated with increased financial difficulties (Griffith, 2015) and growing literature is identifying the implications of post-traumatic stress disorder (PTSD) on financial stress and behaviors among service members (e.g., Harrison et al., 2010; Olson et al., 2018; Wang & Pullman, 2019). In an effort to help military families cope financially, pay increases have led to earnings of military members being higher than civilians with equivalent education levels (Hosek & Wadsworth, 2013). Military families spend less on food, healthcare, personal items, and taxes when compared with civilian families (Hosek & Wadsworth, 2013). However, military spouses' are more likely to be unemployed or work fewer hours than they prefer, as compared with their civilian counterparts (Hosek & Wadsworth, 2013). Service members may be experiencing higher rates of debt than in the past, including more incoming members entering service with debt (26% in 1997 to 42% in 2003; Hosek & Wadsworth, 2013).

Not all military families experience finances in the same way, as there may be variance based on rank and branch of service. Within military families, active duty families tend to be better off financially than those that are reserve service families (London & Heflin, 2015), whereas those in the Army have lower financial well-being than those in the Air Force (Skimmyhorn, 2014). Families of officers have better financial well-being than those of enlisted service members' families (Hosek & Wadsworth, 2013).

Specific to financial behaviors, service members may differ from their civilian counterparts. Results published from the National Financial Capability Study (NFCS), identified that credit card holders (both civilian and military) participate in negative financial behaviors such as only paying the minimum payment, incurring late fees, or using a cash advance from a credit card. However, military service members were more likely than civilians to engage in at least one of these negative behaviors (FINRA IEF, 2013a, 2013b). Among a Marine Corp sample, commonly found financial problems included bounced checks and/or suspensions of check-cashing privileges, high credit card debt, overuse of credit, and high phone bills (Varcoe et al., 2003). Using the NFCS, Skimmyhorn (2016b) found that military members had more types of savings accounts (e.g., has an emergency fund, has nonretirement investments) and greater credit card behaviors (e.g., not paying balance in full, paying

a late fee, and using a cash advance) that were problematic compared with the civilian population.

On the other hand, over half of military households (57%; 36% for civilians) did not have difficulty covering their monthly expenses, 41% reported some difficulty, and 10% reported a great deal of difficulty, much related to pay grades (those in higher pay grades had easier times making ends meet) (FINRA IEF, 2013a, 2013b). More of military respondents (51%) reported spending less than their income as compared with civilians (41%; FINRA IEF, 2013a, 2013b). Not only has pay grade within the military been found to correlate with financial behaviors; but also financial behaviors vary between the branches (Skimmyhorn, 2014). As compared with Army counterparts, those in the Air Force were equally as likely to report spending more than their income, while those in the Navy were less likely and Marines were more likely (Skimmyhorn, 2014).

In addition, military members tend to be better at saving than their civilian counterparts, from the 2012 survey 54% of service members had an emergency fund to cover three months of living expenses, while only 40% of civilians did (FINRA IEF, 2013a, 2013b). Of those in active duty, over half (57%) reported saving for retirement (Defense Manpower Data Center, 2016). Focusing on retirement, differences between career military and noncareer military has been identified in terms of total family income, percent of income saved, retirement income sources, and total number of pension plans; as well as differences in financial satisfaction (Brunson et al., 1998). According to a recent report from the Consumer Financial Protection Bureau (CFPB, 2019), veterans' financial skills and behaviors (e.g., budgeting, spending within budget) were positively associated with their financial situation and financial well-being. Additionally, the analysis identified that financial education increases financial behaviors and financial well-being (CFPB, 2019).

2.3. Research questions

Given the previous studies on financial behavior, knowledge, and education discussed above, this study extends the existing literature by examining the associations between financial knowledge and education with financial behaviors of military households by addressing the following research questions.

Research Question (RQ) 1: Are financial knowledge and financial education associated with positive short-term financial behaviors of military households?

Research Question (RQ) 2: Are financial knowledge and financial education associated with positive long-term financial behaviors of military households?

3. Method

3.1. Dataset and sample selection

The data used for this study came from the 2018 National Financial Capability Study (NFCS) State-by-State Survey Instrument sponsored by the Financial Industry Regulatory

Authority (FINRA). The questionnaire was administered on a state-by-state basis to achieve approximately 500 observations from each state and the District of Columbia and was designed to assist in better understanding financial capability in the United States (Mottola & Kieffer, 2017). The self-reported data were collected from June through October in 2018 (FINRA IEF, 2019). The total sample size of the 2018 NFCS is 27,091 and this study includes 20,796; observations were dropped from the sample if the respondent chose "prefer not to say" for the objective financial knowledge and financial behavior questions and/or answered "prefer not to say" or "don't know" for the subjective knowledge and financial education questions. The main analytic sample of those with military experience includes 3,045 households, including only households with a head of household who is active duty or previously a member of the U.S. armed service. Within our analytic sample, 631 were active duty in the U.S. armed services, while 2,413 were formerly members of the armed services. As a reference group, we conducted the analyses with civilian households (N = 17,751).

3.2. Dependent variables

Two key dependent variables were investigated, long-term and short-term financial behaviors as measured by Henager and Cude (2016) and Kim et al. (2019). The 2018 NFCS collects one new question, "Do you currently have a will?" and we adopted this variable as one of long-term financial behaviors. The long-term financial behavior index was created based on responses to four questions asking if the respondent had ever done any planning to evaluate the amount needed for their retirement, owned any retirement plans, owned any investments outside of their retirement accounts, and had a will. The short-term financial behavior index was created based on four questions asking if the respondent had an emergency fund, spent less than or equal to their income, did not overdraw their checking account occasionally, and used a budget. For each index, the four variables were coded as binary variables, one indicating the financial behavior. The responses were summed to create the two indices; each index ranging 0–4. The four items included in each index were equally weighted in the summation of items.

3.3. Independent variables

Key independent variables reflect the level of financial knowledge, financial education, and years since military completion. Objective financial knowledge was based on the number of correct answers to the six questions in the survey (ranging 0–6) and subjective financial knowledge was based on a scale of 1 = *very low* to 7 = *very high*. Whether the respondent reported having received and participated in financial education was coded with 1 = *yes*, 0 = *no*. The exact wording of variables in the survey can be found in the Appendix. Additionally, two variables were included to categorize military groups. One category included years since military completion was categorized as follows; the respondent completed military service in the past year, 1–3 years, 4–10 years, more than 10 years, and currently active duty (reference). The other category for types of military service grouped respondents into branches of service; Army, Navy, Air Force, and others.

Following previous studies on financial behaviors (e.g., Henager & Cude, 2016; Kim et al., 2019), this study includes the set of following control variables; age, gender (male, female), race/ethnicity (White, Black, Hispanic, and Asian/others), marital status (married, single, and separated/divorced/widowed), presence of dependent child(ren) (yes/no), employment status (employed, otherwise), education (less than high school, high school diploma, some college, bachelor degree, and post-bachelor degree), household income, substantial income drop (yes/no), banking status (yes/no) and homeownership (yes/no). Lastly, we also controlled for state of residence.

3.4. Analyses

Given the ordered nature of the dependent variables, we conducted Ordered Logistic Regression analyses on composite variables of financial behaviors, which provide a general overview of the financial behaviors of military households. Also, we conducted similar analyses for civilian households as a reference group.

Model 1: Short-term financial behaviors = f (financial knowledge, financial education, socio-demographic status)

Model 2: Long-term financial behaviors = f (financial knowledge, financial education, socio-demographic status)

The NFCS provides a survey weight to be representative of the national population in terms of age, gender, ethnicity, education, and Census Division (with adjustments for the oversampled states for comparability with previous years), so all of our results are weighted.

4. Results

4.1. Descriptive results

Descriptive results for both samples' characteristics are presented in Table 1. In terms of short-term financial behaviors, the percentages of the military sample that participated in the four short-term behaviors were as follows: having emergency funds (66.7%), spending less than income (45.6%), not experiencing an overdraft (65.0%), and keeping a budget (58.2%). The mean composite score of short-term behaviors for military households was 2.35. In terms of long-term financial behaviors for the military sample; 63.3% had figured out the amount of savings they needed for retirement, 79.2% had a retirement plan(s), 52.2% owned investments outside of the retirement account, and 61.5% had a will. The mean composite score for long-term behaviors was 2.56.

The civilian household sample had less than half of the sample participating in three of the four short-term behaviors; having emergency funds (48.3%), spending less than income (41.7%), and keeping a budget (41.0%). While 75.2% of the civilian households had not experienced an overdraft. The mean of the short-term behaviors index for civilian households was 2.06. Looking at the long-term behaviors for civilian households, 43.7% of civilian households had figured out the amount of savings they needed for retirement and 61.7%

Table 1 Sample characteristics of military respondent and civilian households, 2018 National Financial Capability Study (NFCS)

Variables	Military household (N = 3,045)	Civilian household (N = 17,751)
Short-term behaviors (0–4)	Mean (*SD*): 2.35 (1.25)***	Mean (*SD*): 2.06 (1.33)
Emergency funds (ownership)	66.72%**	48.26%
Spending less than income	45.56%	41.71%
No overdrafts	64.98%***	75.16%
Budgeting	58.17%	41.00%
Long-term behaviors (0–4)	Mean (*SD*): 2.56 (1.37)***	Mean (*SD*): 1.66 (1.34)
Retirement planning (amount needed)	63.28%	43.65%
Retirement account (ownership)	79.18%***	61.65%
Investments (ownership)	52.24%***	31.07%
Having a will	61.54%***	29.89%
Objective financial knowledge (0–6)	Mean (*SD*): 3.39 (1.57)***	Mean (*SD*): 3.14 (1.63)
Objective financial knowledge questions		
Interest	76.63%	75.81%
Inflation	58.90%	58.35%
Bond price	33.58%***	27.25%
Mortgage	82.38%***	75.87%
Portfolio	51.17%	45.59%
Time value of money	36.58%***	31.28%
Subjective financial knowledge (1–7)	Mean (*SD*): 5.66 (1.31)***	Mean (*SD*): 5.09 (1.34)
Financial education	31.9%***	22.2%
Mean age	Mean (*SD*): 50.9 (17.8)***	Mean (*SD*): 46.3 (16.6)
Gender		
Male	85.30%***	43.09%
Female	14.70%***	56.91%
Race/ethnicity		
White	64.03%	64.00%
Black	18.50%***	10.68%
Hispanic	11.33%***	16.58%
Asian/others	6.15%***	8.75%
Marital status		
Married	63.35%	49.57%
Single	22.28%***	33.69%
Separated/divorce/widow	14.36%***	16.74%
Having dependent children	42.28%***	35.20%
Employed	59.04%	57.51%
Education		
Less than high school	0.85%***	2.79%
High school degree	21.02%***	28.83%
Some college	34.42%***	27.52%
Bachelor's degree	17.43%	18.83%
Post-bachelor's degree	26.30%***	22.03%
Household income		
less than $15,000	5.06%***	12.12%
$15,000–$24,999	7.63%***	10.99%
$25,000–$34,999	8.18%***	11.35%
$35,000–$49,999	13.35%*	15.01%
$50,000–$74,999	18.29%	19.24%
$75,000–$99,999	23.97%***	12.60%
$100,000–$149,999	16.89%***	12.03%
$150,000 or more	6.63%	6.66%

(continued on next page)

Table 1 (Continued)

Variables	Military household (N = 3,045)	Civilian household (N = 17,751)
Substantial income drop	31.11%***	20.16%
Banked	94.77%***	92.51%
Homeownership	76.08%***	57.73%

Note. Weighted results.
*$p < .05$, **$p < .01$, ***$p < .001$.

had a retirement plan(s). Further, 31.1% owned investments outside of their retirement account and only 29.9% had a will. The long-term behavior mean composite score for civilian households was 1.66. For both short-term and long-term behaviors, the means of the composite scores were statistically higher for the military households than civilian households. See Figs. 1 and 2 for the comparison of short-term and long-term financial behaviors by household type.

In terms of financial knowledge and education, military households had significantly higher mean scores for both objective and subjective financial knowledge than civilian households. Military households had a mean score of 3.39 for objective financial knowledge as compared with 3.14 for civilian households. For subjective financial knowledge, military households in our sample had a mean score of 5.66 as compared with 5.09 for civilian households. In terms of financial education, 31.9% of the military household sample had received and participated in some form of financial education, significantly higher than the 22.2% of civilian households who had experienced financial education. The distribution of financial knowledge scores by household type is presented in Figs. 3 and 4. Other socio-demographic characteristics are presented in Table 1.

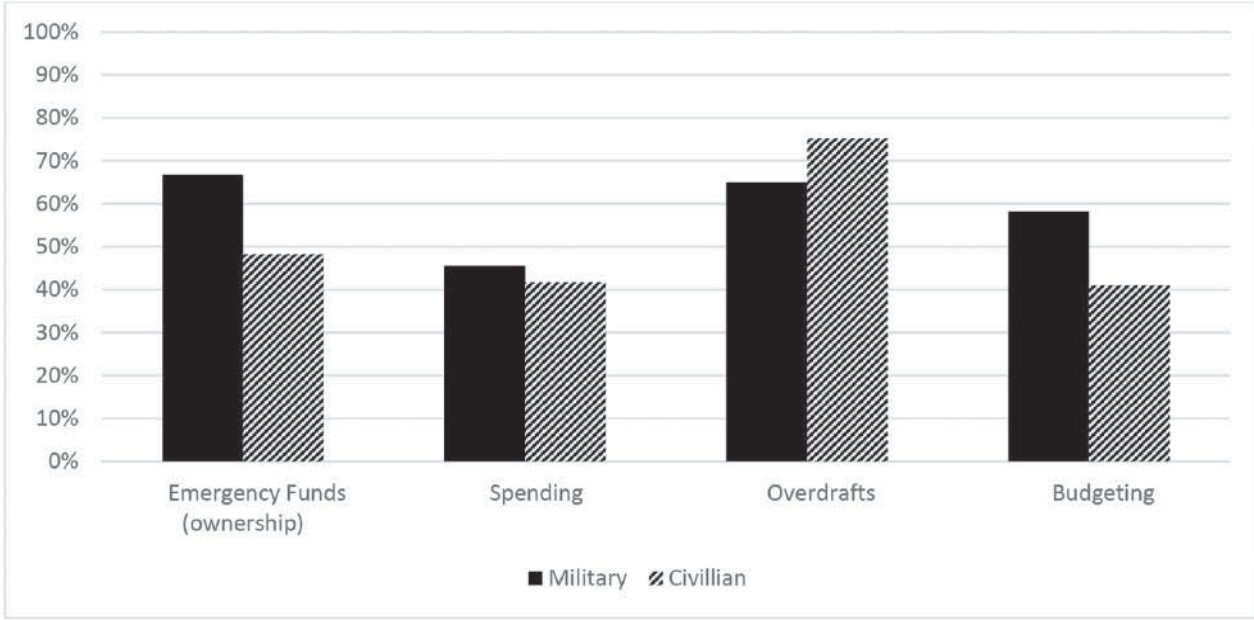

Fig. 1. Short-term financial behaviors by household type, 2018 National Financial Capability Study (NFCS). Weighted results.

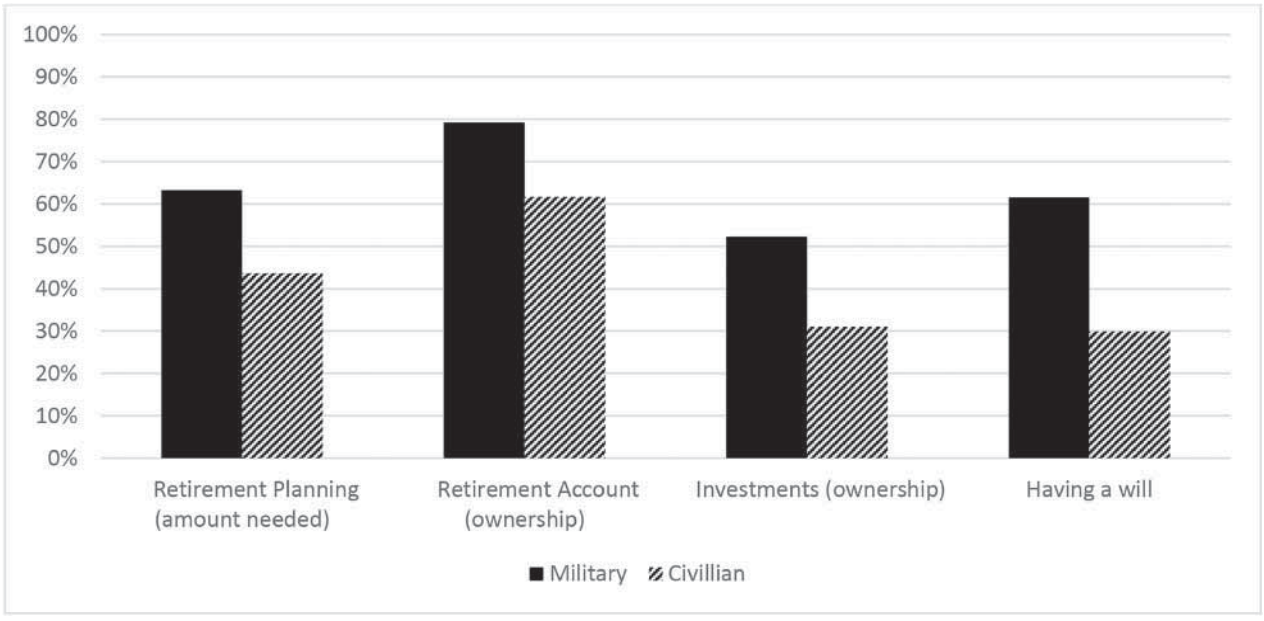

Fig. 2. Long-term financial behaviors by household type, 2018 National Financial Capability Study (NFCS). Weighted results.

Specifically investigating the military sample, a comparison of financial behaviors and knowledge scores by the receipt of financial education is presented in Table 2. Military households that had received financial education had a significantly higher mean subjective financial knowledge score of 5.96 versus 5.52, but no significant difference in objective knowledge was found. A mixed pattern exists with financial behaviors, military households who had received financial education had a lower mean for short-term behaviors (2.29 vs. 2.39), but a higher mean for long-term behaviors (2.93 vs. 2.40).

4.2. Multivariate results

Results for military households (see Table 3) showed that the key independent variables were all associated with higher odds of having higher scores on composite indices for both short-term and long-term financial behaviors. In particular, a one unit increase in objective financial knowledge increased the odds of having a higher level of short-term behaviors by 6.8% and 13.3% for long-term behaviors. A one-unit increase in subjective financial knowledge increased the odds of having a higher level of short-term behaviors (51.4%) and long-term behaviors (43.9%). Financial education experience increased the odds of having a higher level of long-term behaviors by 56.3%, the association was not held significantly with short-term behaviors.

For military households, current military members had higher odds of long-term financial behaviors than retired members. Air Force members had higher odds of having a higher level of short-term and long-term behaviors than Army members. Respondents who were female, White, single, and did not have dependent children had higher odds of having a higher short-term behaviors index while age was positively associated with the odds for

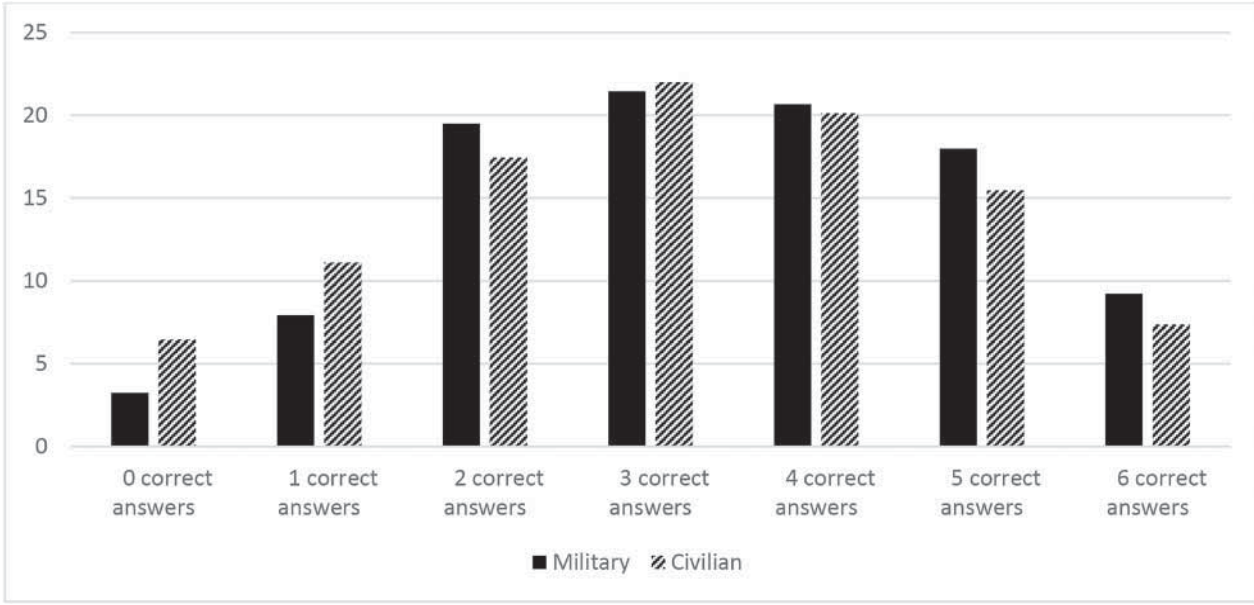

Fig. 3. Distribution of objective financial knowledge by household type, 2018 National Financial Capability Study (NFCS). Weighted results.

long-term behaviors. Additionally, higher income levels (relative to income less than $25,000) had increased odds of having higher levels of both short-term and long-term behaviors. The odds increase with higher income levels and are higher for long-term behaviors than short-term behaviors. Having a substantial income drop was negatively associated with short-term behaviors while positively associated with long-term behaviors. Banked households and homeowners had higher odds for both short-term and long-term financial behaviors.

As a reference, results for both short-term and long-term behaviors of civilian households are presented in Table 3. Objective financial knowledge and subjective financial knowledge were associated with higher odds of having higher scores on each of the indices of financial behaviors for civilian households. Similar to military households, experiencing financial education was only associated with long-term behaviors. Respondents who were male, Asian/other, single, did not have dependent children, and had a bachelor's degree all had odds of having higher short-term behavior index scores. Age, being White, being married, having no dependent children, being employed, and education were all associated with increased odds of having higher long-term behavior index scores. A similar pattern in income, substantial income drop, banking status, and homeownership as we observed with military households was found for civilian households.

5. Discussion and relevance

This study explored financial behaviors of military households in the United States by analyzing short-term and long-term financial behaviors. We mainly investigated the role of

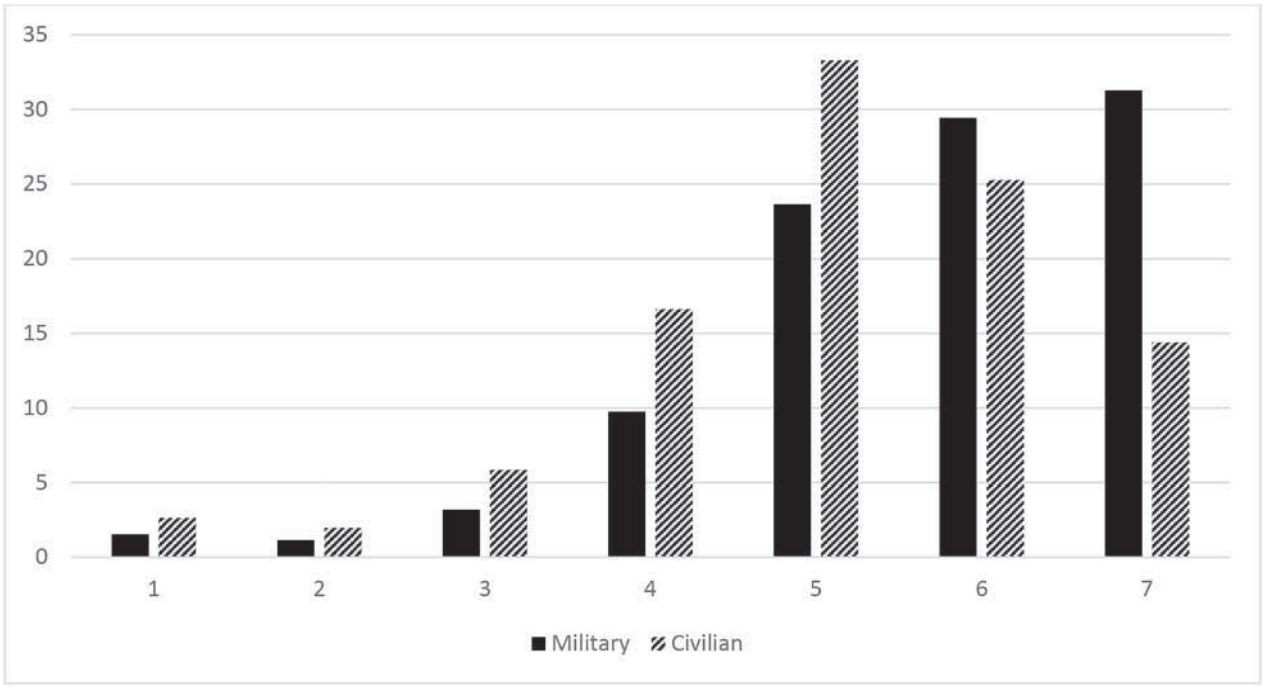

Fig. 4. Distribution of subjective financial knowledge by household type, 2018 National Financial Capability Study (NFCS). Weighted results.

financial knowledge and financial education on financial behaviors. Both objective and subjective financial knowledge show increased odds of having higher scores on both short-term and long-term behaviors, with larger odds for subjective financial knowledge for both indices. Over-confidence can be a concern, specifically for younger adults (Henager & Cude, 2016), where the subjective knowledge and objective knowledge do not always align. Robb and Woodyard (2011) also reported that financial knowledge and financial confidence had a low correlation but both affect behavior. In this case, subjective knowledge shows that this is an important factor in the behavior of this military sample. In other words, if they think they can they will, as those with higher confidence perform more positive behaviors than those with lower confidence.

The results for financial education indicate higher odds for long-term financial behaviors. The relationship was not significant for short-term financial behaviors. This is encouraging as the concern for military families grows and financial education targeted at military families has been in the policy conversation, particularly financial planning and preparation. Borden and colleagues (2016) encourage the use of financial education programs to increase protective factors and coping strategies for military families as they manage their finances and potentially deal with financial strain. Recommendations include financial education programs including preventative and interventional approaches focusing on financial communication and financial engagement, in addition to financial knowledge (Borden et al., 2016).

An interesting finding was that the military sample had a higher percentage of those with a will. This is an important part of long-term planning and an important topic for financial education for everyone (Kotlikoff, 1988). Military service members and their families have

Table 2 Financial behaviors of households with a military head by financial education, 2018 National Financial Capability Study (NFCS)

Variables	Military household with financial education (N = 962)	Military household without financial education (N = 2,057)
Objective financial knowledge (0-6)	Mean (*SD*): 3.31 (1.58)	Mean (*SD*): 3.44 (1.57)
Subjective financial knowledge (1-7)	Mean (*SD*): 5.96 (1.23)***	Mean (*SD*): 5.52 (1.32)
Short-term behaviors (0–4)	Mean (*SD*): 2.29 (1.20)*	Mean (*SD*): 2.39 (1.28)
Emergency funds (ownership)	75.90%***	62.55%
Spending less than Income	38.60%	48.81%
No overdrafts	52.36%***	71.23%
Budgeting	62.48%	56.30%
Long-term behaviors (0–4)	Mean (*SD*): 2.93 (1.28)***	Mean (*SD*): 2.40 (1.37)
Retirement planning (amount needed)	75.17%***	58.04%
Retirement account (ownership)	84.01%***	77.29%
Investments (ownership)	64.80%	46.65%
Having a will	69.00%*	58.41%

Note. Weighted results.
*$p < .05$, **$p < .01$, ***$p < .001$.

access to legal assistance, which is free, which covers the writing of a will (Military.com, 2020). Having this free service available likely contributes to the higher number of wills, but also military personnel deployed likely want to make sure their family is taken care of and are encouraged to have a will. It is concerning, the number of civilian households without a will, and is a topic that ought to be included in financial education at all levels.

5.1. Limitations

While the NFCS offers a wealth of information about financial situations, characteristics, behaviors, and education of civilian and military households, there are still some drawbacks with the data and results should be viewed with them in mind. It is important to note that the NFCS is self-report data and not observed by a third party, so accuracy of the self-reported data are not fully known. The publicly available dataset does not contain information on whether the military member was an enlisted member or commissioned as an officer. This would have an impact on the salary while the member was still active military, as well as career trajectory, and potentially retirement positions. The data did not allow for complete control of the variation of those who have completed military service at different times. While we controlled for length of time since service was completed, there is still a broad range of personnel that are included in the sample. Future work would benefit from the ability to have additional specific information to target service branch and career of active duty and retired personnel.

Additionally, while we have important information on financial education, we do not know specifics on the type of financial education the respondent received (e.g., through the military, through a military-affiliated partner, through a nonmilitary related source, type of programming, length, etc.). With many of the service branches offering increasing opportunities for financial education, in varying forms, it will be important to be able to further

Table 3 Ordered logit regression results of short-term and long-term financial behaviors, military respondent and civilian households, 2018 National Financial Capability Study (NFCS)

Variables	Military households $N = 3,266$				Civilian households $N = 20,183$			
	Short-term behaviors		Long-term behaviors		Short-term behaviors		Long-term behaviors	
	Odds ratio	χ^2	Odds ratio	χ^2	Odds ratio	χ^2	Odds ratio	χ^2
Financial knowledge and financial education								
Objective financial knowledge	1.0676*	6.0618	1.1327***	20.7940	1.0937***	82.1265	1.2636***	513.7756
Subjective financial knowledge	1.5141***	180.9397	1.4385***	139.7915	1.3727***	763.1684	1.3551***	623.7563
Financial education	0.8738	3.1020	1.5630***	30.5950	1.0050	0.0209	1.3653***	78.0788
Years since military completion (reference: Currently active duty)								
Within one year	1.5995	1.9130	0.4994*	4.0511			N/A	
1 to 3 years ago	1.0568	0.0785	0.5863**	6.9936				
4 to 10 years ago	0.6723*	4.9039	0.3275***	36.9966				
More than 10 years ago	0.9007	0.3841	0.2118***	79.1307				
Type of military service (reference: Army)								
Navy	0.9804	0.0395	1.1976	3.2547			N/A	
Air Force	1.3075**	6.8931	1.5268***	17.0219				
Others	1.1631	1.3567	1.1949	1.8583				
Control variables								
Age	1.0035	0.7739	1.0193***	22.0317	1.0015	1.6520	1.0279***	523.6136
Gender (reference: Female)	0.7858*	6.1073	1.0741	0.5078	1.0766*	6.2748	0.9802	0.4325
Race/ethnicity (reference: White)								
Black	0.6679***	16.6192	1.2165	3.3494	0.9209	2.9900	1.0069	0.0187
Hispanic	1.0413	0.1316	0.8875	1.0892	1.0736	3.2106	0.8347***	19.0197
Asian/others	0.8957	0.5956	0.9354	0.2142	1.1434**	7.0174	0.9718	0.3027
Marital status (reference: Married)								
Single	1.2294*	4.5437	1.1273	1.3118	1.2334***	28.3929	0.9693	0.5947
Separated/divorce/widow	1.2205	3.7226	1.0012	0.0001	0.9825	0.1688	0.8008***	25.3680
Dependent children (reference: No)	0.6619***	22.8229	0.9817	0.0417	0.5473***	340.4123	0.8586***	20.5389
Employed (reference: No)	1.1665	2.8959	1.1749	3.1151	0.9884	0.1317	1.0953**	7.3720
Education (reference: Less than high school)								
High school degree	0.9902	0.0007	0.6523	1.1669	1.1188	1.5302	1.8908***	32.8177
Some college	0.6567	1.2096	0.5082	2.8983	0.9622	0.1756	1.9650***	36.5169
Bachelor's degree	1.1337	0.1049	0.6036	1.5751	1.2396*	5.0580	2.8760***	84.8353
Post-bachelor's degree	0.9283	0.0375	0.6752	0.9687	1.0668	0.4695	2.8694***	85.8717

(continued on next page)

Table 3 (Continued)

Variables	Military households $N = 3,266$				Civilian households $N = 20,183$			
	Short-term behaviors		Long-term behaviors		Short-term behaviors		Long-term behaviors	
	Odds ratio	χ^2	Odds ratio	χ^2	Odds ratio	χ^2	Odds ratio	χ^2
Household income (reference: Less than $15,000)								
$15,000–$24,999	0.6977	3.3762	1.3300	2.0078	0.9732	0.2106	1.6621***	57.8432
$25,000–$34,999	0.8303	0.8893	1.9858***	11.5485	1.1750**	7.3510	2.4900***	190.7585
$35,000–$49,999	1.2109	1.0657	3.5374***	43.6070	1.5207***	53.3512	3.9805***	471.5506
$50,000–$74,999	2.0291***	14.5666	4.9082***	68.8008	1.9361***	132.9276	5.2148***	676.1852
$75,000–$99,999	2.2036***	17.8363	7.3677***	104.4249	2.6985***	238.3247	7.5112***	828.7924
$100,000–$149,999	2.8109***	28.5325	6.6565***	89.0601	3.4301***	334.6924	8.5668***	873.3971
$150,000 or more	4.3280***	40.9417	10.2759***	97.4815	5.0784***	417.7851	12.9035***	933.3816
Substantial income drop (reference: No)	0.3720***	107.3268	1.9234***	45.1499	0.5133***	340.4268	1.1550***	14.8071
Banked (reference: No)	3.9729***	65.9374	2.0821***	19.1767	5.1218***	711.3317	2.2867***	145.6342
Homeownership (reference: No)	1.8735***	48.8858	3.8818***	216.0219	1.5433***	169.1246	2.1312***	482.7664
Regional fixed effect (State of residence)	Included		Included		Included		Included	
Model fit								
Mean concordant	75.0%		79.0%		74.3%		81.0%	

Note. Weighted results.

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

understand the type and content of the financial education program. We do not have data explicitly identifying what was included within financial education and also the financial arrangements within households (e.g., how are financial decisions made, who makes the decisions). Additionally, the NFCS dataset does not include much information on household wealth, the only available proxy for wealth is homeownership status. Wealth serves as an important determinant of financial behaviors and future work would benefit from including wealth variables. Future research would benefit from use of data that specifically focuses on military households, even further those in active duty, to be able to identify specific areas of concern and possible interventions appropriate for active duty personnel. Even more important would be the ability to identify the variations and implications of branch of service has in this area of research. For example, there are varying levels and implementation of financial education across the branches of services, so being able to compare between the branches would also improve this research, which is currently limited by sample size and limited information on specific financial education information.

5.2. Future research and conclusion

For future research, we would like to further explore the financial status of military households and contributing factors to their financial well-being. How these households are different from other occupational groups and how educators can reach out to and understand the needs of military households. Further, as indicated by previous literature (Bell et al., 2014; Carlson et al., 2015), the connection between financial stress and financial well-being continues to grow and the unique experiences of military life (e.g., deployments, frequent moves) that link to financial outcomes should be further examined. Empirical results from the 2018 NFCS provide an important insight into policymakers as well as financial practitioners and educators as they seek to gain a greater understanding of how to reach military families through education that not only increases their objective level of knowledge, but also increases their subjective financial knowledge as well. These efforts help military households and similar members in volunteer service prepare for and guard against financial challenges. Practitioners need to be aware of the unique challenges experienced by military households and how they are related to finances (Borden et al., 2016). However, given that military households are unique in many ways, including across branches, caution is warranted in generalizing the results to other populations.

Military households are many times considered to be financially vulnerable households and our results support the need to increase their financial knowledge (objective and subjective). Ultimately this may serve as a way to protect them not only while they serve, but also after they leave the military. Both financial education and financial knowledge increase the odds of households participating in these positive financial behaviors, so increasing the access as well as the quality of the programming may be one avenue to increasing financial knowledge and potentially financial behaviors. Developing financial education programs that build systems of support and skills will help military households further develop positive financial behaviors. Professionals who work with military households as clients should consider addressing not only financial knowledge with their clients, but also areas of

financial communication and financial engagement to help in increasing subjective financial knowledge, which will help serve as protective factors and coping strategies for military families.

Appendix

Description of key variables in the 2018 National Financial Capability Study (NFCS)

Variable	Description
Short-term behaviors	The responses were summed for index; ranging 0–4.
Emergency funds	"Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?"
Spending less than or equal to Income	"Over the past year, would you say your spending was less than, more than, or about equal to your income?"
No overdrafts	"Do you overdraw your checking account occasionally?"
Budgeting	I have money left over at the end of the month
Long-term behaviors	The responses were summed for index; ranging 0–4.
Retirement planning	"Have you ever tried to figure out how much you need to save for retirement?"
Retirement account	"Do you have any retirement plans through a current or previous employer, like a pension plan or a 401(k)?"
Investments	"Not including retirement accounts, have any investments in stocks, bonds, mutual funds, or other securities?"
Having a will	"Do you currently have a will?"
Objective financial knowledge	Sum of correct answers to financial knowledge questions, ranging 0–6.
Interest	"Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?"
Inflation	"Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?"
Bond price	"If interest rates rise, what will typically happen to bond prices?"
Mortgage	"A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less."
Portfolio	"Buying a single company's stock usually provides a safer return than a stock mutual fund."
Time value of money	"Suppose you owe $1,000 on a loan and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?"
Subjective financial knowledge	''On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?''
Financial education	"Was financial education offered by a school or college you attended, or a workplace where you were employed?"

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