4 Financial Literacy and Financial Behavior among Young Adults in the United States[1]

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4.1 Introduction

While financial literacy is important for the economic well-being of all individuals in society, it is especially important for young adults. It is at these early years of their adult lives (18 to 34 for the purpose of this study) they assume full responsibility for managing and directing their financial affairs. During a span of a decade or two for most individuals, they make multiple, life-shaping financial decisions that affect all aspects of their lives and their financial futures. They decide what type of post-secondary education they want to pursue and how to finance it. After they complete their post-secondary education, or sooner if they enter the workforce right after high school, they search for jobs and careers that give them both personal satisfaction and financial security. Once they are established in a work position, other financial decisions need to be made about job benefits related to insurance, health care, and retirement. It also is during these early decades of adult life that individuals typically form households with others and in the process jointly purchase a wide variety of goods and services, some of which can be quite expensive and require loans and financing, including automobiles, large appliances, or housing. Planning what part of household income to allocate to consumption and savings is a major challenge for most households in the early years when careers are just starting and goods and service society offers are so appealing. The situation becomes even more difficult over time with the addition of children to the household or the assumption of responsibility for an elderly parent.

During these formative years of financial responsibility, young adults are making financial decisions that affect their current and future economic well-being. These financial decisions can be very costly in both the short and long run. For example, if young adults make only minimum payments on a credit card it will not only result in substantial interest costs each month, but compounding over many months or years those interest costs can rapidly increase and become a significant burden that affects the financial future of these young adults. The costs of poor financial decisions can also be non-monetary

1 The authors thank the anonymous reviewers for helpful comments on a previous version.

or have indirect effects on the economic well-being of young adults. If an individual or household makes late payments on a credit card or defaults on a loan, it will lower their credit score. This negative effect can translate to difficulties obtaining credit in the future and can lead to a higher cost of borrowing money. Understanding the characteristics of individuals making such costly financial decisions and whether they are financially literate is a question of interest for both researchers studying financial decision-making and policymakers developing educational programs or regulations to improve financial conditions for young adults.

This study furthers that understanding by investigating the financial literacy of young adults, ages 18 to 34, and their financial behaviors. The data for the study comes from the National Financial Capability Study (NFCS).[2] This 2012 U.S. survey was commissioned by the Investor Education Foundation of the Financial Industry Regulatory Authority (FINRA) and developed in conjunction with the U.S. Department of Treasury, other federal government agencies, and the President Obama's Advisory Council on Financial Capability. The survey work and data collection were done by Applied Research and Consulting, an independent survey research firm. The NFCS provides a national representative sample of 25,509 adults, some 6,865 of which are young adults. The extensive survey includes questions about many financial behaviors related to such matters as credit card use, household purchases, bank accounts, student loans, and retirement saving. In addition the survey contains questions for measuring an individual's financial literacy.

This study contributes to existing literature on the financial literacy of young adults by exploring a new and large national data set that has not been analyzed. The data set includes a large number of young respondents and the data were collected after the financial crisis and Great Recession (2007-2009). The survey results should reflect the current thinking and views of financial matters among young adults. Furthermore, an analysis of the effect that financial literacy has on financial behaviors provides insight into the question of whether improving financial literacy will translate to young adults making less-costly financial decisions. The financial behaviors in this study include financial behaviors that have been previously investigated and new alternatives behaviors that can offer further understanding of the relationship between financial literacy and financial decisions.

The results from this study show that young adults in the United States have significantly lower levels of financial literacy than middle age or older adults. Within the sample of young adults, the financial literacy of women, minorities, and those individuals with low levels of education and income is especially low. The NFCS data set also were used to study the relationship between financial literacy and different financial behaviors. Behaviors related

2 See http://usfinancialcapability.org/ for full information about the data and access to it.

to credit cards and other financial behaviors young adults practice were examined, first, by making comparisons across the young cohorts, then by running a probit regression controlling for financial literacy and other demographic variables. The working hypothesis for the study was that young adults with higher levels of financial literacy will have financial behaviors that are less costly or problematic. The results generally support this hypothesis.

4.2 Literature Review

Previous research exploring financial literacy in the United States has found that individuals have relatively low levels of literacy (Lusardi & Mitchell 2014: 11; Allgood & Walstad 2013: 7; Knoll & Houts 2012: 401). Researchers have found that financial literacy is particularly low among some segments of the population: Hispanic and black Americans have lower levels of financial literacy, while Asian and white Americans have relatively higher levels (Lusardi & Mitchell 2011: 511; Lusardi & Tufano 2009: 9); females have lower scores than males (Jappelli & Padula 2013: 2786; Fonseca et al. 2012: 97; Lusardi & Mitchell 2008: 415); individuals with less education also have less financial literacy (Lusardi & Mitchell 2011: 511; Monticone 2010: 411); and unemployed workers are less financially literate than employed workers (Lusardi & Tuffano 2009: 17).

Existing literature on financial literacy has also reported that young adults have lower levels of financial literacy, relative to older cohorts (Lusardi & Mitchell 2014: 17; Allgood & Walstad 2013: 7). One potential reason for lower levels of literacy among young adults may be due to a lack of experience making financial decisions. Lusardi & Mitchell (2014: 17), however, argue that while older adults score relatively better on measures of financial literacy, they still have low levels of financial literacy. It does not appear that experience, based on age alone, increases financial literacy.

Whatever the reason for the low levels of financial literacy, it is important to determine whether these households are making costly financial decisions as a result of the lack of financial literacy. Agarwal et al. (2009: 71) suggest that younger and older adults are more prone to making financial mistakes, paying higher interest rates and failing to avoid costly credit card fees. The authors, however, were unable to control for the effects of financial literacy. While it is still expected that young adults will make financial mistakes, the effect of age on these mistakes or financial outcomes is likely to be reduced when financial literacy is taken into account in the analysis.

The majority of research on the financial behaviors of young adults has focused on credit card usage and behaviors. Credit cards are a commonly

used financial instrument among this age group and have allowed researchers to use large samples of young adults to make comparisons on their level of financial literacy and their behavior. Lachance et al (2006: 352) explored credit card behaviors of 18 to 29 year olds. The authors found that young adults with more credit card knowledge were more likely to hold at least one credit card and had an increased number of debts. Robb (2011: 695) also explored credit card behavior and financial literacy. Specifically he explored whether students paid off their balances each month or made only minimum monthly payments, whether payments were made on time, and if the students took cash advances on their credit card. He found that college students with higher levels of financial literacy were more likely to report engaging in responsible credit card behavior. Ludlum et al (2012: 27) also explored the credit card knowledge of college students holding at least one credit card. The authors inquired about interest rates, late fees, and other fees associated with a credit card and found the majority of students did not know basic information about their credit cards. Other research, looking at non-student populations, examining credit card behavior and financial literacy have reported similar results of low levels of financial literacy associated with "bad" credit card behavior (Allgood & Walstad 2013:12; Lusardi & Tufano 2009: 18).

Though the majority of research on young adults has focused on credit card behavior, there have been studies analyzing various other financial behaviors. Researchers have found that young adults are less likely to think about retirement (van Rooij et al 2011a: 601), participate in the stock market (van Rooij et al 2011b: 460), and save for emergencies (Babiarz & Robb 2014: 45; Zumbrun 2014). Young adults are also significantly more likely to be underbanked (Breitbach & Walstad 2014: 32). All of these studies suggest that young adults are more likely to engage in financial behaviors and practices that could be costly and have long-term adverse consequences on their financial well-being.

4.3 Data Sample and Measures

The 2012 NFCS sample consists of 25,509 adults, age 18 years or older, with approximately 500 respondents from each state and the District of Columbia. The online survey was completed between July and October 2012. The nationally representative sample of respondents is weighted for age, gender, ethnicity, education, and Census Division.[3] This study restricts the sample to 6,865 respondents between the ages of 18 and 34.

3 For further information see See http://www.usfinancialcapability.org/

The NFCS survey collected an extensive amount of information on the financial situation and self-reported behaviors of each respondent. The survey was divided into multiple sections covering a variety of questions to offer insight into the financial situation of the respondents. These divisions included (1) Financial Attitudes and Behaviors: These items inquired about the respondents' view of their current financial situation. Not only were respondents asked to rate their current financial situation, but questions concerning their spending and saving habits. Inquiries into the respondents' spending behavior relative to income, college and retirement fund savings, and knowledge of credit scores were included to better understand their financial situations. (2) Financial Advisors: Respondents were asked about their use of financial counseling on debt, savings, insurance, and tax planning. (3) Money Management: This section focused on gathering information on the means households use for receiving income and paying bills. Other questions also include banking practices related to transaction accounts and holding investments. (4) Retirement Accounts: Divided into two parts, this section surveys retirees about their planning and saving of funds before retirement and similar questions about the current behavior of those who are not yet retired. (5) Sources of Income: Respondents are asked about the various forms of income they have received over the past twelve months, including salaries and wages, income from a business, money from non-family members, and funds related to retirement and Social Security. (6) Home and Mortgage: New to the 2012 survey are questions about value of the respondents' home and whether the value is worth more or less than the remaining balance on their mortgage. Inquiries are also made into whether the household has made late payments or have been involved in a foreclosure process. (7) Credit Cards: Credit card usage and behaviors are the focus of this section. (8) Other Debt: Respondents are questioned on any other debt they may hold in this section. This debt includes auto, unpaid medical bills, student loans, and whether the respondent has declared bankruptcy. Respondents are also questioned on their use of alternative financial loans, such as "payday" loans, tax anticipated refunds, and pawn shops. (9) Insurance: Respondents answer whether they have health and life insurance policies.

One of the major advantages of the NFCS is that it contains five questions for assessing an individual's level of financial literacy. These five questions have been frequently used for research studies of financial literacy (Hastings, Madrian & Skimmyhorn 2013: 356). They also have been found to be valid indicators of financial literacy in studies of financial behavior (Lusardi & Mitchell 2014: 10). The questions are:

Suppose you had $100 in a savings account and the interest rate are 2% a year. After five years how much do you think you would have in the account if you left the money to grow? More than $102*, Exactly $102, Less than $102

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? More than today, Exactly the same, Less than today*

If interest rates rise, what will typically happen to bond prices? They will rise, They will fall*, They will stay the same, There is no relationship between bond prices and the interest rate

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. True*, False

Buying a single company's stock usually provides a safer return than a stock mutual fund. True, False*

Respondents also had the opportunity to respond don't know or refuse to answer each of these questions. When calculating an aggregate financial literacy score, don't know and refused responses are treated as incorrect.

This study using the NFCS data has two major objectives. The first one is to assess the financial literacy of young adults using the five questions financial literacy question. The second one is to investigate the relationship between financial literacy and financial behaviors. Although many financial behaviors could be studied, for the sake of parsimony, this research focuses on credit card and bank account behavior, planning for retirement, and paying off student loans. The NFCS survey provides sufficient information and data about these financial behaviors for the analysis. While the question of credit card behavior has been explored often in other studies, as noted in the literature review, this current and untapped NFCS data set will allow for an updated comparison on the effect of financial literacy. The other financial behaviors, bank account management, retirement planning, and paying for students loans too have been studied by researchers, but not with this latest NFCS data set. The current analysis should offer more insight into the relationship between financial literacy and financial behaviors related to credit, debt, and saving.

4.4 Financial Literacy of Young Adults

Previous literature has found that young adults have lower levels of financial literacy, relative to older cohorts. This result has been confirmed using the 2012 NFCS data set. Table 1 presents descriptive statistics of financial literacy by age cohort. Financial literacy is measured using the number of correct responses an individual answered for the set of five financial questions. Compared to individuals falling into the 35 to 54 year old cohort, those in the youngest cohort answer significantly fewer questions correctly. Comparing the youngest cohort to those 55 years and older leads to even greater differ-

ence, the oldest cohort answers one additional question correctly. Since there are a total of five questions used to measure financial literacy, these results are relatively large in magnitude and represent a significantly lower level of financial literacy among the youngest adults.

The table then separates the young adult cohort into three groups, 18 to 24, 25 to 30, and 31 to 34-year-olds. This division allows for further examination into the financial literacy of young adults. The youngest cohort, 18 to 24-year-olds, has the lowest levels of financial literacy, answering less than half of the questions correctly. As age increases among the youngest cohort the number of questions answered correctly significantly improves by one half of a question. To put this change into perspective, think about set of five questions as if they are a representative sample from a longer 100-item test. In this case an increase of one half questions in the sample of five items would be equivalent to a ten question or ten percent increase in the longer 100-item financial literacy test.

Table 1: Financial literacy scores by age range

Full Sample	18 to 34	35 to 54	55 or older	
Financial Literacy (*SD*)	2.33 *(1.41)*	2.94 *(1.44)*	3.30 *(1.38)*	
Observations	6,865	9,505	9,139	
Young Adults	18 to 34	18 to 24	25 to 29	30 to 34
Financial Literacy *(SD)*	2.33 *(1.41)*	2.06 *(1.35)*	2.43 *(1.39)*	2.59 *(1.44)*
Savings Question	0.690	0.645	0.711	0.720
Inflation Question	0.420	0.357	0.436	0.480
Bond Price Question	0.210	0.180	0.221	0.240
Mortgage Question	0.650	0.575	0.687	0.730
Stock Question	0.370	0.306	0.381	0.430
Observations	6,865	2,581	1,990	2,294

Table 2: Mean differences for financial literacy among young adults: selected characteristics

Age		
	18-24 vs. 25-29	-0.405***
	25-29 vs. 30-34	-0.181***
Gender		
	Male vs. Female	0.430***
Race		
	White vs. Black	0.300***
	White vs. Hispanic	0.172***
	White vs. Asian	-0.260***
Household Composition		
	Married vs. Single	0.260***
Living Situation		
	Alone vs. With Spouse	-0.150***
	Alone vs. With Parents	0.187***
	Alone vs. With Others	-0.017
Education Level		
	Less than a High School Degree vs. High School Degree	-0.409***
	High School Degree vs. Some College	-0.484***
	Some College vs. College Education	-0.514***
Work Force Participation		
	Employed vs. Unemployed	0.783***
	Employed vs. Not In the Work Force	0.365***
Income		
	Less than $15k vs Between $15k and $25k	-0.067
	Between $15k and $25k vs. Between $25k and $35k	-0.214***
	Between $25k and $35k vs. Between $35K and $50K	-0.168**
	Between $35K and $50K vs. Between $50K and 75k	-0.280***
	Between $50k and $75k vs. $75K or more	-0.246***

Table 1 also includes a breakdown of each individual financial literacy question by age. For all questions used to measure financial literacy, the youngest cohort answers the fewest correctly. Relative to individuals in the 30 to 34 age cohort, fifteen percent fewer 18 to 24-year-olds correctly answer the mortgage question. This is question is considered to be one of the "easiest" questions in the survey, with the highest percentage of all individuals answering it correctly. The youngest cohort also answers the inflation and stock questions correctly significantly less often. The likely reasons for these outcomes is that this young cohort has the least experience with financial matters and also may not yet appreciate the value of this type of knowledge.

Table 2 explores the financial literacy of young adults by demographic characteristics. T-tests were used to determine whether there was a significant difference in the financial literacy score among various demographic groups. As Table 1 indicated, those in the youngest cohort have the lowest levels of financial literacy, correctly answering nearly half a question less. The difference between the 25 to 29-year-olds and 30 to 34-year-olds remains significant, but the result is much smaller in magnitude. As young adults grow older they may find that financial literacy becomes more valuable, therefore they are more likely to spend time and money to acquire financial information. The increase in financial literacy score may reflect this change in attitude about the value of financial literacy or may be an artifact of gaining more experience with personal finance.

Results indicate that young females answer significantly fewer questions correctly, on average about half a question. As previous research has indicated women have significantly lower levels of financial literacy (Fonseca et al 2012: 97) and even from a young age (Danes & Haberman 2007: 54). The likely effects of race and ethnicity also followed those presented in previous research, black and Hispanic minorities have significantly lower levels of financial literacy, relative to whites or Asians (Lusardi et al. 2010: 366; Lusardi & Mitchell 2014: 20).

Household composition and living arrangements are also included as an indicator for the financial situation of young adults. Relative to single respondents, married respondents have higher levels of financial literacy perhaps because they can combine their knowledge and learn from each other. They also may have to make a wider range of financial decisions involving work or children. Young adults that remain living with their parents answer significantly fewer questions correctly probably because they are less responsible for personal finances or have less interest in financial affairs. The other explanation offered above may also be true among these two groups, married individuals and those living alone may find that financial literacy is more valuable and therefore spend more time investing in it.

Consistent with previous literature, as education levels increase an individual is significantly more likely to be financially literate. This results is to

be expected. For those individuals with higher levels of education it is less costly for them to learn about financial matters because they already have the general knowledge and learning skills that can be used to improve their financial understanding and education.

Employed respondents answer significantly more financial questions correctly compared to those who are unemployed and those not in the work force. Employed respondents likely have a greater need for financial literacy, as they have income that must be allocated to expenses and savings. This outcome can also be seen from the results on income. As income increases respondents answer significantly more questions correctly.

4.5 Some Financial Behaviors of Young Adults

The NFCS survey asked respondents about their credit card use. Six survey items particularly relevant about the credit card use of young adults were the following: (1) I always paid my credit cards in full; (2) In some months, I carried over a balance and was charged interest; (3) In some months, I paid the minimum payment only; (4) In some months, I was charged a late fee for late payment; (5) In some months, I was charged an over the limit fee for exceeding my credit line; and, (6) In some months I got a cash advance. To prevent costly use of credit card, most financial experts, with the exception of the first statement, do not recommend that young adults adopt these practices.

The results from the responses to these credit card behaviors and other financial behaviors are shown in Table 3. The credit card behaviors offer an interesting insight into the financial practices of young adults. As age increases among the youngest cohorts, individuals are more likely to pay only the minimum payments and carry a balance on their credit card. This result suggests that older individuals within the youngest cohorts have more cash flow problems. This hypothesis is further supported by the result that the older cohort is more likely to overdraw their bank account. These results are consistent with the idea that as age increases among young adults, their finances become more complex. Individuals may have graduated from college and must begin paying back debt accumulated from school. In addition, these households may be increasing their consumption by purchasing new cars, houses, getting married and having children. At this point in the lifecycle, the decisions households make can cause expenses to rise above income for a period of time.

Table 3: Financial behaviors by age cohort

	18 to 34	18 to 24	25 to 29	30 to 34
Credit Card Behaviors				
Pay Credit Card in Full	0.324	0.307	0.325	0.344
Carry a Balance	0.294	0.195	0.340	0.376
Minimum Payments	0.270	0.206	0.309	0.316
Late Fees	0.144	0.115	0.161	0.165
Limit Fees	0.089	0.073	0.094	0.103
Cash Advance	0.103	0.083	0.109	0.122
Other Financial Behaviors				
Non-Retirement Investments	0.213	0.153	0.211	0.290
Check Credit Score	0.436	0.339	0.516	0.490
Overdraw Bank Account	0.227	0.180	0.257	0.259
Plan for Retirement	0.286	0.194	0.320	0.371
Not Able to Pay Student Loans	0.196	0.199	0.214	0.178
Observations	6,865	2,581	1,990	2,294

Table 3 also shows the results from the survey on questions related to investment, credit reports, bank accounts, planning for retirement, and student loan behaviors. The following were the five corresponding questions from the NFCS survey: (1) Not including retirement accounts, does your household have any investment in stocks, bonds, mutual funds, or other securities? (2) In the past twelve months, have you checked your credit score? (3) Do you or your spouse overdraw your checking account occasionally? (4) Have you ever tried to figure out how much you need to save for retirement? (5) Are you concerned that you might not be able to pay off your student loans?

Young adults are facing complex financial decisions for the first time, many of these decisions involve spending. These individuals are purchasing new automobiles, homes, paying off debt accumulated during school, starting families, and while still enjoying their youth. During this period of the lifecycle it is expected that expenses are high and saving and investing can be difficult. This change is reflected in the small percentage of young adults who report holding non-retirement investments. Only fifteen percent of households in the youngest cohort hold these investments, but the percentage increases to nearly thirty percent for those in the older cohort.

Nearly half of the young adult population report checking their credit score. The percentage checking their credit score was expected to be higher than other behaviors in this category due to the high level of spending that occurs during this period of the lifecycle. Young adults may be applying for

credit cards, loans, and mortgages that require a good credit score. Checking a credit score would indicate these households are planning to take out debt or monitoring their accounts for identity theft, both of which would represent good financial decisions.

Over 20 percent of young adults report overdrawing their bank accounts occasionally, with the majority of these households falling into the older cohorts. As previously stated, these household are in a period of their lifecycle that is characterized by high spending and low savings. This can create cash flow problems for households that can result in overdraw bank accounts. While this behavior is not unexpected, it can be very costly for a household, average overdraft fees in 2012 were $31 (Bell 2012). Consider overdrawing a bank account as a type of short-term loan from a bank. Suppose an individual overdraws their bank account by $100 for thirty days; paying a $31 fee is equivalent to an annual percentage rate (APR) in excess of 370 percent. This is significantly higher than the APR on most credit cards and some payday loans.

Less than thirty percent of all young adults report planning for retirement. This low rate of planning is consistent with previous literature on retirement planning and saving among young adults (Lusardi & Mitchell 2011: 511). While the percentage of all young adults remains low, the breakdown by cohorts reveals that as age increases individuals are more likely to report planning for retirement. This ranges from less than twenty percent for those between 18 and 24, to nearly forty percent for those 30 to 34. This is the expected result: as households age, they begin to place more value on planning for the future, including their retirement.

Many discussions on the financial situations of young adults focus on their student loans. Often mentioned are their large debts and the ability to pay off these loans. Among young adults with student loans in the United States, nearly twenty percent report they are concerned about their ability to pay off these loans. The percentage remains fairly consistent among all cohorts of young adults.

4.6 Credit Card Behaviors and Financial Literacy

Although assessing what people know about financial matters provides some indication of their degree of financial sophistication, and finding out how people say they do with respect to financial matters offers insight into their financial behavior, what is more interesting is how financial literacy is related to self-reported financial behaviors or outcomes. Table 4 reports the marginal effects from a set of probit regressions on a variety of credit card behaviors and the influence of financial literacy. Only young adults that report holding

one or more credit card were asked about their credit card behavior. Despite the fact that only coefficients for financial literacy, age cohort, and number of credit cards are presented in Table 4, other demographic variables are also included.[4]

Table 4: Financial literacy and credit card behavior

	Pay in Full	Carry a Balance	Minimum Payment	Pay a Late Fee	Pay a Limit Fee	Receive a Cash Advance
Financial Literacy	-0.009	0.015**	-0.015**	-0.265***	-0.033***	-0.033***
	(0.007)	*(0.007)*	*(0.035)*	*(0.006)*	*(0.005)*	*(0.005)*
18 to 24 year olds	0.151***	-0.131***	-0.063**	-0.019	-0.002	0.003
	(0.020)	*(0.026)*	*(0.020)*	*(0.022)*	*(0.018)*	*(0.020)*
24 to 30 year olds	0.028	-0.020	0.012	0.008	-0.004	-0.003
	(0.024)	*(0.023)*	*(0.604)*	*(0.020)*	*(0.016)*	*(0.017)*
4 or more Credit Cards	-0.076***	0.130***	0.075***	0.094***	0.087***	0.075***
	(0.023)	*(0.022)*	*(0.001)*	*(0.020)*	*(0.017)*	*(0.018)*
Observations	4,309	4,309	4,309	4,309	4,309	4,309
Pseudo R2	0.080	0.055	0.052	0.041	0.073	0.053

Note: Marginal effects are reported. The following demographic characteristics were also controlled for: gender, race, household composition, living situation, education level, workforce participation, and income.
*** p<0.01, ** p<0.05, *p<0.10

For the most part the results in Table 4 are what would be expected. Young adults with higher levels of financial literacy are significantly less likely to report making only the minimum monthly payment, paying a late fee, paying a limit fee, or receiving a cash advance. The fees paid on credit cards are often very costly, both in terms of monetary and non-monetary cost, such as negatively affecting your credit score. A reduction of one's credit score can adversely affect future loan potential and raise the interest rates on loans.

The one exception in the results is the significantly negative relationship between higher financial literacy and carrying a balance on their credit card. This unexpected outcome may be explained by the effect of the lifecycle on the spending patterns of young adults. The permanent income hypothesis suggests holding debt as a young adult is not a "bad" financial decision. Young adults often have student loans, auto loans, mortgages, and credit card debt. Even though financially literate individuals are carrying a balance on

4 Other demographic variables include gender, race/ethnicity, household composition, living situation, education level, workforce participation, and income.

their credit card, results also indicate they are making more than the minimum monthly payment. Relative to many other debts that a young adult would hold, a credit card would have a significantly higher interest rate. If literate respondents are making at least the minimum payment on all debts, but more than the minimum payment on highest interest rate debt, the result should be interpreted as a "good" decision for the young adult's current financial situation.

Results presented in Table 4 also show that young adults with four or more credit cards are more likely to report less than ideal credit card behaviors. Respondents with many credit cards are significantly more likely to report making only the minimum monthly payment, paying fees, and receiving a cash advance, relative to those holding fewer cards. More credit cards may indicate that these individuals have higher levels of debt or problems budgeting and therefore are significantly more likely to engage in these costly credit card behaviors.

4.7 Other Financial Behaviors and Financial Literacy

The majority of existing literature on young adults has focused on credit card behavior, however the NFCS data set also allows for exploration of other financial behaviors. Table 5 reports a variety of other financial behaviors that will offer insight into the financial practices of young adults. The coefficients on financial literacy and age cohort are presented, though controls for other demographic characteristics are also included.[5]

The coefficient for financial literacy is in the expected direction for the other financial behaviors analyzed. Column 1 reports the findings on whether a household has any investments in stocks, bonds, mutual funds, or other securities, not including any retirement accounts. Results indicate that individuals with higher levels of financial literacy are significantly more likely to report holding some non-retirement investments, even after controlling for income. This result is consistent with the result found by van Rooij et al (2011b) on stock market participation in the Netherlands.

Column 2 presents results for whether the individual has reported checking their credit score in the past twelve months. It is important that information appearing on your credit report is accurate and the report can be used to monitor for identity theft, both of which are considered good financial behaviors. Those with higher levels of financial literacy are significantly more likely to state that they have recently checked their score. The initial

5 Other demographic variables include gender, race/ethnicity, household composition, living situation, education level, workforce participation, and education level.

result of age on viewing a credit score remains significant, those in between 24 and 30 years old are more likely to report viewing their credit score, relative to those in the older cohort.

Overdrawing a bank account can be a very costly financial behavior, the average overdraft fee was $31 in 2012 (Bell 2012). Overdrawing a bank account can be the result of poor budgeting skills or failure to adequately monitor the account, either of these can be seen as a "bad" financial behavior. It is expected that young adults with higher levels of financial literacy would be less likely to overdraw their accounts. Results confirm the hypothesis is true. For each additional financial question a respondent answers correctly they are two percent less likely to overdraw their bank account.

Table 5: Financial literacy and other financial behavior

	Investment	View Credit Report	Overdraw	Plan for Retirement	Not Likely to Pay Back Student Loans
Financial Literacy	0.022***	0.020***	-0.019***	0.028***	-0.012*
	(0.004)	*(0.006)*	*(0.005)*	*(0.005)*	*(0.006)*
18 to 24 year olds	0.011	0.017	-0.019	-0.017	0.035
	(0.016)	*(0.020)*	*(0.017)*	*(0.018)*	*(0.025)*
24 to 30 year olds	-0.023**	0.078***	0.018	0.007	0.039*
	(0.014)	*(0.019)*	*(0.016)*	*(0.017)*	*(0.021)*
Observations	6,865	6,865	6,865	6,865	4,150
Pseudo R^2	0.179	0.090	.039 0	0.116	0.057

Note: Marginal effects are reported. The following demographic characteristics were also controlled for: gender, race, household composition, living situation, education level, workforce participation, and income.
*** p<0.01, ** p<0.05, *p<0.10

Previous literature on retirement planning has reported that very few young people have tried to figure out how much they will need to save for retirement. However, planning and saving for retirement at a young age can ease the future burden. Results presented in Column 4 show that individuals with higher levels of financial literacy are significantly more likely to state that they have begun planning for retirement. For each financial literacy question answered correctly, the individual was three percent more likely to plan for retirement. This result is significant and relatively large in magnitude.

The final variable of interest is whether the young adult is concerned they may not be able to pay back their student loans. Only respondents who have at least some college education and reported having student loans are included in the analysis. Individuals with higher levels of financial literacy are significantly less likely to report they have this concern. This result indicates financially literate young adults may be better at managing their money or choose majors that had higher rates of return than their counterparts.

When examining the mean differences reported in Table 3, there were many significant differences among age cohorts. The significance of age decreases when examining the probit regression coefficient on financial literacy. This result suggests that it is not age alone that is driving differences in behaviors, but more importantly financial literacy. Improving the financial literacy of young adults can help them make more informed, less costly, financial decisions.

4.8 Conclusion

This study analyzed data on the financial literacy and behaviors of young adults in the United States. Using a nationally representative data set, a means test was used to compare the financial literacy of young adults relative to older cohorts and also to show differences based on demographic characteristics within the young adult cohort. Consistent with results presented in previous literature, young adults do have a significantly lower level of financial literacy, relative to their older counterparts (Lusardi & Mitchell 2014: 17; Allgood & Walstad 2013: 7). Among young adults between the age of 18 and 34, females, minorities, less educated, and low income individuals had significantly lower levels of financial literacy.

Financial behaviors were also studied, first making comparisons across age cohorts, then controlling for financial literacy and other demographic characteristics. Many of the behaviors were significantly different across young adult age cohorts, however these effects were reduced in magnitude and significance when financial literacy and other demographic controls were included. The effect of financial literacy on the credit card behaviors was mixed. Those young adults with higher levels of financial literacy were less likely to pay only the minimum balance, pay fees associated with late payments and limits, and take out a cash advance, suggesting that higher levels of financial literacy are associated with good financial practices related to credit card use.

The results also showed, however, that young adults with higher levels of financial literacy also were more likely to carry a balance on their credit card. This contrary outcome raises the issue of what it means for an individual to

engage in a "good" financial practice. If young households have large levels of debt from different sources, it is ideal to make payments on all these debts to avoid defaulting on any loans. Any additional funds at the end of the month are typically used to pay down the debt with the highest interest rates. The results on credit card behavior among the financially literate suggest that, although they do carry a balance on their credit cards, they are making more than the minimum payment. These payments may be the best financial decision the respondent can make given income constraints and the structure of their debt.

Although the majority of existing literature on financial literacy and young adults focused on credit card behavior, this research also examined a variety of other financial practices to examine the effect of financial literacy. The results were consistent with the initial hypothesis, those with higher levels of financial literacy were significantly more likely to make to non-retirement investments, figure out how much savings was required for retirement, and view their credit scores. The financially literate young adults were also less likely to overdraw their bank accounts and respond negatively to the belief that they would not be able to pay back their student loans.

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