



The Influence of Student Loan Debt on Financial Satisfaction

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Abstract

This research examined the influence of student loan debt on financial satisfaction using a sample of adults ages 18–54 from the 2015 National Financial Capability Study (NFCS). The study took advantage of the expanded set of variables related to student loan debt that was added to the 2015 wave of the NFCS survey. Results provided mixed evidence of student loan debt serving as an influential factor on consumer financial satisfaction. Whereas borrowing from multiple sources (federal and private) or private lenders only was associated with a lower likelihood of respondents indicating that they would make the same borrowing decisions, having student loan debt was not significantly associated with financial satisfaction. Implications for policy are considered.

Keywords Student loan debt · Financial satisfaction · Choice · Regret

Introduction

Student loan debt is a topic of growing policy concern in the United States. The current debt burden borrowers carry coupled with rising delinquency and default rates often is called a student loan crisis in popular media, even though student loans are an investment in future human capital. Recent data show that student loan debt has quadrupled since 2001, with a greater proportion of students relying on at least some loans to attend college (Looney and Yannelis 2015). Outstanding student loan balances reached more than \$1.5

trillion during the first quarter of 2018, more than both credit card debt and motor vehicle loans (Federal Reserve Bank of Minneapolis 2018). The federal government finances more than 90% of all student loans. In 1987, students borrowed an average of \$2500 in federal student loans (Baum and O'Malley 2003); the class of 2017 left college with an average of more than \$39,000 in student loan debt (“U.S. student loan debt statistics for 2018” 2018).

Although repayment levels for consumer loans and credit cards have improved since the Great Recession, student loans unpaid after 3 months exceeded 10% in 2017 (Federal Reserve Bank of Minneapolis 2018), and are the most likely form of consumer debt to become delinquent (Federal Reserve Bank of New York 2018). Student loan debt is problematic in that it may impact overall economic stability and flexibility for young Americans at a critical point in the life cycle (Letkiewicz et al. 2014). Previous work has articulated numerous complications that may arise from carrying high levels of student loan debt, including trouble completing one's education, limited career options, restricted access to credit for larger purchases such as a home or automobile, and delays in marriage or having children (Haughwout et al. 2015; Robb 2017; Robb et al. 2012b; Rothstein and Rouse 2011). Studies of college student populations have pointed to the role of student loan debt as a core stressor, with detrimental impacts on subjective well-being (Heckman et al. 2014; Robb 2017). Given these findings, it is reasonable

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to question how student loan debt may ultimately impact financial satisfaction.

Previous studies of overall well-being, or sub-dimensions of well-being such as financial satisfaction have identified the influence of financial attitudes, behavior, and knowledge as well as financial strain (Hansen 2009; Joo and Grable 2004; Woodyard and Robb 2016; Xiao et al. 2014; Zimmerman 1995). The present study builds upon these prior analyses by taking student loan debt into consideration.

The primary objectives of this study were (1) to examine the association between financial satisfaction and having student loan debt and (2) to examine the influence of sources of student loans (federal vs. private vs. both) on financial satisfaction among those with student loan debt. For those with student loans, an alternative measure of financial satisfaction (satisfaction with previous student loan borrowing decisions) also was used. Given the unprecedented levels of student loan debt, it is important to understand its influence as an additional stressor that ultimately reduces financial satisfaction. To that end, the concluding section of this article suggests implications of this research for policy makers, scholars, and counselors.

Review of Literature

Student Loan Debt and Loan Repayment Behavior

Not only has there been unprecedented growth in the number of borrowers and amount of student loan debt over the past decade, but the default rate also is at its highest level in 20 years (Looney and Yannelis 2015). In 2017, default rates for students who entered repayment in 2013 were at 11.5%, a rate slightly higher than previous reports but still 3.2% lower than five years previously (US Department of Education 2017). Whereas these statistics concern policy-makers, a different perspective recognizes the benefits of student loans, such as greater future lifetime earnings. In addition, the debt burden (in terms of monthly payments as a fraction of income) has stayed relatively stable over time (Akers and Chingos 2014).

Student loans are available from multiple sources, but the most important distinction is likely between federal aid (subsidized and unsubsidized) and private student loans. There are several significant differences between federal and private loans. Relative to private loans, federal student loans often are less expensive and may be more likely to allow deferred payments. Private loans involve an underwriting process that is not applied to federal loans. Thus, it is possible that private loan rates could be lower for students with excellent credit or cosigners. However, students with little to no credit history are unlikely to qualify for private loans. Another important difference is that rules limit how much

can be borrowed on an annual and lifetime basis (depending on need and type of loan) on federal but not private loans. When the costs of an education exceed federal loan limits, students may seek alternatives, which may include employment, grants, or some other form of debt such as private student loans. Recent data suggest that about 11% of student loans were private loans in 2016–2017, down from a high of 25% in 2007–2008 (College Board 2017). Although it is not always the case, students who borrow from multiple lenders may do so because they have exhausted their federal student loan options.

Income-based repayment plans, which are aimed at those experiencing financial hardships, cap payments based on income and family size. These plans make monthly payments affordable but extend the time it takes to repay the loan (Akers and Chingos 2014). According to the FINRA Investor Education Foundation (2016), 35% of student loan holders have chosen a repayment option based on their income, but nearly 20% were unsure what payment scheme they used.

Financial Satisfaction or Well-Being and Debt

Financial satisfaction or well-being ultimately is tied to the overall well-being and satisfaction of individuals (Van Praag et al. 2000, 2003; Wan and Zhao 2018; Woodyard and Robb 2016), including young adults (Adams and Moore 2007; Roberts et al. 1999). In previous research, financial well-being has been associated with persistence to attain a college degree (Braxton et al. 1997; Roberts et al. 1999). Some research has suggested that debt, including credit card debt (Baum and O'Malley 2003; Grable and Joo 2006; Solis and Ferguson 2017) and student loan debt (Robb et al. 2012a; Solis and Ferguson 2017), directly or indirectly influences financial satisfaction among young adults.

Financial Satisfaction and Financial Attitudes, Financial Behaviors, and Financial Strain

Which factors might improve financial satisfaction? In previous research, the ability to perform well in a behavioral domain resulted in greater satisfaction in that domain. Therefore, for example, when individuals demonstrate positive financial attitudes and behaviors, they are more likely to have greater financial satisfaction (Lyubomirsky et al. 2005; Xiao et al. 2009). Several studies (Joo and Grable 2004; Hilgert et al. 2003; Xiao 2008; Xiao et al. 2009) have demonstrated a positive association between financial satisfaction and financial attitudes and behaviors such as the ability to manage finances and save for the future.

Financial strain and consumer/finance issues were among the top ten factors that negatively affected the perception of well-being among young adults in Disch et al.'s (2000)

research. Hayhoe et al. (2000) found that college students' positive financial behaviors were negatively associated with financial strain.

Financial Satisfaction and Financial Knowledge and Education

The FINRA report *Financial Capability in the United States 2016* revealed that more than one-half of student loan borrowers did not try to estimate their monthly payments before taking the loan; 48% of current loan holders were concerned about their ability to repay the debt (FINRA Investor Education Foundation 2016). Both findings suggest a role for financial knowledge and education for student loan borrowers.

Joo and Grable (2004) and Xiao and Porto (2017) reported a positive association between financial knowledge and financial satisfaction. More generally, studies have found a relationship between financial knowledge and several positive financial outcomes, such as better 401(k) investment performance (Clark et al. 2017) and demand for professional financial advice (Calcagno and Monticone 2015).

The literature often distinguishes between two distinct types of financial knowledge. Many measures assess knowledge objectively, indicating the degree to which respondents can accurately answer questions related to personal finance. Alternatively, subjective financial knowledge measures the respondent's perception of his or her own financial knowledge. Subjective financial knowledge appears mostly to be a positive influence on consumer decision making; it has been associated with willingness to enroll in retirement savings (Hadar et al. 2013), avoidance of some types of high-cost lending (Seay and Robb 2013), and preventing risky credit behaviors (Xiao et al. 2011). However, some people may not accurately assess their own financial knowledge, believing they are significantly more knowledgeable than indicated by their score on objective measures of financial knowledge. Porto and Xiao (2016) reported that these individuals made sub-optimal financial choices and avoided seeking professional financial advice to the detriment of their financial well-being.

Previous research has reported that financial education is associated with both debt repayment (Brown et al. 2016) and positive credit behavior (Brown et al. 2014). Although other research (see, for example, Hung et al. 2009) has called into question the effectiveness of financial education, it continues to be a variable of interest to researchers.

Financial socialization also has been associated with positive financial behaviors and financial satisfaction. In Kim and Chatterjee's (2013) research, individuals who were financially socialized by their parents as children were more likely to demonstrate significantly better money management practices and financial behavior during their emerging

adulthood. Shim et al. (2009) reported that financial education received at home and in school influenced young adults' financial well-being and life satisfaction, suggesting one possible avenue for intervention.

Demographic and Socioeconomic Factors and Financial Satisfaction

In previous research (Hsieh 2004; Seghieri et al. 2006; Vera-Toscano et al. 2006), income, income expectations, and other demographic characteristics such as age, education, gender, race, and marital status have been associated with household well-being and satisfaction. In addition, family stability and success in college positively influenced life satisfaction. In Sirgy et al.'s (2007) research among young adults, life satisfaction was positively linked with positive behaviors across numerous facets of life including health, success at work, and interpersonal relationships.

Summary

Prior studies have indicated that a college degree, even if it means having to borrow to pay for the education, has the potential to yield a positive return on the investment in the long run (Akers and Chingos 2014). An increasing number of students rely on student loans to pay for college and, as a result, the household student loan burden, as well as the default rate, have increased rapidly (Hillman 2014; Lochner and Monge-Naranjo 2014; Looney and Yannelis 2015). Failure to complete the education for which they had obtained the student loan has been associated with a higher probability of default as well as a higher student loan debt burden (Hillman 2014).

Previous literature (Adams and Moore 2007; Robb et al. 2012b) has suggested a negative association between debt and financial well-being among young adults. Conversely, positive financial behaviors, such as the ability to manage money and save for the future, have been linked to greater financial well-being and satisfaction and reduced financial stress (Hayhoe et al. 2000; Hilgert et al. 2003; Robb et al. 2012a; Xiao 2008). Previous research (Brown et al. 2014, 2016; Clark et al. 2017; Hadar et al. 2013; Kim and Chatterjee 2013; Porto and Xiao 2016; Seay and Robb 2013; Xiao and Porto 2017; Xiao et al. 2011) also has demonstrated an association between financial knowledge, financial education, and parental financial socialization with improved debt management and savings behaviors and/or greater financial satisfaction and well-being over time. Positive financial attitudes appear to be positively related with financial satisfaction (Joo and Grable 2004; Lyubomirsky et al. 2005; Xiao et al. 2009), while financial strain is a negative influence (Disch et al. 2000).

Additionally, demographic and socioeconomic characteristics, such as income, gender, marital status, race and ethnicity, educational attainment, and health status, have been associated with household financial satisfaction in a multitude of studies (Baum and O'Malley 2003; Grable and Joo 2006; Hsieh 2004; Seghieri et al. 2006; Shim et al. 2009; Sirgy et al. 2007; Vera-Toscano et al. 2006).

However, previous studies about financial satisfaction have not provided any distinctions based on student loan debt source. Nor has there been attention given to satisfaction with educational borrowing decisions. The present study explores the influence of having student loans on household financial satisfaction after controlling for additional factors such as financial knowledge, attitudes, behaviors and strain, along with the other socioeconomic and demographic factors found to be significantly associated with financial satisfaction in previous research.

Methodology

Conceptual Framework

The present study further explores the conceptual framework of financial satisfaction first posited by Joo and Grable (2004). This framework identifies financial attitudes and behavior as key determinants of financial satisfaction. Other studies have provided empirical support for this conceptualization, noting that financial behavior such as the ability to manage finances and debt (Hilgert et al. 2003; Xiao 2008), and other positive money management behaviors (Hayhoe et al. 2000; Lyubomirsky et al. 2005; Xiao et al. 2009) are associated with financial satisfaction. Financial status, including income constraints, financial strain, and stability, likewise has been associated with household financial satisfaction (Woodyard and Robb 2016). Conversely, previous studies also have found that student loan and credit card debt burdens were negatively associated with the respondents' financial satisfaction and their ability to attain specific goals, such as completion of their college degree (Adams and Moore 2007; Roberts et al. 1999; Solis and Ferguson 2017). Financial education and financial knowledge have been associated with financial satisfaction in the previous literature (Brown et al. 2014; Clark et al. 2017; Robb et al. 2012a, b; Xiao and Porto 2017).

Although previous studies have examined the association between financial satisfaction and financial knowledge, attitudes, behaviors, and strain, to our knowledge no recent study has included student loan debt in a comprehensive model. Give the salience of student loan debt concerns, this is a significant gap in the exploration of the financial lives of those with student loan debt. The objective of this study is to fill this gap.

The National Financial Capability Study (NFCS) includes a direct measure of financial satisfaction, as respondents were asked to evaluate their current financial satisfaction on a 10-point Likert scale. However, the survey also asks those who reported having student loans to assess their overall satisfaction with previous decisions to borrow to finance college. In effect, respondents were asked to consider whether they would make the same borrowing choices in hindsight. This question captures a few interesting aspects worth considering. First, it serves as an additional measure (though less precise) of overall financial satisfaction for borrowers. Second, it captures aspects of attitudes toward student loan debt, which may be as important subjectively as whether they have debt.

In addition, while the current data do not include the magnitude of student loan debt, there are data about the type of student loan debt and whether individuals borrowed from multiple sources. As mentioned previously, individuals typically seek federal student loans first and may resort to private loans once federal options have been exhausted. Thus, borrowing from multiple sources is likely associated with a greater debt burden, all else equal.

The conceptual model is shown in Fig. 1.

Based on our conceptual model in Fig. 1, we formulate the following hypotheses:

H1 Possession of student loan debt will have a negative impact on financial satisfaction, after controlling for financial attitudes, behaviors, and strain; financial knowledge, education, and socialization; and socioeconomic and demographic characteristics.

H1A The effect will be stronger among younger respondents (ages 18–34).

H2 Among individuals with student loan debt, those with debt from multiple sources will have lower financial satisfaction than other student loan borrowers, all else equal.

H2A When financial satisfaction is measured as satisfaction with previous decisions to borrow to finance college, those with debt from multiple sources will have lower financial satisfaction than other student loan borrowers, all else equal.

Data

Data are taken from the 2015 National Financial Capability Study (NFCS), which is funded by the FINRA Investor Education Foundation (<http://www.usfinancialcapability.org>). The NFCS survey is conducted every 3 years and previously was conducted in 2009 and 2012. Data collected were cross-sectional as respondents from one sample wave do not carry

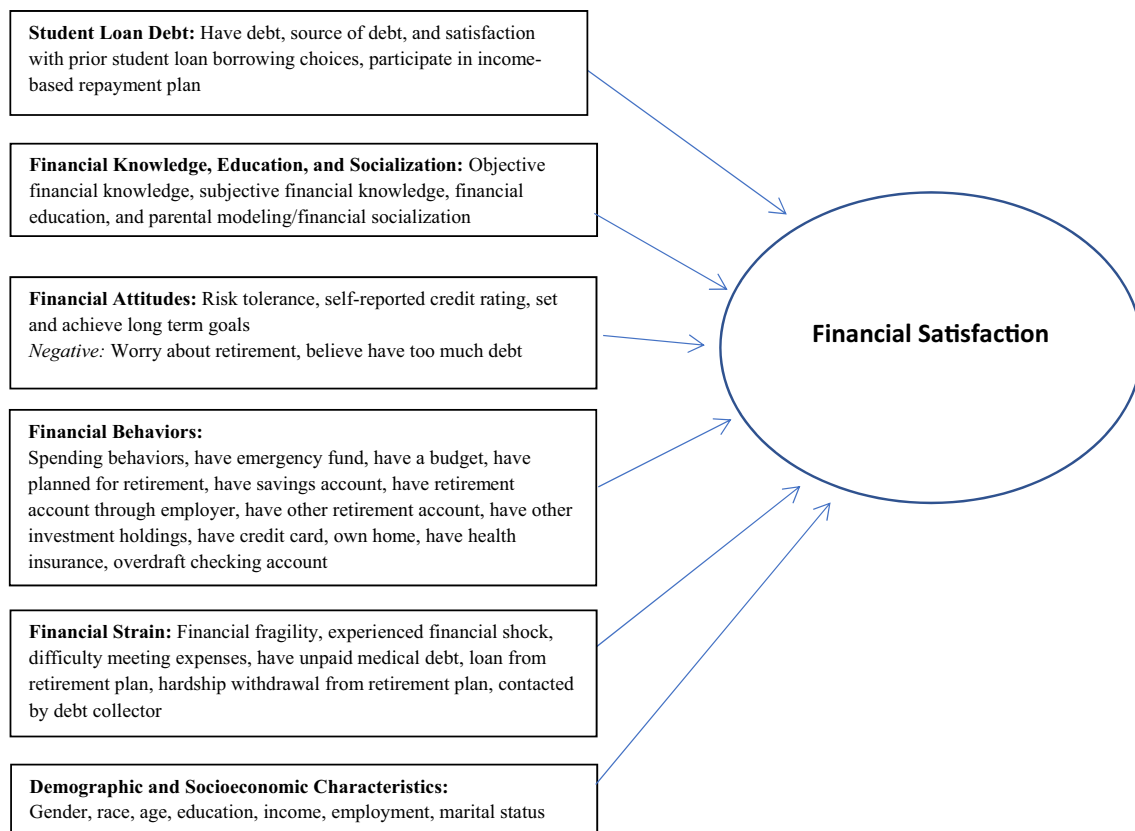


Fig. 1 Conceptual model of financial satisfaction

over to the next. Data were weighted to be representative of each state; the 2015 survey included a roughly equal number of respondents from each state plus the District of Columbia. The 2015 data included 27,000 adults older than 18 years old, and included numerous new variables about student loans.

The initial analysis of financial satisfaction was based on a restricted sample of all respondents ages 18–54 (the two oldest age categories were removed due to a low incidence of student loan debt among those respondents). Later stages of the analysis (controlling for student loan type and borrowing from multiple sources) were further restricted to only those respondents who indicated having some student loan debt. Descriptive statistics for the sample are provided in Table 1. Among the 18 to 54-year-old respondents in the sample, nearly a third (31.5%) indicated they had student loan debt. A majority of student loan debt holders had only federal loans (60.7%), whereas a quarter (25.3%) of the sample held both federal and private loans.

Dependent Variables

Financial Satisfaction

The NCFS includes a single measure of personal financial satisfaction. Respondents were asked to respond to the question, “Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?” Possible responses ranged from 1 (not at all satisfied) to 10 (extremely satisfied). The mean value for the full sample was 6.0 (standard deviation = 2.70, median = 7) compared to a mean value of 5.8 (standard deviation = 2.69, median = 6) for the 18 to 54-year-old sample. Univariate analysis indicated that financial satisfaction was approximately normal in distribution (skewness = -0.47, kurtosis = -0.83).

Table 1 Descriptive statistics

Variables	Full sample	No student finan- cial aid	Reported receiving some financial aid	p value
Dependent variables				
Financial satisfaction (1–10) Mean, SD	5.81 (2.69)	5.87 (2.64)	5.69 (2.80)	0.0021
Would make same student loan choices again (0/1)	–	–	38.2%	–
Independent variables				
Student loans				
Have student loans (0/1)	31.5%	–	–	–
Loan Source				
Federal only	–	–	60.8%	–
Private only	–	–	13.9%	–
Both federal and private	–	–	25.3%	–
Participate in income-based student loan repayment plan (0/1)	–	–	14.6%	–
Financial knowledge, education, and socialization				
Subjective financial knowledge (1–7) Mean, SD	5.34 (1.14)	5.31 (1.13)	5.42 (1.16)	.0001
Objective financial knowledge (0–6) Mean, SD	3.42 (1.55)	3.46 (1.57)	3.36 (1.49)	.0024
Financial education				
None available	59.7%	65.1%	47.9%	.0001
Offered, didn't participate	13.8%	10.7%	20.3%	.0001
Offered, participated	26.5%	24.1%	31.7%	.0001
Financial socialization (0/1)	51.3%	51.6%	50.5%	.2802
Financial attitudes				
Risk tolerance (1–10) Mean, SD	5.81 (2.59)	5.67 (2.57)	6.13 (2.61)	.0001
Worry about retirement (1–7) Mean, SD	5.03 (1.85)	4.95 (1.88)	5.23 (1.78)	.0001
Self-reported credit record				
Worse than average	15.9%	14.4%	19.1%	.0001
Average	18.1%	16.5%	21.5%	.0001
Better than average	65.9%	68.9%	59.3%	.0001
Have too much debt (0/1) Mean, SD	4.17 (2.23)	3.70 (2.21)	5.20 (1.88)	.0001
Set long-term goals (1–7) Mean, SD	5.09 (1.76)	5.05 (1.78)	5.19 (1.69)	.0001
Financial behaviors				
Spending behavior				
Spend same as income	35.6%	36.4%	33.9%	.0159
Spend less than income	44.4%	46.8%	38.9%	.0001
Spend more than income	20.0%	16.7%	27.1%	.0001
Have emergency fund (0/1)	48.9%	51.0%	44.2%	.0001
Have a budget (0/1)	63.7%	61.8%	67.8%	.0001
Have planned for retirement (0/1)	49.3%	47.7%	52.7%	.0001
Have savings account (0/1)	81.2%	79.9%	83.8%	.0001
Have retirement account through employer (0/1)	68.4%	62.7%	69.4%	.0001
Have other retirement account (0/1)	34.7%	34.7%	34.6%	.9338
Have other investment holdings (0/1)	34.5%	34.0%	35.4%	.1723
Have credit card (0/1)	84.7%	83.6%	87.1%	.0001
Own home (0/1)	61.8%	64.5%	55.7%	.0001
Overdraft checking account (0/1)	20.7%			

Table 1 (continued)

Variables	Full sample	No student finan- cial aid	Reported receiving some financial aid	p value
Have health insurance (0/1)	49.0%	88.8%	89.2%	.5062
Financial strain				
Difficulty meeting expenses (0/1)	52.0%	47.7%	61.2%	.0001
Financial fragility (0/1)	31.4%	30.1%	34.1%	.0001
Experienced financial shock in last year (0/1)	24.7%	20.9%	32.8%	.0001
Have unpaid medical debt (0/1)	24.1%	18.7%	35.8%	.0001
Loan from retirement account (0/1)	8.14%	4.2%	16.6%	.0001
Hardship withdrawal from retirement account (0/1)	6.21%	2.4%	14.3%	.0001
Contacted by debt collector (0/1)	21.5%	15.9%	33.7%	.0001
Demographic characteristics				
Gender (male = 1)	46.8%	47.6%	45.0%	.0177
Race (White = 1)	68.7%	70.8%	64.0%	.0001
Age				
18–24	11.3%	9.2%	15.8%	.0001
25–34	28.6%	22.5%	41.7%	.0001
35–44	28.1%	28.7%	26.5%	.0197
45–54	32.0%	39.4%	15.9%	.0001
Marital status				
Married	56.6%	57.0%	55.6%	.1728
Single	33.5%	31.9%	36.9%	.0001
Divorced/separated	8.9%	9.7%	6.9%	.0001
Widowed	1.0%	1.0%	0.05%	.0028
Education				
High school or less	21.2%	26.7%	9.1%	.0001
Some college	26.1%	26.1%	26.1%	.9759
College	37.6%	34.3%	44.6%	.0001
Advanced degree	15.1%	12.7%	20.1%	.0001
Employment status				
Employed	74.9%	74.0%	76.7%	.0042
Not employed	15.0%	14.0%	17.0%	.0001
Disabled	3.5%	4.5%	1.2%	.0001
Unemployed	4.8	5.0%	4.2%	.0986
Retired	1.8	2.3%	.07%	.0001
Household annual income				
< \$15,000	8.1%	8.2%	7.9%	.6145
\$15,000–\$24,999	8.9%	9.1%	8.4%	.2406
\$25,000–\$34,999	9.9%	9.6%	10.8%	.0671
\$35,000–\$49,999	14.1%	14.1%	14.0%	.8633
\$50,000–\$74,999	21.7%	21.4%	22.2%	.4117
\$75,000–\$99,999	15.4%	14.7%	16.8%	.0074
\$100,000–\$149,999	14.7%	14.6%	14.7%	.8284
\$150,000 or more	7.2%	8.1%	5.1%	.0001
Observations	9782	6699	3083	

Satisfaction with Previous Student Loan Decisions

A question new to the 2015 survey asked respondents who had student loan debt the degree to which they were content

with their previous student loan decisions. The question was, “If you could go through the process of taking out loans to pay for your education all over again, would you take the same actions or make a change?” The responses were a

dichotomous variable coded as 1 (I would make the same choices) or 0 (I would not make the same choices again). This question provides an alternative measure of subjective financial satisfaction for student loan debt holders.

Independent Variables

Student Loan Debt

The NFCS asked a series of questions about student loans, the first being whether respondents currently had any student loan debt. The presence of student loan debt was the key predictor of interest for the initial analysis of financial satisfaction; the variable was coded as 1 (yes) or 0 (no). In the second phase of the analysis, restricted to only those with student loans, a key variable was the type of loans individuals held. Respondents were asked to identify loan type as one of three mutually exclusive categories: federal loans only, private loans only, or a combination of federal and private loans. Whether or not respondents had access to an income-based repayment plan (yes = 1) was the final indicator unique to respondents with student loan debt.

Financial Knowledge, Education, and Socialization

The model included variables related to financial knowledge, education, and socialization. Knowledge was assessed in two ways. The first was the respondent's subjective perception on a rating scale of 1 (very low) to 7 (very high). Additionally, six objective financial knowledge questions were included in the survey. For each question, respondents were scored based on whether they selected the correct response from the survey options; respondents who indicated "don't know" or refused to respond were eliminated from the sample. The number of correct responses on the six items was summed to create a simple knowledge score (ranging from 0 to 6).

The six questions are presented here:

Compound interest: Suppose you had \$100¹ 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 pricing: If interest rates rise, what will typically happen to bond prices?

Mortgages: 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. (T/F)

Diversification: Buying a single company's stock usually provides a safer return than a stock mutual fund. (T/F)

Suppose you owe \$1000 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?

The NFCS also included a question about financial education. Specifically, respondents were asked whether financial education was offered by a school, college, or employer. Possible responses included yes (but no participation), yes (with participation), and no. Finally, there was a measure of financial socialization: Individuals were asked whether a parent or guardian had taught them how to manage their finances (1 = yes and 0 = no).

Financial Attitudes

Four measures from the NFCS of financial attitudes were used in this research. These were: self-reported credit records [1 = very bad to 5 = very good, recoded as worse-than-average (1, 2), average (3), better-than-average (4, 5)]; risk tolerance (1 = not at all willing to take investment risks to 10 = very willing to take investment risks); whether they worried about running out of income in retirement (1 = strongly disagree and 7 = strongly agree); whether they set and met long-term goals (1 = strongly disagree and 7 = strongly agree); and their perception of the amount of debt they hold in response to the question "I have too much debt right now" (1 = yes).

Financial Behaviors

Multiple measures of financial behaviors were available in the NFCS. Those selected for this research were: have a budget (1 = yes); spending behavior (responses = more than, less than, or equal to income); overdraft from checking account (1 = yes); and whether the respondent had planned for retirement (1 = yes). The variables also included a series of dichotomous variables indicating ownership of the following assets, liabilities, or products: an emergency fund, a savings account, a retirement account, personal investments aside from employer retirement funds, a credit card, a home, and health insurance.

Financial Strain

Multiple measures of financial strain were available in the NFCS. Those selected for this research included a series of dichotomous variables where yes = 1. The measures were

¹ All dollar values are in US currency.

difficulty making ends meet; whether respondent experienced a large, unexpected loss in income in the last year (a financial shock); whether respondent had unpaid medical debt; whether respondent had taken a loan from their retirement account; whether respondent had taken a hardship withdrawal from their retirement account; and whether respondent had been contacted by a debt collector in the 30 days prior to the survey. In addition, individuals assessed their financial fragility by answering a question asking if they could come up with \$2000 if an unexpected need arose in the next month. For the analysis, respondents were coded as financially fragile (=1) if they stated that they probably or certainly could not come up with the money.

Demographic and Socioeconomic Characteristics

The present study incorporated the demographic controls of gender (male = 1), race (simplified to categories of White (= 1) compared to non-White), age (categorically 18–24, 25–34, 35–44, or 45–54), marital status (married, single, divorced/separated, or widowed), education (high school or less, some college, college graduate, post graduate degree), employment (employed, not employed, disabled, unemployed, or retired), and income (measured categorically ranging from less than \$15,000 to more than \$150,000).

Estimation Strategy

The analysis was primarily interested in exploring the impact of student loans on overall financial satisfaction. It involved three separate analyses and a different type of statistical technique for each. As noted previously, financial satisfaction was approximately normally distributed; this variable was analyzed using Ordinary Least Squares regression in the first analysis. The second analysis focused on financial satisfaction scores among only those respondents who had student loans and the type of loans held; a Heckman two-stage regression was utilized. The full sample was divided into those with and those without loans in the first stage via binary probit analysis; Ordinary Least Squares regression was used in the second stage. The third and final analysis used logistic regression to explore an alternative measure of financial satisfaction for those with student loans. The alternative measure was a dichotomous response variable asking respondents whether they would make the same choices again regarding their student loans.

Results

Financial Satisfaction (18–54-Year-Old Sample)

Prior to running the core analyses, a one-way between-subjects ANOVA was used to explore potential differences

in financial satisfaction based on loan source. There was a significant effect of loan source on financial satisfaction at the $p < .05$ level for the three conditions analyzed [$F(2, 3089) = 63.69, p = .0001$].

In the first multivariate analysis addressing Hypothesis 1, Ordinary Least Squares (OLS) regression was used; financial satisfaction was the dependent variable. The independent variables were those in Fig. 1 and Table 2. All 18 to 54-year-old respondents were included in the first regression. A second analysis was restricted to younger adults (18–34), as this population often is a focus for media and policy makers.

Model 1 (18–54 years old) was significant, explaining roughly 55% of the variance in financial satisfaction (Adjusted $R^2 = 0.553, F(54, 9727) = 225.38, p < .0001$). Model 2 (18–34 years old) also was significant. The two samples (all adults vs. young adults) did not differ on the primary variable of interest, as having student loans was not significantly associated with financial satisfaction. The model results for the two samples were largely similar, but there were a few exceptions. Financial socialization, being offered financial education, having other investment holdings, and having health insurance were significantly (and positively) associated with financial satisfaction in the 18–54-year-old sample but not the younger subsample. Having a credit card was positively associated with financial satisfaction among the younger subsample but not the larger sample. In addition, having a retirement account outside of an employer sponsored plan was negatively associated with financial satisfaction among the younger sub-sample but was not significant for the full sample.

The financial knowledge controls demonstrated opposite effects, as objective financial knowledge was inversely associated with financial satisfaction and subjective financial knowledge was positively associated with financial satisfaction. Among the financial attitude variables, greater risk tolerance, reporting a better-than-average credit record, and setting long-term goals were all positively associated with financial satisfaction. Individuals who reported worrying about having enough money in retirement, having too much debt, and those who rated their credit record as worse than average had lower financial satisfaction scores.

A number of financial behaviors were significant predictors of financial satisfaction in both Models 1 and 2. Having an emergency fund and owning a home were positively associated with financial satisfaction. The coefficient for having an emergency fund (at 0.726 and 0.609 in Models 1 and 2, respectively) was one of the larger effects. Conversely, spending more than income and having attempted to plan for retirement were negatively associated with financial satisfaction.

A majority of the financial strain variables—including difficulty meeting expenses, reporting financial fragility,

Table 2 OLS regression results predicting financial satisfaction

Variables	Respondents 18–54 years old ^a (1)	Respondents 18–34 years old ^b (2)
Have student loans	0.048 (0.046)	–0.097 (0.066)
Financial knowledge, education, and socialization		
Subjective financial knowledge	0.299*** (0.019)	0.340*** (0.035)
Objective financial knowledge	–0.213*** (0.014)	–0.179*** (0.021)
Financial education (ref: none)		
Offered, didn't participate	0.165** (0.058)	0.103 (0.084)
Offered, participated	–0.032 (0.046)	–0.016 (0.071)
Financial socialization	0.145*** (0.038)	0.058 (0.061)
Financial attitudes		
Risk tolerance	0.223*** (0.008)	0.293*** (0.014)
Worry about retirement	–0.102*** (0.011)	–0.051** (0.017)
Self-reported credit record (ref: average)		
Worse than average	–0.485*** (0.068)	–0.394*** (0.106)
Better than average	0.179*** (0.054)	0.193** (0.079)
Have too much debt	–0.174*** (0.011)	–0.161*** (0.017)
Set long-term goals	0.213*** (0.013)	0.187*** (0.022)
Financial behaviors		
Spending behavior (ref: spend same as income)		
Spend less than income	0.008 (0.043)	–0.044 (0.068)
Spend more than income	–0.388*** (0.053)	–0.380*** (0.080)
Have emergency fund	0.726*** (0.048)	0.609*** (0.071)
Have a budget	0.025 (0.041)	–0.038 (0.067)
Have planned for retirement	–0.140** (0.043)	–0.147* (0.068)
Have savings account	–0.083 (0.054)	0.001 (0.082)
Have retirement account through employer	–0.075 (0.049)	–0.089 (0.073)
Have other retirement account	0.002 (0.049)	–0.155* (0.082)
Have other investment holdings	0.092* (0.048)	0.143 (0.076)
Have credit card	0.039 (0.061)	0.179* (0.089)
Own home	0.244*** (0.044)	0.160** (0.066)

Table 2 (continued)

Variables	Respondents 18–54 years old ^a (1)	Respondents 18–34 years old ^b (2)
Overdraft checking account	0.060 (0.052)	0.034 (0.078)
Have health insurance	0.120* (0.063)	–0.009 (0.091)
Financial strain		
Difficulty meeting expenses	–0.743*** (0.047)	–0.763*** (0.071)
Financial fragility	–0.295*** (0.052)	–0.421*** (0.078)
Experienced financial shock in last year	–0.411*** (0.048)	–0.313*** (0.074)
Have unpaid medical debt	0.015 (0.053)	0.024 (0.082)
Loan from retirement account	0.487*** (0.090)	0.626*** (0.145)
Hardship withdrawal from retirement account	0.973*** (0.105)	1.125*** (0.161)
Contacted by debt collector	–0.002 (0.060)	–0.070 (0.091)
Demographic and socioeconomic characteristics		
Gender (male = 1)	0.041 (0.040)	0.027 (0.063)
Race (White = 1)	–0.002 (0.041)	0.037 (0.061)
Age (ref: 18–24)		
25–34	0.090 (0.069)	–0.003 (0.074)
35–44	–0.048 (0.074)	–
45–54	–0.134 (0.076)	–
Marital status (ref: married)		
Single	–0.169*** (0.047)	–0.164** (0.068)
Divorced/separated	–0.276*** (0.071)	–0.484*** (0.187)
Widowed	–0.007 (0.192)	–1.013 (0.734)
Education (ref: HS or less)		
Some college	–0.181** (0.055)	–0.166* (0.088)
College	–0.079 (0.056)	–0.159 (0.090)
Advanced degree	–0.129 (0.072)	–0.218 (0.117)
Employment status (ref: employed)		
Not employed	0.029 (0.056)	0.068 (0.078)
Disabled	0.114 (0.109)	0.572* (0.278)
Unemployed	–0.349*** (0.092)	–0.315* (0.141)

Table 2 (continued)

Variables	Respondents 18–54 years old ^a (1)	Respondents 18–34 years old ^b (2)
Retired	0.396** (0.139)	1.530* (0.801)
Income (ref: < \$15,000)		
\$15,000–\$24,999	0.195* (0.090)	0.272* (0.124)
\$25,000–\$34,999	0.251** (0.091)	0.315** (0.122)
\$35,000–\$49,999	0.281*** (0.089)	0.557*** (0.122)
\$50,000–\$74,999	0.278*** (0.089)	0.556*** (0.123)
\$75,000–\$99,999	0.352*** (0.098)	0.576*** (0.139)
\$100,000–\$149,999	0.341*** (0.102)	0.528** (0.154)
\$150,000 or more	0.416*** (0.116)	0.703*** (0.198)
Intercept	3.596*** (0.166)	2.804*** (0.265)
Observations	9782	3901

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

^aAdjusted $R^2 = 0.553$ ***. F-Statistic = 225.38***

^bAdjusted $R^2 = 0.560$ ***. F-Statistic = 96.57***

experienced income shock, taking a loan from a retirement account, and taking a hardship withdrawal were significantly related to financial satisfaction in Model 1. The coefficient for difficulty meeting monthly expenses (at 0.743 and 0.763 in Models 1 and 2, respectively) was one of the largest. Whereas the first three strain measures noted above had a negative association with financial satisfaction, taking a loan or hardship withdrawal was positively associated with financial satisfaction. No significant effect of unpaid medical debt or contact from a debt collector were noted in Models 1 or 2.

Among the demographic and socioeconomic controls, gender, race, and age were not significantly associated with financial satisfaction scores in either model. Marital status, education, employment, and income all were significantly associated with financial satisfaction to some degree. Individuals identifying as single or as divorced/separated reported lower financial satisfaction when compared to married respondents. Compared to those with a high school degree or less, lower satisfaction was observed for those who had only some college, though no significant differences were noted for college graduates or those with advanced degrees. Relative to employed individuals, unemployed respondents indicated lower financial satisfaction, whereas retired respondents reported higher financial satisfaction. All income groups reported significantly higher

financial satisfaction relative to the reference group (income less than \$15,000).

Financial Satisfaction among Student Loan Debt Holders

Analysis of financial satisfaction in a reduced sample (only those individuals who had student loan debt) was conducted using a Heckman (1976, 1979) two-step estimation method (Table 3) to delve further into aspects related to student loan debt. The first stage employed a probit model to predict whether a respondent had any student loan debt. The second stage explored financial satisfaction based on the different loan sources specified in the survey, conditional on an individual having student loan debt in the first step of the regression. For the present model, the second stage of the Heckman estimation was analogous to OLS given the nature of the dependent variable, financial satisfaction.

In the first stage, among the financial knowledge and financial education-related factors, financial socialization was negatively associated with the probability of having student loan debt. Having financial education available (even when the subject did not participate) was positively associated with the probability of having student loan debt. Among the financial attitude variables, having too much

Table 3 Results of two-stage Heckman specification

Variables	Stage 1: probit analysis for 18–54 sample	Stage 2: OLS regression for respondents with student loan debt ^a
	Estimate (standard error)	Estimate (standard error)
Student loans		
Loan source (ref: federal only)		
Private only	–	0.483*** (0.101)
Both federal and private	–	–0.089 (0.080)
Satisfaction with previous student loan choices	–	0.183** (0.073)
Income-based repayment plan	–	0.138 (0.075)
Financial knowledge, education, and socialization		
Subjective financial knowledge	0.021 (0.015)	0.343*** (0.036)
Objective financial knowledge	0.014 (0.011)	–0.252*** (0.026)
Financial education (ref: none)		
Offered, didn't participate	0.296*** (0.041)	0.270* (0.129)
Offered, participated	0.195*** (0.033)	0.095 (0.101)
Financial socialization	–0.128*** (0.031)	–0.029 (0.081)
Financial attitudes		
Risk tolerance	0.008 (0.007)	0.254*** (0.017)
Worry about retirement	–0.023* (0.009)	–0.036 (0.022)
Self-reported credit record (ref: average)		
Worse than average	–0.108* (0.055)	–0.442*** (0.112)
Better than average	–0.124** (0.043)	0.098 (0.100)
Have too much debt	0.189*** (0.008)	–0.077 (0.062)
Set long-term goals	0.008 (0.011)	0.195*** (0.025)
Financial behaviors		
Spending behavior (ref: spend same as income)		
Spend less than income	0.025 (0.035)	0.036 (0.083)
Spend more than income	0.023 (0.042)	–0.222* (0.091)
Have emergency fund	–0.031 (0.038)	0.758*** (0.087)
Have a budget	0.063 (0.033)	0.061 (0.082)
Have planned for retirement	0.031 (0.035)	–0.168* (0.081)
Have savings account	0.078 (0.044)	0.303** (0.104)

Table 3 (continued)

Variables	Stage 1: probit analysis for 18–54 sample	Stage 2: OLS regression for respondents with student loan debt ^a
	Estimate (standard error)	Estimate (standard error)
Have retirement account through employer	0.178*** (0.039)	0.029 (0.108)
Have other retirement account	−0.102* (0.039)	−0.039 (0.097)
Have other investment holdings	−0.050 (0.038)	0.029 (0.091)
Own credit card	0.099* (0.050)	0.102 (0.117)
Own home	−0.185*** (0.036)	0.325*** (0.097)
Overdraft checking account	0.034 (0.041)	0.034 (0.078)
Have health insurance	−0.007 (0.052)	−0.144 (0.117)
Financial strain		
Difficulty meeting expenses	−0.043 (0.038)	−0.706*** (0.084)
Financial fragility	0.005 (0.042)	−0.353*** (0.090)
Experienced financial shock in last year	−0.015 (0.039)	−0.397*** (0.087)
Have unpaid medical debt	0.214*** (0.042)	0.117 (0.107)
Loan from retirement account	0.295*** (0.069)	0.689*** (0.159)
Hardship withdrawal from retirement account	0.466*** (0.082)	0.864*** (0.185)
Contacted by debt collector	0.256*** (0.047)	0.053 (0.119)
Demographic and socioeconomic characteristics		
Gender (male = 1)	0.004 (0.033)	0.039 (0.074)
Race (White = 1)	−0.005 (0.033)	0.035 (0.075)
Age (ref: 18–24)		
25–34	−0.269*** (0.054)	−0.101 (0.135)
35–44	−0.665*** (0.058)	−0.353 (0.228)
45–54	−0.992*** (0.062)	−0.765* (0.337)
Marital status (ref: married)		
Single	0.033 (0.039)	−0.243** (0.087)
Divorced/separated	0.029 (0.059)	−0.242 (0.144)
Widowed	−0.175 (0.183)	1.277** (0.474)
Education (ref: HS or less)		
Some college	0.687*** (0.049)	0.207 (0.255)

Table 3 (continued)

Variables	Stage 1: probit analysis for 18–54 sample	Stage 2: OLS regression for respondents with student loan debt ^a
	Estimate (standard error)	Estimate (standard error)
College	0.959*** (0.049)	0.372 (0.324)
Advanced degree	1.181*** (0.061)	0.390 (0.324)
Employment status (ref: employed)		
Not employed	0.201*** (0.045)	–0.010 (0.117)
Disabled	–0.421*** (0.107)	–0.466 (0.347)
Unemployed	0.043 (0.076)	–0.441** (0.177)
Retired	–0.182 (0.138)	0.079 (0.397)
Income (ref: < \$15,000)		
\$15,000–\$24,999	–0.153* (0.076)	0.250 (0.176)
\$25,000–\$34,999	–0.115 (0.075)	0.088 (0.168)
\$35,000–\$49,999	–0.179* (0.073)	0.096 (0.171)
\$50,000–\$74,999	–0.184* (0.073)	–0.007 (0.171)
\$75,000–\$99,999	–0.129 (0.080)	0.062 (0.178)
\$100,000–\$149,999	–0.028 (0.083)	0.141 (0.185)
\$150,000 or more	–0.236** (0.096)	–0.0935 (0.464)
Intercept	–1.809*** (0.150)	1.522 (1.005)
Lambda	–	0.721 (0.473)
Observations	9782	3083

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

^aAdjusted $R^2 = 0.567$

debt increased the probability of having student loans. Worrying about retirement and a self-reported credit score that was either better or worse than average were negatively associated with the probability of having student loan debt. Some of the financial behavior variables also were significantly associated with the probability of having student loan debt. Having a retirement account through one's employer and having a credit card were positively associated while owning a home and having another retirement account were negatively associated with the probability of having student loan debt. Financial strain related variables—having unpaid medical debts, taking a loan or hardship withdrawal, and being contacted by a debt

collector—were positively associated with having student loan debt.

Among demographic and socioeconomic characteristics, older respondents were less likely than those in the 18–24 years old age group to have student loan debt. Compared to those with educational attainment of high school or less, attainment of some college, college, or higher levels of education was positively associated with having student loan debt. Generally, respondents with incomes greater than \$15,000 were less likely to carry student loan debt than those with income less than \$15,000.

The second-stage model was significant, explaining roughly 57% of the variance in financial satisfaction. Many

of the coefficients were similar to those in Table 2, but there were some notable differences. The influence of student loans on financial satisfaction was differentiated by lending source, as the coefficient for private loans was significant while the coefficient for having both federal and private loans was not. Those who reported satisfaction with their past student loan borrowing decisions demonstrated greater financial satisfaction.

Alternative Measure of Financial Satisfaction Among Those Holding Student Loan Debt

Logistic regression was employed to explore an alternative measure of financial satisfaction among student loan debt holders—whether the respondent would take the same actions if given the opportunity to revisit their student loan decisions. Roughly 38% of the sample (Table 1) reported that they would make no changes in their decisions. Results of the regression are presented in Table 4. The model yielded a pseudo R^2 of 0.137, and the non-significant Hosmer Lemeshow ($X^2 = 3.85$, $p = .8703$) test indicated no evidence of poor fit.

Type of student loan debt was again a primary variable of interest for this model. The results suggest that having private only or both federal and private loans (relative to federal loans only) was negatively associated with financial satisfaction using this alternative measure. Satisfaction with prior borrowing decisions also was lower for those who participated in an income-based student loan repayment program. Those who reported that their parents taught them how to manage finances were more likely to report greater satisfaction with previous borrowing decisions. Among the financial attitude variables, greater risk tolerance was positively related with financial satisfaction while the subjective perception that one had too much debt was negatively related.

Among the financial behavior variables, having a plan for retirement was negatively associated, while having an emergency fund, other investment holdings, and overdrawing from a checking account were positively associated with higher levels of financial satisfaction using the alternative measure. Alternatively, several indicators of financial strain were significantly related with the alternative measure of financial satisfaction. Financial fragility was negatively associated, but taking a loan or hardship withdrawal from one's retirement account were positively associated with financial satisfaction.

Among the demographic and socioeconomic characteristics, being White had a positive influence on financial satisfaction, whereas those ages 25–34 were less satisfied with their previous borrowing compared to the reference category of 18–24 years old. College graduates also demonstrated reduced satisfaction with choices (compared to high school diploma or less) and those earning between \$25,000 and

\$34,999 were similarly less satisfied (compared to the lowest income group). Those who self-reported as not employed (including homemakers and full-time students) were more likely to indicate satisfaction with prior student loan borrowing decisions when compared to employed respondents.

Discussion

This study examined the association between student loan debt and financial satisfaction after controlling for factors related to financial knowledge, education, and socialization; financial attitudes, behavior, and strain; and demographic and socioeconomic factors. The initial hypotheses (H1 and H1A) that student loan debt would be negatively associated with financial satisfaction were not supported in this study. Having student loan debt was not significantly associated with a direct measure of financial satisfaction in either model.

The model presented in Table 3 provided a more nuanced exploration of the student loan debt variable from the NFCS; the sample was restricted to adults with student loan debt. The survey included numerous interesting questions for individuals who reported holding student loan debt that are unique to the NFCS. Hypothesis 2 was not supported as borrowing from multiple sources was not a statistically significant influence on financial satisfaction. However, among respondents who had student loans, having private student loans alone was positively associated with financial satisfaction. Only about 14% of the sample had only private loans, and it is possible that these individuals differ from those in the other groups in ways not assessed here, including the amount of their student loan debt and their future earning potential. Descriptive statistics suggested that the individuals with only private student loans were more likely to be in the higher-income categories, suggesting that they were either from higher socioeconomic status families and have substantial family wealth or took out loans to receive an education that helped them transition to positions and jobs with higher earning potential. More research is needed to examine this association in greater detail.

The results provided support for H2A. Borrowing from multiple sources was negatively associated with satisfaction with previous student loan borrowing decisions. This finding is interesting in light of the lack of significant effects for student loan debt in the earlier models. The satisfaction with prior decisions variable was included as an alternative measure of satisfaction with financial choices, but these findings suggest that there is something else to this particular variable. Direct exploration of self-reported financial satisfaction is a valuable measure, but it is important to consider less direct measures as well. In the current analysis, satisfaction with previous student loan borrowing decisions provided

Table 4 Logistic regression results predicting financial satisfaction (Measured as whether students would make same borrowing decisions) among student loan debt holders

Variables	Estimate (standard errors)	Odds ratios
Student loans		
Loan source (ref: federal only)		
Private only	−0.526*** (0.122)	0.591
Both federal and private	−0.475*** (0.100)	0.622
Income based repayment plan	−0.179* (0.093)	0.836
Financial knowledge, education, and socialization		
Subjective financial knowledge	0.051 (0.044)	1.052
Objective financial knowledge	0.039 (0.031)	1.040
Financial education (ref: none)		
Offered, didn't participate	0.187 (0.115)	1.206
Offered, participated	−0.018 (0.097)	0.981
Financial socialization	0.308*** (0.086)	1.360
Financial attitudes		
Risk tolerance	0.046* (0.019)	1.047
Worry about retirement	−0.036 (0.025)	0.964
Self-reported credit record (ref: average)		
Worse than average	−0.223 (0.144)	0.800
Better than average	0.137 (0.110)	1.147
Have too much debt	−0.149*** (0.025)	0.861
Set long-term goals	−0.007 (0.031)	0.992
Financial behaviors		
Spending behavior (ref: spend same as income)		
Spend less than income	−0.065 (0.098)	0.936
Spend more than income	−0.034 (0.109)	0.966
Have emergency fund	0.208* (0.101)	1.232
Have a budget	−0.097 (0.096)	0.908
Have planned for retirement	−0.253** (0.096)	0.776
Have savings account	−0.200 (0.125)	0.819
Have retirement account through employer	−0.027 (0.116)	0.973
Have other retirement account	−0.005 (0.108)	0.995
Have other investment holdings	0.149 (0.104)	1.160
Have credit card	0.324* (0.145)	1.384

Table 4 (continued)

Variables	Estimate (standard errors)	Odds ratios
Own home	0.131 (0.097)	1.140
Overdraft checking account	0.221* (0.107)	1.248
Have health insurance	−0.002 (0.143)	0.997
Financial strain		
Difficulty meeting expenses	0.159 (0.099)	1.173
Financial fragility	−0.281** (0.109)	0.755
Have experienced financial shock in last year	0.057 (0.105)	1.059
Have unpaid medical debt	0.142 (0.108)	1.153
Loan from retirement account	0.396* (0.161)	1.486
Hardship withdrawal from retirement account	0.563** (0.175)	1.756
Contacted by debt collector	0.104 (0.118)	1.110
Demographic and socioeconomic characteristics		
Gender (male = 1)	−0.073 (0.089)	0.929
Race (White = 1)	0.223* (0.091)	1.250
Age (ref: 18–24)		
25–34	−0.338* (0.133)	0.713
35–44	−0.189 (0.152)	0.828
45–54	−0.171 (0.172)	0.843
Marital status (ref: married)		
Single	0.192 (0.103)	1.212
Divorced/separated	0.291 (0.174)	1.338
Widowed	−0.372 (0.693)	0.689
Education (ref: HS or less)		
Some college	−0.208 (0.156)	0.812
College	−0.340* (0.152)	0.712
Advanced degree	−0.233 (0.172)	0.792
Employment status (ref: employed)		
Not employed	0.481*** (0.119)	1.618
Disabled	0.442 (0.371)	1.556
Unemployed	−0.079 (0.225)	0.923
Retired	0.238 (0.461)	1.268

Table 4 (continued)

Variables	Estimate (standard errors)	Odds ratios
Income (ref: < \$15,000)		
\$15,000–\$24,999	– 0.337 (0.207)	0.714
\$25,000–\$34,999	– 0.443* (0.201)	0.642
\$35,000–\$49,999	– 0.159 (0.197)	0.853
\$50,000–\$74,999	– 0.098 (0.193)	0.907
\$75,000–\$99,999	0.094 (0.206)	1.099
\$100,000–\$149,999	0.102 (0.217)	1.107
\$150,000 or more	0.440 (0.264)	1.553
Intercept	– 0.329 (0.421)	
X2	455.99***	
Pseudo R ²	0.137	
Hosmer and Lemeshow	3.85	
Observations	3083	

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

an alternative to the more traditional measure of financial satisfaction. The model that used the alternative measure differed from the model that used the traditional measure in important ways, suggesting the two may not be parallel. In fact, the alternative measure also could be considered a measure of consumer regret, which likely would be negatively related to overall financial satisfaction.

Controls for financial knowledge and financial socialization provided some interesting findings. Objective financial knowledge was negatively associated with financial satisfaction in the second stage of the model (Table 3), but subjective financial knowledge was positively associated with financial satisfaction. Additionally, financial socialization was negatively associated with the likelihood of obtaining a student loan (Table 3, Stage 1). It is possible that individuals whose parents discussed finances with them have a better understanding of the cost of borrowing, which may be a deterrent to borrowing to finance college. This relationship also may explain the negative association between objective financial knowledge and financial satisfaction among those with student loan debt (Table 3, Stage 2). On the other hand, subjective financial knowledge was positively associated with financial satisfaction among respondents who reported having a student loan. For these respondents, perhaps subjective financial knowledge reflects confidence or self-efficacy and hence the positive association. This result was consistent with those in previous literature (Hadar et al. 2013; Seay and Robb 2013).

The negative association between objective knowledge and financial satisfaction should not be interpreted as suggesting that greater financial knowledge decreases financial satisfaction. The number of financial knowledge measures was limited and may not assess the relevant financial knowledge concepts. The knowledge measures used in this study were designed to assess preparedness for retirement planning, not financial satisfaction (Lusardi 2015). In addition, previous research suggests that education efforts might be better focused to help align subjective assessments with objective reality to ensure that people have healthy, realistic attitudes about their finances (Woodyard and Robb 2016).

There are at least two possible explanations for the positive association between not having taken a financial education course even though it was available to the respondents and financial satisfaction. Perhaps respondents chose not to participate because they believed they were knowledgeable about their finances having learned about it from other sources or through prior experiences. Knowing that financial education was available but believing they did not need it may increase their financial satisfaction if it is a relative concept. Also, the availability of financial education at work may be a proxy for other employer-provided resources that influence their financial satisfaction. More research is needed in the future to examine this association.

Additionally, future research that examines the association between financial satisfaction and financial education should define financial education in greater detail; aspects

that may influence its impact include the format (a for-credit course or a seminar), how recently it was experienced, the delivery method (in person or online), the engagement (whether activity-based or not), and the duration.

Financial risk tolerance was positively associated with the likelihood of obtaining a student loan and with financial satisfaction. Previous research has shown that higher risk tolerance is associated with risky borrowing behavior among households (Zahirovic-Herbert et al. 2016). Risk-tolerant households may be less sensitive to the potential costs of education borrowing and more optimistic about their future prospects.

In general, the findings revealed that having financial assets was positively associated with financial satisfaction and that financial strain was negatively associated with financial satisfaction mirror those from previous research (Disch et al. 2000; Woodyard and Robb 2016). Having retirement savings, ownership of investment assets, and homeownership were positively associated with financial satisfaction in both models (Table 2). Experiencing a financial shock, financial fragility, difficulty meeting expenses, and having a worse-than-average self-reported credit record were negatively associated with financial satisfaction. Financial fragility, difficulty meeting expenses, and a worse-than-average credit record also were negatively associated with financial satisfaction among respondents who carried some student loan debt (Table 3). Interestingly, the behaviors of taking a loan or hardship withdrawal from retirement (indicators of financial strain) were positively associated with financial satisfaction. This may be due to the fact that such actions provide needed relief to a household, even when that relief means that future satisfaction may be adversely impacted. Since there is no way to control for the timing of these decisions, it is difficult to understand the exact pathways that may be at work.

Consistent with previous literature (Sirgy et al. 2007; Xiao et al. 2009), positive financial behaviors such as having an emergency fund and setting long-term goals were positively associated with financial satisfaction in the overall model. Having emergency funds, setting long-term goals, and spending more than income also were significant among those who had student loan debt (Table 3).

The results reported in Table 4 indicate the type of student loan debt was a significant determinant of satisfaction with previous student loan borrowing choices, supporting H2A. Students who borrowed exclusively from private lenders and those who borrowed from both federal and private sources were less likely to report satisfaction with borrowing choices than those who had only federal student loans. Because the amount of student loan debt was unavailable in the dataset, it is possible that one or both of these measures proxy for that variable. Alternatively, private lenders often charge higher interest rates and offer less favorable lending

terms when compared to federal sources, suggesting that borrowers of these products might regret such decisions upon later reflection.

An additional variable of interest that was not originally thought to be of central importance in this analysis was the role of parental teaching, a form of financial socialization (Gudmunson and Danes 2011). This variable was significant as a predictor of financial satisfaction in Model 1 (Table 2), and also was significantly related to satisfaction with borrowing decisions. In effect, those whose parents taught them money management skills were 36% more likely to report satisfaction with prior decisions. This speaks to the critical role of the household as a source of financial education, and how it might provide vital support in times when difficult financial decisions are being made.

The results of the model using an alternative measure of financial satisfaction also suggest that one's current life experiences play a strong role in how satisfied people might be with past choices. Individuals who experienced financial hardships such as being financially fragile or feeling that their overall level of personal debt was too high were significantly less likely to be happy with prior choices.

Strengths and Limitations

One limitation of this study is that it is cross-sectional. This creates an opportunity for future researchers to look at how student loan debt affects financial satisfaction across time when they have access to such data. Very few studies have looked at the heterogeneities within the different types of student loans and how these impact financial satisfaction and well-being of households in the long run. Our findings based on the limited information available indicate that private student loan borrowers and borrowers from more sources of student loans may have different experiences than those who borrowed only through the federal sources.

Other relevant factors related to the student loan process were not included in the original survey. While we were able to consider the mix of federal and private loans, initial borrowed amounts and current balances were not revealed. As such, the choice to move from (most likely) cheaper federal loans to higher-cost private lenders might not be based solely on lack of information but also on exhausting federal funds available or any other barriers to borrow. Similarly, borrowers' final loan portfolios also might have been shaped by their own choices during college: delaying graduation, working and spending, and summer income, for example. Their regret with student loan choices might be tied to other decisions they have made, leading to the additional debt. In sum, a more comprehensive study that examines these nuances in greater detail along with a design where claims of causality are attainable would be informative to the policy makers, scholars, and financial counselors.

Implications

One key finding from this study was that student loans received through private and a combination of federal and private sources were negatively associated with the respondents' willingness to repeat the same borrowing behavior. The results remain somewhat mixed, however, since having student loan debt was not negatively associated with financial satisfaction as hypothesized. Student loan debt is unique from other forms of debt in that it is an investment in human capital and is associated with a steeper earnings path that would result in greater satisfaction overall. Results from the analysis of choice satisfaction (Table 4) indicated that regret on the part of many borrowers could be a significant issue of concern. The results do not provide a clear direction for recommendations about acquiring student loans from multiple sources. Whereas borrowers who took out both private and federal student loans reported lower satisfaction with past borrowing decisions, having multiple sources did not significantly influence their financial satisfaction. Perhaps future research could provide insights to inform policy makers about creating disruptions in the student loan market, such as Income Share Agreements, which provide funding for education repaid based on a fixed percentage of the student's post-college income for a fixed number of years.

The current results raise further questions over the proper policy response. Some have proposed a shift to repayment schemes that are income-based as a default (Dynarski 2014). Such a change could possibly reduce the financial strain for younger households starting out. However, the current results lack the detail about the timing of loan pay-offs or the magnitude of the debt held that would be needed to examine this question in detail. In effect, we find only modest support for the popular arguments alluding to a student loan crisis.

Compliance with Ethical Standards

Conflict of interest Cliff A. Robb, Swarn Chatterjee, Nilton Porto, and Brenda Cude declares that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institution and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all available participants included in the study.

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