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Determinants of the Student Loan Decision and Financial Well-Being: The Role of Financial Education, Financial Literacy, and Student Loan Characteristics

Emily Shaffer Hales
Utah State University

DETERMINANTS OF THE STUDENT LOAN DECISION AND FINANCIAL WELL-BEING: THE ROLE OF FINANCIAL EDUCATION, FINANCIAL LITERACY, AND STUDENT LOAN CHARACTERISTICS

by

Emily Shaffer Hales

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Approved:

_____	_____
Yoon Lee, Ph.D. Major Professor	Aryn Dotterer, Ph.D. Committee Member
_____	_____
Sarah Tulane, Ph.D. Committee Member	D. Richard Cutler, Ph.D. Interim Vice Provost of Graduate Studies

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ABSTRACT

Determinants of the Student Loan Decision and

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by

Emily Shaffer Hales, Master of Science

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Major Professor: Dr. Yoon G. Lee
Department: Human Development and Family Studies

Student loan debt is a growing crisis in the United States, with the current national student loan debt exceeding $1.7 trillion dollars. Previous research on variables that could influence the student loan decision, such as financial education and financial literacy, have provided mixed results. Little research has examined how student loan behaviors may impact the financial well-being of student loan borrowers. The purpose of this thesis was to understand the student loan decision and financial well-being of student loan borrowers, and the role of financial education participation, financial literacy, and student loan characteristics within this relationship.

This study utilized data from the 2018 National Financial Capability Study (NFCS), which, after cleaning the data, provided a final sample of 7,364 individuals, including 1,979 student loan borrowers. Logistic regression analyses were employed to determine how financial education participation, financial literacy, and socio-demographic factors were associated with the student loan decision. Additionally, OLS

regression analyses were performed to examine how student loan characteristics and repayment behaviors could influence financial well-being among student loan borrowers.

This study found significant results concerning factors associated with the student loan decision. Participation in financial education increased one's likelihood of taking out a student loan. Conversely, greater levels of financial literacy decreased one's likelihood of taking out a student loan. Certain socio-demographic groups were also more likely to take out student loans. Concerning student loan repayment, individuals with lower financial literacy were more likely to be delinquent on their student loan. Regarding financial well-being, the student loan characteristic of holding a student loan for a child/grandchild had a positive influence on the student loan borrower financial well-being while borrowers who were delinquent on their student loan reported lower levels of financial well-being.

The contributions of this study could include expanding the current literature surrounding student loan use and financial well-being of student loan borrowers. The findings of this study can provide insight on the student loan issue for financial educators, professionals, and policy makers to better comprehend what groups may need student loan education and assistance the financial well-being of student loan borrowers.

(137 pages)

PUBLIC ABSTRACT

Determinants of the Student Loan Decision and
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Emily Shaffer Hales

The student loan crisis has been an important area of personal, political, and research discussion. Many individuals must make the decision to attend college with the help of student loans and millions are currently in repayment on their student loan. However, it can be difficult to understand what factors may play a role the decision to take out a student loan and how managing one's student loan could affect their personal financial well-being. Thus, this study examined factors that could be related to how an individual may decide to take out a student loan, such as if they participated in a financial education course, their level of financial literacy, and their own personal characteristics. It also studied how one's management of their student loan, such as making their payments on time, being concerned about their student loan debt, and other characteristics could impact their financial well-being.

The findings of this study suggest that financial literacy and some personal characteristics could play an important role in whether or not someone takes out a student loan. Additionally, the characteristics of how someone manages their student loan could affect their financial well-being. These finding of this study can help financial educators and professionals understand how the student loan decision is made and assist certain

individuals who may be more prone to take out a student loan. This study can also help policy makers comprehend the impacts of a student loan on the individual and provide them with more information to confront the US student loan crisis.

ACKNOWLEDGMENTS

The idea of obtaining my master's degree did not cross my mind until my final year of my undergraduate degree at Utah State University. Due to life plans that were already in motion, I completed this journey that takes most individuals two years in the span of a year and a half. While my thesis was accelerated in order to accommodate my plans, I still had the great opportunity to dive into a cause that is important to me and share my findings with those around me.

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Emily Hales

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CHAPTER I

INTRODUCTION

The United States offers many freedoms and allows individuals who live here the chance to chase their dreams. However, when it comes to higher education, that dream comes at a cost. The demand for a college degree in the workplace is growing, and yet most individuals cannot afford to earn a degree without taking on tens of thousands of dollars in student loan debt (Baker et al., 2017; Cho et al., 2015; Johnson et al., 2016; Johnstone, 2005). The decision to take on student loan debt can be made even more overwhelming when individuals lack the financial education and financial literacy necessary to make the best financial decisions regarding their education and future.

Statement of the Problem

The U.S. is infamous for their student loan debt crisis, which has reached a total of $1.71 trillion dollars (Friedman, 2021). This heavy debt burden is shared among 45.3 million student loan borrowers, with the average student loan borrower holding about $37,000 in student loan debt (Friedman, 2021). Modern society has made it difficult to avoid student loan debt, as college tuition rates are rising faster than inflation and more employers are expecting a college education (Akers & Chingos, 2014). This expectation pushes more individuals to pursue education they cannot afford using their own personal financial resources.

The average college tuition in America is about $25,000 per year, for a total of $100,000 at a four-year university. If an individual chooses to attend an in-state public

institution, tuition is reduced to about $40,000 for a four-year university (Bustamante, 2019a). However, the majority of students take longer than four years to earn their degree, and these statistics do not include room/board, school materials, and other living expenses (Bustamante, 2019a). Many students do not have access to the personal financial resources necessary to cover college expenses, and so these students are pushed to make the decision between obtaining an education or taking on student loan debt.

Outside of the U.S., student loan debt looks different, as many countries have implemented strategies to reduce tuition costs and improve student loan programs. Many other countries offer free post-secondary education, such as Denmark, Brazil, Germany, Finland, Ireland, Norway, and Poland (Kirkham, 2018; Student Loan Review, 2020; Value Colleges, 2020). In these countries, colleges are funded by the government through taxes and other resources. The U.K. is the only country that currently comes close to the U.S. in terms of student loan debt, with about $30,000 per borrower.

Even in countries where college is not free, student loan options and payment plans are more straightforward. For example, Australia has implemented a unique version of the income-based repayment plan for all student loan borrowers (Dickler, 2018; Kirkham, 2018). This universal income-based repayment plan does not require payments until graduates make at least $40,000 a year, and student loan payments are automatically taken from an individual's bank account, making payments more convenient and reducing student loan default rates (Dickler, 2018). The U.S. does have options such as the Income Based which allows student loan payments to be adjusted to consume 10% of discretionary income (Federal Student Aid, 2021d; Mueller & Yannelis, 2019).

While the U.S. has numerous payment plan options for student loan borrowers, certain plans can only apply towards specific loan types or specific occupations. Some may argue that the U.S. still forgives some student loan debt. However, this is often after an individual carries the debt for 20-25 years or through a public service loan forgiveness program, which only has a 1.7% forgiveness rate (Student Loan Hero, 2021). Different options and ideas have been proposed to handle this overwhelming debt, such as adjusted payment plans, loan consolidation techniques, expanded public employee loan forgiveness, and even massive student loan forgiveness for all borrowers. While various parties attempt to find a more permanent solution to the student loan debt crisis, this debt is affecting both new and old borrowers, even throughout their post-education lives.

Researchers in the field of personal finances have sought to understand the impact of student loans for years. Student loan debt has been found to influence numerous financial and personal aspects of an individual's life. This can include lower net worth, poor mental health, delayed home buying, increased financial distress, and decreased financial well-being (Britt et al., 2017; Elliott & Lewis, 2015; Walsemann et al., 2015). While research has revealed some of the significant impacts that student loans may have on an individual, there are still many questions surrounding student loan use and behaviors.

The student loan crisis continues to grow in the U.S., with new borrowers accepting the consequences of student loan debt daily. While the research shows that student loans come with consequences, they remain the main option when an individual cannot personally afford higher education. Financial education in regard to student loan use and other funding opportunities is lacking (Ducoff, 2019; Johnson et al., 2016; Lee &

Mueller, 2014). Financial education gives individuals the knowledge they need to make the most informed financial decisions. Even if student loans are the best or only option for the individual, student loan financial education can teach them about different loan types, loan terms, interest rates, and how to handle student loan repayment.

Financial literacy is the process of having financial knowledge and applying this knowledge to the appropriate situation (Goyal & Kumar, 2020; Huston, 2012, Lusardi & Mitchell, 2014). When individuals participate in financial education, they build on their financial knowledge. If they then take this financial knowledge and use it, they expand their financial literacy. Understanding student loans and being able to make the best decisions about one's college education could be crucial in an individual's student loan borrowing. It is important that students receive proper student loan financial education before taking out a student loan and have the financial literacy skills to make student loan choices.

Financial education and financial literacy also contribute to human capital. Human capital is considered how valuable an individual may be in different environments based on the skills and knowledge they possess (Crook et al., 2011; Schultz, 1961). An individual's human capital can determine whether or not they attend college, seek employment, get a promotion, and so on (Arteaga, 2018; Frederiksen & Kato, 2017; Ueda, 2019). Having greater human capital can lead to better decisions and more positive outcomes (Cairo & Cajner, 2016; Frederiksen & Kato, 2017; Salas-Velasco et al., 2020). Developing financial education and financial literacy to improve human capital could change an individual's student loan decision.

Student loan debt will continue to be a growing problem in the U.S., as no permanent resolution to the crisis has been found. In particular, the millennial generation has seen the greatest rise in student loan debt. Therefore, it is crucial for researchers to understand the many factors and relationships related to the student loan decision, such as financial education and financial literacy, and how these are related to financial well-being among student loan borrowers. With a greater understanding of student loan use and associations, policy makers, financial practitioners, and student loan borrowers can determine how best to handle student loans. Financial educators and policy makers can examine and adjust current student loan education in order to better support the millions of borrowers dealing with student loan debt.

Purpose of Study

Considering the current student loan crisis and how it plays a role in personal finances and financial decisions among U.S. families and individuals, this study examined what factors are associated with student loan decisions and how the student loan decision could determine financial well-being among student loan borrowers. This study also focused on understanding how financial education and financial literacy are related and what role these factors could have in the student loan decision. Specifically, this study assessed how financial education and financial literacy could be associated with the student loan decision, as well as how holding a student loan impacts financial well-being. Using data from the 2018 National Financial Capability Study (NFCS), this study examined participation in financial education, financial education programs,

components of financial literacy, socio-demographic factors, student loan decision making, student loan characteristics and repayment behaviors, and financial well-being.

Research Questions

This study concentrated on the student loan decision, student loan repayment behavior, and financial well-being. Research questions one to four address factors that lead up to and are determinants of the decision to take out a student loan. Research questions five to eight examine the determinants of student loan repayment behavior and the impacts of student loan repayment behavior on financial well-being among student loan borrowers. Thus, to accomplish the main purpose of this study, the following eight research questions were examined:

1) What is the association between financial education and financial literacy?
2) What is the association between financial education and the student loan decision?
3) What is the association between financial literacy and the student loan decision?
4) What socio-demographic characteristics are associated with the student loan decision?
5) How is financial literacy associated with student loan repayment behavior?
6) What student loan characteristics are associated with student loan repayment behavior?
7) How is student loan repayment behavior associated with financial well-being among student loan borrowers?

8) What student loan characteristics are associated with financial well-being among student loan borrowers?

Justification of Study

This study sought to add to the literature on student loan use and impacts, specifically in regard to financial well-being. Understanding the associations among financial education, financial literacy, student loan behaviors, and financial well-being can help financial educators, counselors, and student loan advisors to best assist individuals and families in making student loan decisions and repaying their student loan debts. Student loan debt remains an issue in the U.S., and family finance professionals and practitioners need to be in a position to help borrowers both before and after the student loan decision is made. This study can provide financial practitioners and counselors with greater insights on the student loan decision, student loan repayment, and financial well-being. With this deeper understanding, financial professionals can assist individuals in making the best decision about student loan use as well as guide them through student loan repayment to generate the greatest financial well-being among student loan borrowers.

CHAPTER II

LITERATURE REVIEW

This chapter reviews the literature on topics related to the focus of this study by documenting what factors are associated with the student loan decision and how holding a student loan is associated with financial well-being among student loan borrowers. The topics in this chapter include: 1) financial education; 2) human capital; 3) financial literacy; 4) socio-demographic factors (generational differences, race/ethnicity, gender, marital status, formal education, employment status, homeownership status, income, and risk tolerance attitudes); 5) the student loan decision; 6) student loan behaviors; and 7) financial well-being.

Financial Education

The need for financial education has been a focus of research and debate for years. While many agree that financial education is lacking in formal education programs, little has been done to assure that individuals are receiving proper financial education. Programs that have been put into place have low-quality content and are missing a focus on personal finances (Cordero et al., 2020; Hathaway & Khatiwada, 2008). The U.S. has attempted to increase financial education in high school programs, with 21 states requiring a finance course in high school (Council for Economic Education, 2020; Epperson & Manning, 2020). However, the majority of these programs only focus on the overall economy, not personal finance education and skills. Students in high-school financial education programs are still lacking basic personal finance skills

that increase financial literacy and prepare them for financial responsibilities post-high school. Research on financial education has proven contradictory when examining the significant impact on an individual's financial knowledge and behaviors.

Some research examining the impact of financial education on financial knowledge and behaviors have shown positive outcomes of financial education. In one study, students who participated in a college personal finance class reported higher levels of financial knowledge and better saving and investment behaviors (Peng et al., 2007). Similarly, the "Money Talks: Should I be Listening?" and "Financing Your Future" curriculums reported increased levels of financial literacy in students after participating in these programs (Varcoe et al., 2005; Walstad et al., 2010). Fan and Chatterjee (2019) stated that learning finances within the home alongside a formal financial education program increased positive financial behaviors and decreased financial stressors such as student loan debt stress. Research has shown that the more financial education an individual participated in, the greater their levels of financial literacy (Xiao et al., 2020). In this same study, college graduates were more likely to practice positive financial behaviors than students still in school or college dropouts (Xiao et al., 2020). In these previous studies, financial education participation showed significant impacts on financial literacy, knowledge, and behaviors.

On the other hand, some studies demonstrate that financial education was not significant and had little impact on an individual's financial behaviors. One study examined how personal financial resources and financial education courses influenced financial literacy among high school students (Mandell, 2008). The findings of this study indicated individuals who did not participate in financial education that were from

families with greater financial resources were more likely to be financially literate than individuals who did participate in financial education that were from families with lesser financial resources. Fernandes et al. (2014) found that financial education courses explained only a small and weak difference in financial behaviors among participants. The "Jump$tart" Coalition is a popular financial education curriculum that prides itself on youth financial education. However, in a meta-analysis, Mandell and Hanson (2009) found that after this curriculum was introduced, there were no significant increases in financial literacy among participants as compared to those who did not participate.

While these conflicting reports on the influence of financial education may seem confusing, there are some explanations as to why these differences in effectiveness exist. Financial education programs do not have a universal standard of what should be taught and in what ways. Some programs repeat the same information to every individual who takes their course, regardless of personal circumstances. Kaiser and Menkhoff (2017) found that community financial education was less effective for low-income households and similar effects could be possible among those with greater debt loads. One study in Belgium found that only about half of teachers assigned to teach financial education had significant financial knowledge that could qualify them to provide financial education for students (De Beckker et al., 2019).

Overall, there are still studies that have shown that participation in financial education can have significant impacts on financial literacy and financial behaviors. Regardless of conflicting results in financial education programs, this evidence does not change the fact that individuals are lacking important financial knowledge to manage daily financial behaviors. Young adults surveyed in regard to financial education have

expressed an interest in learning how to better manage their loans, investments, and daily financial tasks (Masud et al., 2004).

With so much uncertainty around the effectiveness of financial education participation and programs, researchers have sought to remedy this issue by suggesting new strategies and changes for financial education guidelines (Hastings et al., 2013). Some scholars recommend that financial education courses should develop more harmonious standards across platforms and implement course evaluations (Fox et al., 2005; Hathaway & Khatiwada, 2008). Hathaway and Khatiwada (2008) determined that specific financial education courses catered towards different financial needs could better increase financial literacy in participants. Another study recommends teaching financial education as the time for certain behaviors comes, using that next step in financial growth as a "teachable moment" (Kaiser & Menkhoff, 2017, p. 3). Timing of financial education can be critical (Fernandes et al., 2014; Meier & Sprenger, 2013). Fernandes et al. (2014) determined that financial literacy can decay over time, meaning without constant practice or a refresher course, individuals will not maintain important knowledge learned in financial education courses.

Human Capital

A college education is something many Americans strive for in their life. This could be because formal education increases an individual's human capital. Human capital can be defined as the skills and knowledge individuals possess that allow them to perform various tasks in personal life, social environments, and employment (Crook et al., 2011; Schultz, 1961). Human capital can consist of initiative, resourcefulness, work

ethic, interests, and attitudes that increase individual output and economic growth (Mehta, 1976). This concept of human capital implies that as individuals develop more skills, knowledge, and capabilities, they become more valuable in their workplace (Becker, 1975; Schultz, 1961). Greater human capital is attained through formal education, job trainings, experience, and more (Becker, 1993). Research has shown that human capital can influence personal income and growth in other life areas (Mincer, 1958). Thus, many individuals are willing to pay for higher formal education in hopes of increasing their human capital in specific career fields (Hess et al., 1994).

As mentioned, human capital is developed through formal education, such as primary and secondary schooling. However, education beyond high school can become a difficult decision for individuals, as college education comes at a cost. Public grade school is free; therefore, most individuals take the opportunity to complete this stretch of education (Bustamante, 2019b; U.S. Bureau of Labor Statistics, 2020). The cost of college tuition, room and board, and more makes college education less common than a public education (Bustamante, 2019b).

Several studies have been conducted on the value of education and whether or not a college education is worth it. One study by Carnerio et al. (2009) examined the returns of college education and found that those who were more likely to attend college could see greater returns in terms of wages. As a part of that study, they also examined the college selection process, stating that the individual's ability to select a college played a role in their educational return (Carnerio et al., 2009). While some individuals do see more education as worth the human capital, at some point, the cost of education becomes too great for the pursuit of human capital. Research has found that the more student loan

debt an individual carries from their undergraduate education, the less likely they are to continue on to a graduate degree (Fos et al., 2017).

Within the realm of family finances, financial literacy is a key component of human capital. Financial literacy has been considered a part of human capital in many studies, originating from Huston's (2010) measure of financial literacy (Huston, 2012; Lusardi & Mitchell, 2014; Preston & Wright, 2019; Thomas & Spataro, 2015). People with greater human capital tend to investigate more options in financial issues and make better financial decisions (Huston, 2012). As people develop their financial literacy and knowledge, they are further developing their own human capital. Within financial literacy, there are many other factors that contribute to a person's human capital.

Financial Literacy

Financial literacy is a component of human capital that becomes crucial to develop as individuals are faced with financial decisions throughout their lives. Financial literacy has been difficult to define in personal finance literature. In previous studies, financial literacy is often used interchangeably with financial knowledge (Avard et al., 2005; Bowen, 2002; Chen & Volpe, 1998; Cutler & Delvin, 1996; Hogarth & Hilgert, 2002; Lusardi & Mitchell, 2007; Servon & Kaestner, 2008; Tennyson & Nguyen, 2001). In the last few decades, research on financial literacy has increased as researchers attempt to understand the development and implementation of personal financial literacy. Studies have examined financial knowledge and financial decisions of adults and college students to better understand how individuals develop financial literacy (Avard et al., 2005; Bowen, 2002; Chen & Volpe, 1998; Cordero et al., 2020; Kaiser & Menkhoff, 2017;

Lusardi et al., 2010). Huston's 2010 model of measuring financial literacy was an important step in understanding how financial literacy is different from financial knowledge and why this difference is important. Huston (2010) determined that financial literacy was made up of two key components: knowledge and application.

When defining financial knowledge, it is important to recognize that there are two types of financial knowledge. Objective financial knowledge is the facts and skills an individual learns in formal education settings (Lind et al., 2020). Objective knowledge holds information such as how interest rates are calculated, what categories a person might put in their budget, how to handle a home mortgage, and other financial strategies (Lind et al., 2020). The second type of financial knowledge is subjective financial knowledge. This is how knowledgeable an individual feels about their finances, or their own perception about how good they are with their finances (Lind et al., 2020). Subjective financial knowledge develops in a cycle, as subjective financial knowledge is influenced by financial experiences and financial decisions are influenced by a person's level of subjective financial knowledge (Cynamon & Fazzari, 2010; Lee et al., 2018; Robb & Woodyard, 2011).

Even though people may take personal finance courses and feel that they can manage their finances well (objective and subjective financial knowledge), that is only considered financial knowledge. This cannot be labeled financial literacy until the person has done something with their financial knowledge. Application, or one's ability to apply their financial knowledge to the appropriate situation, is a crucial step in determining financial literacy (Goyal & Kumar, 2020; Grohmann, 2018). If an individual boasts about how they can create and maintain a budget but then proceeds to overspend and generate

debt, they may have financial knowledge, but they are not exhibiting financial literacy. Financial behaviors such as budgeting, saving, and borrowing decisions occur when an individual understands how these behaviors work and proceeds to act upon this knowledge (Huston, 2012; Lusardi, 2019; Lusardi et al., 2010). Financial literacy plays a vital role in making important financial decisions. The greater an individuals' financial literacy, the more likely they are to participate in positive financial behaviors (Lusardi & Mitchell, 2007; Xiao et al., 2020).

While having financial literacy can increase positive financial behaviors, low levels of financial literacy can increase negative financial behaviors. In regard to consumer debt behaviors, individuals with higher levels of financial literacy were twice as likely to have lower levels of credit card debt and mortgage debt (Huston, 2012). On the other hand, individuals with lower levels of financial literacy were less likely to participate in positive financial behaviors. A study on college students found that those who were younger, who had little work experience, who were not business majors, or who were a lower-class rank reported lower levels of financial literacy (Chen & Volpe, 1998). Students who had lower levels of financial literacy were less likely to keep financial records, to spend less than they earned, to invest, or to make smart spending decisions. As a pioneer of financial literacy, Lusardi (2008) found that various demographic groups are financially illiterate. These include women, racial and ethnic minorities, and those with less formal education.

Socio-Demographic Factors

Within family finance research, socio-demographic factors, such as generation, race/ethnicity, gender, marital status, education, and income, are observed in order to understand how an individual's background may influence their characteristics or behaviors (Beiser, 2003; Karolyi, 2016; Looney & Yannelis, 2015; Min & Taylor, 2018; Stulz & Williamson, 2003). When making financial decisions, these characteristics can play a large role in what an individual considers financially important or valuable and effect their financial behaviors and decisions (Karolyi, 2016; Stulz & Williamson, 2003; Williamson, 2010). An individual's personal background can affect decisions such as the pursuit of higher education, financial behaviors, student loan use, and even overall financial well-being (Miller, 2017; Looney & Yannelis, 2015; Luong, 2010; Lusardi, 2008; Min & Taylor, 2018). Because of these significant effects of demographic factors, this section provides previous research related to demographic and financial behavior interactions.

Generational Differences

In research, differences can often be found across generations, such as between baby boomers, Generation X, millennials, and the up-and-coming Generation Z. In the last twenty years, student loan debt has increased by more than a trillion dollars (Bustamante, 2020). The majority of college students during this time have been millennials, with Generation Z now in the process of gaining their college education. Millennials have experienced many changes in financial strategies and resources, as well as the dramatic increases in college tuition. The millennial generation has taken on

greater amounts of debt in student loans, credit cards, and other debts in order to try and live up to the modern standards of society while receiving insufficient wages and financial assistance (Draut & Silva, 2004).

Studies have shown that millennials as a generation have more than double the unemployment rate than the U.S. as a whole (Ferri-Reed, 2013). In 2012, Fry researched student loan debt holdings and payments post-recession and found that the majority of loan holders were under the age of 35. This millennial generation is currently raising their own children, buying homes, and attempting to pay off their student loans without adequate financial resources or education. While the millennial generation holds the majority of student loan debt, Generation X and the baby boomer generation still suffered because of the student loan issue.

The baby boomer generation saw the creation of the federal student loan program in 1958, as part of the National Defense Education Act (New America, 2020). Before this program was established, individuals questioned the concept of taking on debt to fund education, similar to taking on a mortgage to buy a home (Overs, 1957). Within the next few decades, student loan debt had become a national issue, with an increase in student loan defaults and requests for student loan discharge through bankruptcy rising concerns about the federal program and its structure (Birdwell, 1978; Kirkpatrick, 1968).

Generation X continued to deal with the growth of the student loan crisis. In the late 1980's, when Generation Xers were young adults, student loan research was already examining the growing debt crisis and its consequences, such as excessive debt, student loan default, and student loan repayment (Cronin & Simmons, 1987; Greene, 1989; Hansen, 1987; Hansen & Rhodes, 1988). The average student graduated with almost

$7,000 in student loan debt ($13,500 in today's dollars), and anxiety around the student loan debt crisis grew (Hanson, 2020a; Wilkerson, 1987). Generation X also experienced slow wage increases and accelerated college tuition costs similar to the millennial generation that pushed many to take on student loans (Draut & Silva, 2004). While the student loan crisis has been an issue for decades, its rapid growth in recent years is concerning. Generation Z will continue to see a growth in the student loan debt crisis much like millennials. Without some kind of intervention or program assistance, the student loan crisis will simply pass on to the next generation (Draut & Silva, 2004; Fry, 2012; Hanson, 2020b).

Race/Ethnicity

Race and ethnic background have recently become a major focus of research on college education and financial decision-making. Systemic bias and natural disadvantages created by society have caused some individuals from specific racial/ethnic minorities to make more difficult decisions regarding college and finances while facing greater consequences. The use of student loans becomes tricky when considering race as it plays two roles. On one hand, student loans can allow some individuals opportunities they would not be able to afford otherwise, specifically among minority groups who do not have the financial resources to attend school. Jackson and Reynolds (2013) found that the use of student loans increases enrollment and college completion rates among Black students.

On the other hand, student loan debt comes with a price on the other side of graduation. Black students have been found to take on greater amounts of student loan debt than Whites (Addo et al., 2016; Baker et al., 2017; Jackson & Reynolds, 2013). This

could be due to a difference in parent wealth and resources, as Whites more often have family financial support and connections throughout college as compared to Blacks (Addo et al., 2016). Black students graduate with much higher amounts of student loan debt and are in repayment for a longer time period than Whites (Addo et al., 2016; Scott-Clayton & Li, 2016). Some researchers have concluded that while student loans can close the racial gap in college participation, it is actually increasing the racial disparity seen in income, homeownership, and other financial behaviors after college graduation (Addo et al., 2016; Jackson & Reynolds, 2013; Scott-Clayton & Li, 2016).

Gender

Gender difference in financial behavior and characteristics are frequently examined in research. Specifically, the field of personal finances has examined financial behavior, knowledge, and other components across gender. Multiple studies have found that women reported lower levels of financial literacy than men (Chen & Volpe, 1998; Lusardi, 2008). In 2016, women accounted for 56% of the college student population; however, more than two thirds of student loan debt holders were female (Miller, 2017). This could be due to the gender wage gap that awaits females on the other side of a college education. Luckily, the income disparity does not seem to affect whether females attend college or not, as another study found that the pursuit of higher education is seen as an important investment in human capital regardless of gender (Bartholomae et al., 2019). Gender plays an important role in financial decisions and specifically college attendance and student loan use; yet often males and females are addressed the same way in financial education.

Marital Status

Another factor that can play a large role in financial behaviors is marital status. Marriage often means combining two sets of financial knowledge and habits, such as financial education, budgeting, and spending habits. There may be a combination of two incomes or the discussion of living on one income. Marriage may also bring children and an entirely new set of financial decisions to be made as a family unit. In the U.S., the average age of marriage is 28 for females and 30 for males (U.S. Census Bureau, 2020). As this point, most individuals have completed their college education; however, they are still in student loan repayment (Bustamante, 2020; Hanson, 2020b). Research has found that student loans have an effect on the timing of marriage and having children. When facing the student loan decision, it could be harder for a married individual with children to consider taking on debt as opposed to a single individual. Gicheva (2016) found that individuals in their mid-twenties who held student loan debt were less likely to get married in the next seven years. Min and Taylor (2018) stated that student loans delayed a women's ability to transition into parenthood among White and Hispanic/Latinx families.

Formal Education

An individual's attainment of formal education can be directly related to student loan decisions and behaviors, as student loan borrowers are most often individuals who have attended post-secondary schools. Higher levels of formal education have been positively associated with student loan debt and loan payment-to-income ratios (Lee et al., 2018). During post-secondary education, student loans have been shown to have a negative relationship with college performance and degree completion (Millea et al.,

2018; Pinto & Mansfield, 2006; Stoddard et al., 2018). After completing their education, student loan borrowers enter repayment. Greater student loan default rates have been associated with individuals who attended 2-year, for-profit institutions with weak educational outcomes (Looney & Yannelis, 2015). On the other hand, even in a difficult economy, many individuals with a 4-year degree are able to continue in student loan repayment and avoid default (Looney & Yannelis, 2015). While attaining more formal education can equal more student loan debt, it can also provide individuals with the skills needed for successful student loan repayment.

Employment Status

When taking on student loans, financial resources and employment status can also be factors in how an individual handles their college education and student loan use. Research has shown that many individuals see post-secondary education as a way to increase their income opportunities in the future, making student loans a valuable investment asset (Rothstein & Rouse, 2011). Along these lines, the more debt an individual has graduating college, the more likely they are to pursue higher-paying jobs. For example, Luong (2010) found that after receiving a college education using student loans, the majority of borrowers who completed a post-secondary degree were employed full-time. On the other hand, a greater portion of student loan borrowers without a post-secondary degree were unemployed. Thus, future and current employment opportunities can be an important factor in understanding taking out a student loan and repayment behaviors.

Homeownership Status

Obtaining a college education is often one of the first phases of an individual's progress towards adulthood. Another crucial step in becoming an independent adult is homeownership. However, student loan debt has been found to influence and even delay homeownership among young adults, as young adult homeownership rates are declining (Cooper & Wang, 2014; Houle & Berger, 2015; Mezza et al., 2020). When taking out a student loan, homeownership has been found to be closely related with student loan amounts (Lee et al., 2018).

Because holding student loan debt and owning a home are both large financial commitments in an individual's life-cycle stage, it can be difficult for individuals to fulfill both of these obligations simultaneously. It has been found that individuals who own a home are less likely to have student loans (Lee et al., 2018). Students who have paid off student loan debt more quickly were more likely to own a home than those still in student loan repayment (Letkiewicz & Heckman, 2018). Studies have also found that homeownership is negatively related to being delinquent on student loans (Lee et al., 2018; Mezza et al., 2020). This could be because positive financial management skills such as debt repayment can apply to both a mortgage and a student loan.

Income Level

Income is obviously a crucial factor in understanding financial management and behaviors, as the more income an individual has, the easier it seems to become to achieve financial goals. However, aside from personal funds, low-income families seem to be overlooked in financial management areas. Individuals from low-income families were less likely to have financial education or financial literacy skills (Goyal & Kumar, 2020;

Grohmann, 2018). When it comes to gaining a college education, money is a large factor, and those with less access to financial resources may struggle to attend school and take on greater debt burdens (Fry, 2012). Individuals from low-income backgrounds are often more likely to take out student loans, given their personal financial resources (Baker et al., 2017; Luna-Torres et al., 2018). In order to properly maintain one's personal finances and make the best financial decisions, it is important for individuals from various economic backgrounds to receive financial education on both personal finances and understanding the economy as a whole.

Risk Tolerance

When it comes to financial decision-making, risk tolerance can be an important factor influencing one's financial behavior. Risk tolerance is often considered how much risk an individual is willing to withstand in order to gain a greater investment. Research has shown that the greater risk tolerance an individual has, the riskier their investments and debt consumption become (Lucarelli & Brighetti, 2010; Sung & Hanna, 1996). One study found that individuals with average risk tolerance had almost two times the amount of student loan payment-to-income ratio than individuals with no risk tolerance (Lee et al., 2018). While risk itself may not always be safe, having a higher level of risk tolerance can be beneficial. Risk tolerance has been associated with higher levels of financial satisfaction (Aboagye & Jung, 2018). Those with greater risk tolerance have been found to have higher net worth and other assets compared to those with lower levels of risk tolerance (Finke & Huston, 2003). Based on previous research, it could be important to examine the association between individual risk tolerance and financial behavior, especially taking out student loan debt.

The Student Loan Decision

Student loan research has been conducted for years; however, in the last couple of decades, personal finance professionals have started to focus more on this fast-growing issue (Dillon & Carey, 2009; Fry, 2012; Greiner, 1996; Kim et al., 2012; Redd, 2001; Scott-Clayton, 2018). In 2001, Redd reported that the national student loan debt had jumped from $24 billion in 1995 to $33.7 billion in 2000. Last year, the national student loan debt had broken $1.7 trillion (Bustamante, 2020). Over the last two decades, the national student loan debt has increased to over 50 times what it once was. While a college education has never been cheap, the millennial generation is carrying more student loan debt than any other generation (Fry, 2012). College tuition and other college living costs have increased immensely, beating the rate of national inflation (Akers & Chingos, 2014). Because of this rising cost of higher education, more and more individuals pursuing a college education are forced to turn to student loans to earn their degree (Elliott & Lewis, 2015). Personal resources as well as scholarships and financial aid opportunities often do not provide enough funding to pay for school, especially for minority groups (Chan et al., 2020; Kelchen & Li, 2017).

As highlighted, financial literacy can play a critical role in financial decisions and behaviors, especially among college students. Taking out student loans is a major financial commitment, and without formal financial education and proper financial literacy, students can easily bite off more than they can chew. Attending college has become an expectation in American culture, and with that, the cost of tuition. However, financial education is not a priority prior to the student loan decision. College students are pushed into a world where they must make their own financial decisions; however,

without proper financial education, they are not prepared to manage their own financial responsibilities.

Although costs of college education have increased, societal pressure for college education has not included better financial assistance (Alda et al., 2009; Stark & Poppler, 2016). Because of this, the majority of college students take out loans regardless of previous financial knowledge or financial education they have received. Multiple studies have found that even after participating in financial education, students proceed to choose to take out student loans (Booij et al., 2012, Johnson et al., 2016). In fact, Markle (2019) stated that students who had higher levels of financial education were more likely to see student loans as a financial strategy and investment. While these students did manage their student loans better than others, their financial education seemed to direct them towards student loans rather than away.

Attending college often marks the beginning of personal and financial independence as many students pay for their own rent, groceries, and more. Studies have shown that the more formal financial education received prior to college, the more financial knowledge and positive financial behaviors students were likely to display during college (Hawkins, 2017; Masud et al., 2004; Peng et al., 2007; Shim et al., 2010). Without proper financial education, college students struggle with many financial decisions, such as student loan use, credit card use, budgeting, saving, and more (Mandell, 2008; Sabri, 2011). Some research indicates that students who use loans during their undergraduate degree have a decreased likelihood of completing their college degree (Britt et al., 2017). Post-college education, student loan debt can decrease the

likelihood of individuals pursing public service jobs, such as teaching or community jobs, due to their low potential income (Rothstein & Rouse, 2011).

Although many schools offer financial assistance and have offices dedicated to assisting students in financial aid, some college students are still unprepared for the student loan decision. Darolia (2016) examined the impact of student loan information disbursement and found that information on student loans is not enough to help students in decision-making. A lack of formal financial education and other factors can lead to more student loan use. While there are differences in total debt between minority groups and the majority, research has shown that low-to-moderate income families and continuing generation students are just as likely to take out student loans (Chan et al., 2020). Despite the fact that personal backgrounds and other factors can influence student loan use, this is not solely an issue for these under-assisted groups. It is a growing problem for many individuals who choose to attend college.

Student Loan Repayment

Student loans are accumulated during education and often have a deferment period while the individual is still in school. This means that during school, some individuals may not be concerned with the details of their student loans. Many individuals do not seem to attempt to understand how much they have in student loans or try to predict what their student loan payments will be (Andruska et al., 2014; Montalto et al., 2019). More often, students continue to take out loans as they feel they need them during school, putting off that financial responsibility until after graduation. Individuals and families take out student loans for themselves and others, perhaps without realizing

the stress and concern that may come when they begin repayment on their student loan years later.

When an individual takes out a student loan, they are usually offered a certain amount per school year (Federal Student Aid, 2021a). They can decide how much of the loan they need, whether this be a specific dollar amount, percentage, or the full amount. If there is any tuition or fees on the student's account when they take out the loan, this is paid off using the loan. If there is any funding from the loan remaining after tuition and other costs are paid, the student may receive the remainder of the loan in cash. They can decide whether to return the excess loan funds, reducing their total student loan liability, or they can keep this refund and put it towards "educational expenses," which in this case can include housing, groceries, and more the student may need while at school (Delisle & Holt, 2015).

During college, students from high-income families were more likely to adjust and reduce their student loan borrowing (Mangrum, 2021). These students may work, receive more family support, or have other financial resources; therefore, they can determine what they need in student loans for tuition and may cover other expenses themselves while reducing or returning student loan funds (Delisle & Holt, 2015; Mangrum, 2021). By reducing this student loan usage, these individuals are actively thinking about their student loan repayment and consequences. Only about 20% of student seem to try and accurately calculate and understand what their student loan payments will be after school, and another 35% think they have an approximate idea of what they will pay for their student loan. This means that almost half of students had no idea how much they would be paying on their student loan after schooling (Montalto et

al., 2019). Students may be most concerned with completing their education now, pushing off student loan repayment until after school.

As mentioned, once an individual takes out a student loan, they often do not have to begin making payments until after they leave their higher education program. Federal loans allow a six-month grace period from either graduation or leaving a program before payments begin (Federal Student Aid, 2021b). Student loans are a long-term debt, with most repayment plans lasting 10 years (Federal Student Aid, 2021c). Because of this time period, it can be important to develop positive repayment habits to maintain a positive standing on one's student loan. Having financial resources and positive financial behaviors can predict on-time student loan repayment. During repayment, when individuals have family support and savings, income was not a factor in positive repayment behaviors (Lochner et al., 2013). Completing one's degree and being employed were also strong predictors of student loan repayment (Hillman, 2014).

During the repayment period, many student loan borrowers adjust their repayment plan, often extending loan periods, and some will proceed to default on their loan. Aside from formal repayment, student loans are nearly impossible to remove, with student loan forgiveness reserved for public service positions having strict requirements and very little chance of a student loan being removed during bankruptcy (Austin, 2013). In 2015, more than one million individuals defaulted on their federal student loans (Perna et al., 2017). Default begins after the borrower has been delinquent for 270 days, meaning they have not made a payment on their student loan in 9 months (Montalto et al., 2019). When an individual defaults on their student loan, they are in danger of wage garnishment, tax withholdings, and poor credit reporting (National Consumer Law Center, 2020).

With so many student loan borrowers defaulting on their loans, it is important for researchers to understand what characteristics may influence student loan repayment. Minority students and males were more likely to default on their student loans, even though it took females longer to pay off their student loan debt (Montalto et al., 2019). First-generation and low-income students were more likely to pay towards the principal amount of their debt in the first year of repayment (Mangrum, 2021). Student loan default rates spiked during the Great Recession; however, the introduction of the Income Based Repayment plan in 2009 has since helped to reduce student loan default rates (Mueller & Yannelis, 2019). Because this payment plan limits how much of an individual's income can be put towards their student loans, student loan payments can be more consistently modified to match the situation of the borrower. Financial literacy and financial education have been shown to decrease student loan default rates as well as improve student loan repayment (Dudley, 2018; Mangrum, 2021).

Financial Well-Being

Financial well-being can be defined as an individual's perception of their current financial status (Chan et al., 2012; Gutter & Copur, 2011; Sabri, 2011; Shim et al., 2009). Financial well-being is a result of previous financial decisions and behaviors. The more financially independent individuals become, the more their financial well-being can be impacted by their choices (Cherney et al., 2020; Sabri, 2011). When student loan borrowers begin college, they may not be as concerned with taking out student loan debt compared to getting a college degree. Holding a student loan has been found to be negatively associated with financial well-being; however, having higher education such

as a college degree positively influences financial well-being (Henager & Wilmarth, 2018). Holding a student loan has been found to influence financial well-being in both direct and indirect ways, and these relationships can become complicated and intertwined (Montalto et al., 2019).

Student loans are not necessarily considered a positive financial decision; even though they can be seen as an investment in one's future and beneficial in other ways (Christie & Munro, 2003; Fos et al., 2017; Rothstein & Rouse, 2011). However, financially, student loans tend to have a negative impact on an individual's financial well-being, whether they are in school or in repayment soon afterwards (Cherney et al., 2020). In fact, any amount of student loan debt can decrease financial well-being, regardless of the "recommended" student loan use, and more student loan debt is associated with lower financial well-being (Elliott & Lewis, 2015; Gutter & Copur, 2011). College students with no debt have been found to have the greatest levels of financial well-being (Gutter & Copur, 2011).

While holding student loans can impact any individual's financial well-being, there are groups that are impacted even more by this heavy debt burden. Cherney et al. (2020) found that individuals from low-income families can often increase their financial well-being as they receive more formal education and the further they seem to progress away from their low-income origin. On the other hand, students who relied heavily on parent financial resources that find themselves managing their own finances and taking out student loans will experience decreased financial well-being. It seems that an increase in tuition costs and student loan burdens, combined with the consideration that a college

education is not necessary to have a successful career, can greatly impact an individual's financial well-being (Cherney et al., 2020).

Student loan debt can affect other important aspects of financial management. Individuals with student loan debt have been found to have less net worth, home equity, investments, and accumulated assets than those with no student loan debt (Elliott & Lewis, 2015, Luong, 2010). These financial characteristics and assets greatly influence financial well-being. Student loans have also been found to negatively impact emotional and mental well-being (Walsemann et al., 2015). Student loan debt is no longer just a financial issue but has affected how individuals live their lives. Financial well-being is an influential part of financial management and decisions-making. If student loans are affecting financial well-being, they are affecting many other aspects of a person's life, not just how the student loan borrower manages financial decisions.

While individuals may not consider financial well-being in every aspect of their life, finances play an important role in everything people do. Personal finances influence mental and physical health and overall life satisfaction, which can help individuals to comprehend just how critical financial well-being is in their lives (Shim et al., 2009). Financial literacy and financial well-being rates among students are low (Elliott & Lewis, 2015). Actions can be taken to help increase financial well-being, specifically among student loan borrowers. Research has found that receiving formal and informal financial education (at school and at home) combined with having dedicated financial goals can help college students to make better financial decisions and more accurately determine if and how much student loan debt they need (Shim et al., 2009). Higher financial well-being can increase positive financial behaviors among college students (Montalto et al.,

2019). Previous research also found that students who had better financial management skills were less likely to take on student loans (Chan et al., 2012). As explained, financial management and not taking out a student loan can help increase financial well-being, allowing college students to move forward with a positive attitude towards their personal finances.

Overall, research examining financial education, financial literacy, student loans, and financial well-being have reported important information that can help financial practitioners and educators to better understand these factors. Financial education has been shown to report mixed results in terms of effectiveness and its relationship with financial literacy, while greater financial literacy can improve financial decision-making and predict positive financial outcomes. In terms of the student loan decision, many socio-demographic characteristics such as generation, race/ethnicity, gender, income, and more can predict an individual's student loan use. Student loan use and repayment can influence an individual's financial management and personal decisions for many years and can be related to personal and financial well-being.

This research helps to explain many factors that are associated with student loans, such as income, financial resources, employment, and formal education. However, little is still known about how financial education and financial literacy are associated with the student loan decision and student loan repayment behaviors. Additionally, the relationships between student loan repayment and characteristics and financial well-being are still unclear. By understanding the current research on financial education, financial literacy, the student loan decision, student loan repayment, and financial well-being, this

study can seek to fill gaps in the literature, providing a better understanding of how these factors are related.

Conceptual Framework

This study attempted to examine how financial education and financial literacy are associated with the student loan decision, and how the decision to take out a student loan can affect financial well-being among student loan borrowers. Huston (2010) developed a conceptual framework that explains the process of developing financial well-being through financial education, financial literacy, and financial behaviors. Because this model examined various associations among financial education, financial literacy, financial behaviors, and financial well-being, it was modified to achieve the main objectives of this study. The modified conceptual framework depicts the role of financial education and human capital in the student loan decisions and factors associated with financial well-being. This section explains each component in the conceptual model of the study and presents a set of study hypotheses.

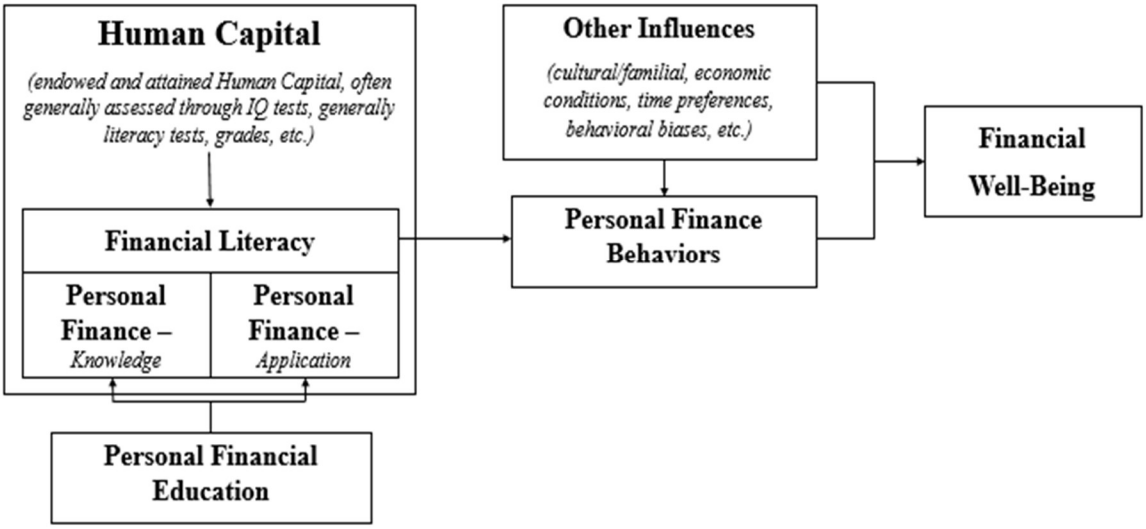
Measuring Financial Literacy

Huston (2010) drafted a conceptual framework based on previous studies on financial literacy and financial well-being. This model helps the personal finance field understand how financial literacy, financial education, financial behaviors, and financial well-being are all related. Figure 1 is Huston's original financial well-being framework. This conceptual framework draws a map that begins at financial education and ends with financial well-being. Huston hoped that this model would provide researchers a focused lens through which to examine these financial components. The financial factors

examined in this framework include personal financial education, human capital, financial literacy, other influences, personal financial behaviors, and financial well-being.

Figure 1.

Huston (2010)



In this thesis, the Huston 2010 model was applied and original concepts, such as financial education, human capital, and financial behavior, were redefined to better support this study. The conceptual framework of this study highlights financial education, financial literacy, the student loan decision, student loan characteristics, and financial well-being. This conceptual framework begins with financial education, specifically participation in financial education. When an individual participates in financial education from a formal program, they build on their human capital and financial literacy.

Human capital and financial literacy are key components of this conceptual framework in regard to financial decisions and behaviors, such as the student loan decision. Human capital is generally considered the intellectual abilities and skills an individual has that makes them valuable in a certain area. This study specifically analyzed financial literacy and its sub-components. As previously defined, financial literacy is the combination of financial knowledge and application of that knowledge. Financial literacy can be measured through one's financial knowledge, financial self-efficacy, and financial capability. These components of human capital can be obtained from various financial education programs, in the home, and even through personal financial experiences. Using these components of human capital, we can determine the levels of financial literacy.

Study Hypotheses

Based on the findings in previous studies and illustrated in the figures below, following eight hypotheses were proposed below:

H1: Those who participated in financial education will have higher levels of financial literacy than those who did not participate in financial education.

H2: Participating in financial education will be associated with taking out a student loan.

H3: Those with high levels of financial literacy will be less likely to take out a student loan than those with low levels of financial literacy.

H4: Socio-demographic and personal factors will be associated with taking out a student loan.

H5: Those with low levels of financial literacy will be more likely to be delinquent on their student loan than those with high levels of financial literacy among student loan borrowers.

H6: Student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) will be associated with student loan delinquency among student loan borrowers.

H7: Those who are delinquent on their student loan payment will have lower levels of financial well-being than those who are not delinquent on their student loan payment among student loan borrowers.

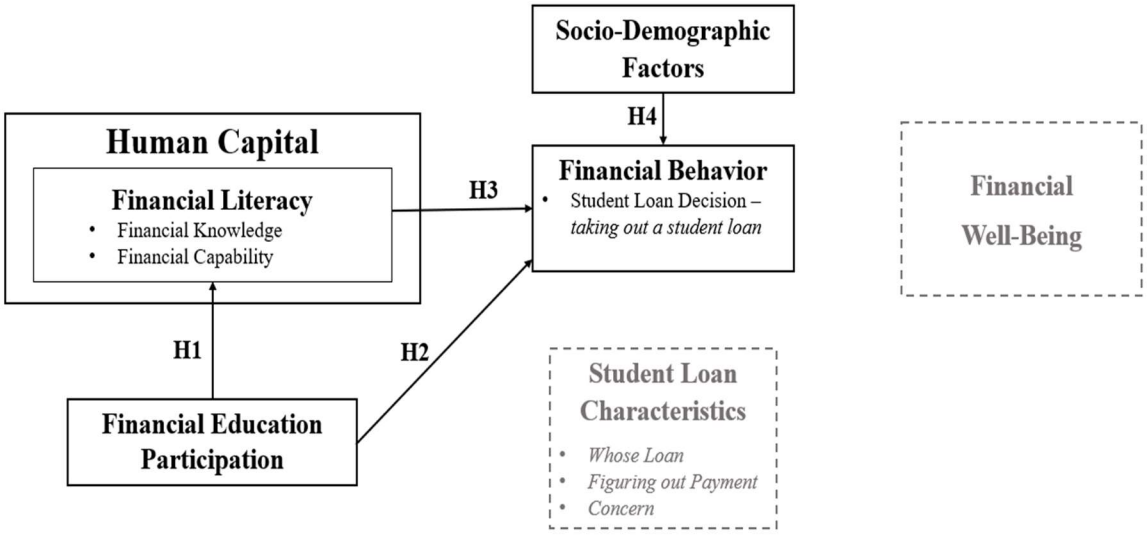
H8: Financial well-being levels will vary by student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) among student loan borrowers.

This study centered around two critical components related to student loans. These are the student loan decision and on-time repayment behaviors once individuals had a student loan. Figure 2 presents the conceptual model that highlights four hypotheses that test associations among financial education, financial literacy, personal factors, and the student loan decision. The model in Figure 2 focuses on whether or not individuals take out student loans and what factors could be predictors of this decision. As discussed, financial education, human capital, and financial literacy can affect an individual's financial decisions. Other important components to consider when making the student loan decision could include personal characteristics and background such as socio-demographic qualities.

Based on previous studies, it has been found that socio-demographic and personal factors are associated with differences in student loan holding and behaviors (Addo et al., 2016; Baker et al., 2017; Jackson & Reynolds, 2013; Scott-Clayton & Li, 2016). Being a member of a minority group, such as Black and Hispanic/Latinx, can influence an individual's financial behaviors, such as student loan decision-making and repayment. In addition, socio-demographic characteristics such as gender, employment status, marital status, and income could influence their student loan decisions and behaviors.

Figure 2.

Student Loan Decision Model



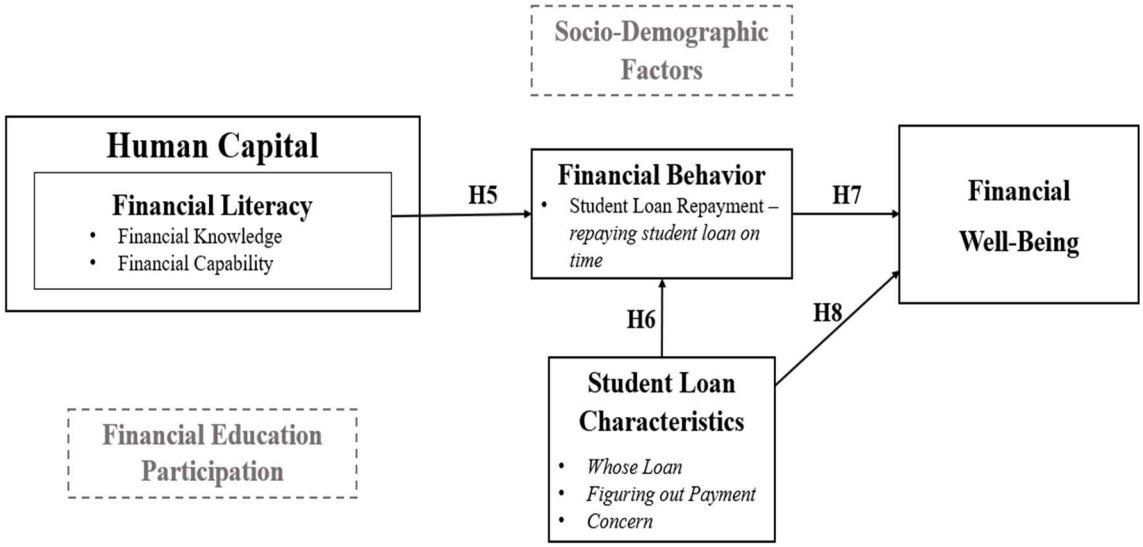
It is important to further understand how holding a student loan could be related to financial well-being among student loan borrowers. After these individuals have made their student loan decision, they then face more financial challenges as they attempt to manage and pay off their student loan. Thus, this study also examined how student loan

behaviors and student loan characteristic could be associated with financial well-being among student loan borrowers. Figure 3 presents what factors are associated with financial well-being among student loan borrowers.

Student loan repayment behavior focuses on whether or not the individual is delinquent on their student loan, as when an individual does not pay their student loan on-time, they could be decreasing their financial well-being. Student loan repayment can be affected by the characteristics of the student loan, including whom the loan is for, if the individual is concerned with loan repayment, and if they attempted to calculate their student loan payments. Student loan characteristics may play a part in an individual's financial well-being among student loan borrowers regardless of repayment behaviors. Financial well-being changes based on each individual's unique situation; however, certain events, such as taking out a student loan, can impact financial well-being in significant ways. Using this conceptual framework, this study sought to understand factors influencing the student loan decision and how holding a student loan and other characteristics could be associated with financial well-being among student loan borrowers.

Figure 3.

Financial Well-Being Model



CHAPTER III

METHODOLOGY

Data

This study employed data from the 2018 National Financial Capability Study (NFCS), which is an online survey collected by the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation (FINRA, 2020). FINRA is an organization devoted to protecting American consumers as they participate in the open market. FINRA regulates policy in the financial industry and ensures fairness in investments. As a part of monitoring financial policy, FINRA conducts research that seeks to understand the choices and influences of the average consumer in order to best protect them. The organization wanted to establish research objectives and methods to allow personal finance researchers to conduct studies centered on individual and family financial characteristics and behaviors.

In 2009, FINRA began conducting the NFCS study, after witnessing the impacts of the unpredictable economy on the consumer, specifically during the Great Recession (2007-2009). The main objectives of the NFCS include establishing a benchmark for financial capability and understanding how financial capability may vary across demographic groups, financial behaviors, and financial literacy. The NFCS data contains information on an individual's financial education, financial literacy, debt holdings (credit cards, mortgages, auto loans, and student loans), financial well-being, and more. The survey continues to be distributed every 3 years, with changes being made to survey questions each time to further explore more relevant financial topics for families and

individuals. For each survey distribution, respondents are collected using non-probability quota sampling through an online recruitment website containing millions of individuals (FINRA, 2020).

FINRA distributed the 2018 NFCS survey from June 2018 - October 2018 to each state (plus the District of Columbia) in the U.S. with a sampling quota of 500 respondents per state that reflected Census results for each state population such as age, gender, ethnicity, education level, and income. Oversamples were collected in Oregon and Washington, resulting in 1,250 respondents from each state. This sampling method allowed the State-by-State survey to collect responses from a large and diverse sample across America in order to best attempt to reflect the American population. National, regional, and state figures were weighted to be representative of age, gender, ethnicity, and education (FINRA, 2020).

The survey was self-administered by the respondents on the survey website. There were 27,091 respondents that participated in the survey (FINRA, 2020). By utilizing a secondary data set, this study can employ a larger sample size than a self-created primary data set would have allowed. As the most recent data set, the 2018 NFCS survey was used in this study since it can allow an individual to address financial issues related to financial education participation, financial capability, financial knowledge, student loan decisions, student loan delinquency, and financial well-being.

Study Sample

The main purpose of this study was to understand the relationships among financial education, financial literacy, and the student loan decision, as well as examine

the association between financial literacy, student loan repayment, and financial well-being. The original 2018 NFCS sample size was 27,091 respondents. To accomplish the main research objectives of this study, if respondents report either "prefer not to say" or "don't know" on key variables (i.e., financial education, financial knowledge, student loan behaviors, and financial well-being), they were excluded from the study sample. Respondents younger than age 17 or older than 73 are also excluded due to their unlikely interaction with student loan use. After cleaning the data to meet the research goals of this study, the final study sample was 7,364 individuals who completed the questions related to financial education, participation, student loan decisions, and financial well-being.

This study utilized two different samples across two models. The first model analyzed financial knowledge, literacy, socio-demographic factors, and the student loan decision. The total sample of 7,364 individuals was analyzed to understand the relationships between financial education and financial knowledge and to investigate how financial literacy and personal factors are associated with the student loan decision. The second model focused on student loan repayment behaviors, student loan characteristics, and financial well-being of student loan borrowers. The sub-sample of the 1,979 student loan borrowers was analyzed to understand how student loan characteristics and student loan delinquency are associated with financial well-being among student loan borrowers.

Variables

Independent Variables

Table 1 shows the measurement information for the independent variables of financial education, financial literacy, socio-demographic factors, student loan characteristics, and student loan repayment behavior. Appendix A explains the variable names within the codebook of the 2018 NFCS data. The financial education participation variable was whether or not the individual participated in financial education. This variable was measured using the question, "Was financial education offered by a school or college you attended, or a workplace where you were employed? (M20)." The responses included 1=Yes, but I did not participate in the financial education, 2=Yes, and I did participate in the financial education, and 3 = No. If the individuals reported responses 1 or 3, it was coded as 0=No participation, whereas if they responded 2, it was coded as 1=Participation.

The second independent variable in the conceptual framework is financial literacy. Financial literacy was measured by the sum of six variables, including objective financial knowledge, subjective financial knowledge, financial self-efficacy, financial capability, budgeting, and emergency savings. Objective financial knowledge was measured by summing the correct answers for the six financial literacy questions, including numeracy (M6), inflation (M7), bonds (M8), mortgage (M9), stock diversification (M10), and compound interest (M31). The responses were coded as 1 if respondents had zero correct answers to 7 as they answered all six questions correctly.

Table 1.

Measurements – Independent Variables

Variables	Measurements
Financial Education:	
Participation in FE:	
Did not participate	1 if R did not participate in FE, 0 if otherwise
Participated	1 if R participated in FE, 0 if otherwise
Financial Literacy:	
Obj. financial knowledge	Continuous, sum of six financial literacy score, 1=zero corrected, 7= all corrected
Subj. financial knowledge	Continuous, how would you assess your overall financial knowledge, 1= very low, 7= very high
Financial Self-Efficacy (SE):	
No SE	1 if R reported no or little confidence, 0 if otherwise
Have SE	1 if R reported some or very confident, 0 if otherwise
Financial capability	Continuous, 1-7, I am good at dealing with financial matters, 1=strongly disagree, 7=strongly agree
Budgeting:	
Spend equal/more	1 if R reported spending less, 0 if otherwise
Spend less	1 if R reported spending equal or more, 0 if otherwise
Emergency Savings (ES):	
No ES	1 if R reported no emergency savings, 0 if otherwise
Have ES	1 if R reported having emergency savings, 0 if otherwise
Socio-Demographic Factors:	
Age/Generation:	
Millennials, Age 18-37	1 if R's age 18-37, 0 if otherwise
Gen Xers, Age 38-53	1 if R's age 38-53, 0 if otherwise
Baby boomers, Age 54-72	1 if R's age 54-72, 0 if otherwise
Race/Ethnicity:	
White	1 if R is White, 0 if otherwise
Black	1 if R is Black, 0 if otherwise
Hispanic/Latinx	1 if R is Hispanic, 0 if otherwise
Asian/Other	1 if R is Asian/Other, 0 if otherwise
Gender:	
Male	1 if R is male, 0 if otherwise
Female	1 if R is female, 0 if otherwise
Marital Status:	
Married	1 if R married, 0 if otherwise
Unmarried	1 if R never married, separated, divorced, widowed, 0 if otherwise
Formal Education:	
High sch. drop/grad	1 if R some or high school graduate, 0 if otherwise
Some college	1 if R some college, 0 if otherwise
College graduate	1 if R college graduate, 0 if otherwise
Advanced	1 if R advanced degree, 0 if otherwise
Employment Status:	
Self-employed	1 if R self-employed, 0 if otherwise

Working	1 if R employed, 0 if otherwise
Not-working	1 if R unemployed, full-time student, permanently sick/disabled, retired, 0 if otherwise
Homeownership Status:	
Renters	1 if R does not own home, 0 if otherwise
Homeowners	1 if R owns home, 0 if otherwise
Income Levels:	
Less than $25,000	1 if HH income <$25,000; 0 if otherwise
$25,000 - $49,999	1 if HH income $25,000-$49,999, 0 if otherwise
$50,000 - $74,999	1 if HH income $50,000-$74,999, 0 if otherwise
$75,000 - $99,999	1 if HH income $75,000-$99,999, 0 if otherwise
$100,000 or more	1 if HH income $100,000+, 0 if otherwise
Risk Tolerance Attitude:	
Low risk	1 if R reported 1-7, 0 if otherwise
High risk	1 if R reported 8-10, 0 if otherwise
Student Loan Characteristics:	
Whose Loan:	
Self	1 if R reported holding loan for themself, 0 if otherwise
Spouse	1 if R reported holding loan for spouse, 0 if otherwise
Child	1 if R reported holding loan for their child, 0 if otherwise
Calculate Future Payment:	
Did not calculate	1 if R did not calculate future payment, 0 if otherwise
Calculated	1 if R calculated future payment, 0 if otherwise
Concern of Repayment:	
Not Concerned	1 if R are not concerned with repayment, 0 if otherwise
Concerned	1 if R are concern with repayment, 0 if otherwise

Subjective financial knowledge was measured by the individual's perception of their financial skills and status using the following question: "On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge (M4)?" Responses to this question ranged from 1=very low to 7=very high.

Financial self-efficacy was measured by the question "If you were to set a financial goal for yourself today, how confident are you in your ability to achieve it? (J43)." Responses to this question included 1=Not at all confident, 2=Not very confident, 3=Somewhat confident, and 4=Very confident, where 1 and 2 were coded as having financial self-efficacy, and 3 and 4 were coded as not having financial self-efficacy. Financial capability was measured by the question "How strongly do you agree or

disagree with the following statements? – I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses (M1_1).” Responses to this question ranged on a continuous scale from 1=strongly disagree to 7=strongly agree. Budgeting was measured using the spending question “Over the past year, would you say your [household’s] spending was less than, more than, or about equal to your [household’s] income? (J3)” with responses of 1=Spending less than income, 2=Spending more than income, and 3=Spending about equal to income, with spending less than one’s income being the desirable behavior. Finally, the last financial literacy variable of emergency savings was measured by the question “Have you set aside emergency or rainy-day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies? (J5)” with responses of 1=Yes and 2=No.

Socio-demographic variables were included in the conceptual framework model. Generations included three dummy categorical variables [millennials (age 18-37), Gen-Xers (age 38-53), baby boomers (age 54-72, reference group)]. The race/ethnicity was measured by four dummy categorical variables [Black, Hispanic/Latinx, Asian/others, Whites (reference group)]. Other factors included gender, marital status, formal education, employment status, homeownership status, income level, and risk tolerance. The measurements of these variables were the following: gender [females, (males, reference group)]; marital status [married, (non-married, reference group)]; formal education [less than high school/high school graduate, some college, college graduates, (post-college, reference group)]; employment status [self-employed, full/part-time working, (non-working, reference group)]; homeownership status [homeowners, (renters,

reference group)]; income level [less than $25,000, $25,000-$49,999, $50,000-$74,999, $75,000-$99,999, (more than $100,000, reference group)]; and risk tolerance [high risk tolerance, (low risk tolerance, reference group)].

As for the student loan characteristics that could predict student loan repayment behavior and financial well-being, who the student loan is for (G30_1, G30_2, G30_3), calculating the future student loan payment (G33), and if the student loan borrower is concerned with being able to pay off their student loan (G22_2015) were included. These student loan characteristics were included as dummy categorical variables in empirical models as the following: whose loan [self, children, (spouse, reference group)]; know their future loan payment [know, (do not know, reference group)]; and concern in paying the loan [no concern (yes concern, reference group)].

Dependent Variables

Table 2 shows measurements of three dependent variables -- financial literacy, financial behaviors (student loan decision and student loan delinquency), and financial well-being. Based on the conceptual framework in Figure 3, to test Hypothesis 1, this study examined the effects of financial education on financial literacy. As a dependent variable, financial literacy was created by summing the six financial literacy questions, including objective financial knowledge, subjective financial knowledge, financial self-efficacy, financial capability, budgeting, and emergency savings. This continuous variable was included as a dependent variable for the *financial literacy model*.

To test Hypotheses 2 through 6, two financial behaviors were analyzed. The first was the student loan decision which was measured by an individual reporting that they have taken out a student loan. The question “Do you currently have any student loans? (G30)” with

responses 1=holding a student loan and 0=not holding a student loan was used for the *student loan decision model*.

Table 2.

Measurements – Dependent Variables

Variables	Measurements
Financial Literacy	Continuous, sum of six financial literacy questions – obj. financial knowledge (1-7), subj. financial knowledge (1-7), financial self-efficacy (1-4), financial capability (1-7), budgeting (1-2), emergency savings (1-2), range (8-29)
Student Loan Decision	1 if R holds student loan, 0 if otherwise
Student Loan Repayment	1 if R is delinquent on loan, 0 if otherwise
Financial Well-Being	Continuous, Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition, range (1-10)

As the second financial behavior variable, student loan repayment behavior was examined. Specifically, a question in the NFCS -- "How many times have you been late with a student loan payment in the past 12 months? (G35)" being used. Responses to this question were: 1=Never, payments are not due on my loans at this time, 2=Never, I have been repaying on time each month, 3=Once, and 4=More than once. A dichotomous variable was created for the student loan delinquency=1 if they reported missing payments more than once, otherwise=0, and was used as a dependent variable for the *student loan payment delinquency model*.

To test Hypotheses 7 and 8, financial well-being was included as a dependent variable. To create financial well-being variable, a question in the NFCS -- "Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition? (J1)" was used. The responses to this question ranged on a scale from 1=Not at all satisfied to 10=Extremely satisfied, and this continuous variable was used as a dependent variable for the *financial well-being model*.

Statistical Analyses

Frequencies, percentages, means, and medians were performed to obtain descriptive information on all independent and dependent variables in the multivariate analyses. To compare the differences in the mean levels and proportions of financial literacy, student loan decision, student repayment behavior, and financial well-being by cultural and personal factors, t-tests and chi-squared tests were conducted. Ordinary Least Squares (OLS) regression analyses were performed to examine the effect of financial education on levels of financial literacy (H1). Logistic regression analyses were employed to examine the effects of financial education, financial literacy, and socio-demographic factors on the likelihood of taking out a student loan (H2, H3, and H4). In addition, the logistic regression analyses were performed to investigate factors associated with the likelihood of being delinquent on student loan payments (H5 and H6). Finally, to examine the relationship between student loan characteristics, being delinquent on student loan payments, and the levels of financial well-being among student loan borrowers, OLS regression analyses were utilized (H7 and H8).

CHAPTER IV

RESULTS

Descriptive Results

Table 3 describes the differences between non-student loan borrowers and student loan borrowers by socio-demographic and personal characteristics. The majority of non-student loan borrowers were age 54-72 (54.7%), while the majority of student loan borrowers were age 18-37 (59.3%). The majority of the study sample was White for both non-student loan borrowers and student loan borrowers (80.1% and 63.7%, respectively); however, a greater proportion of student loan borrowers were Black or Hispanic/Latinx (19.8% and 9.4%, respectively) compared to non-student loan borrowers (5.5% and 5.7%, respectively).

A higher proportion of individuals were male among student loan borrowers (62.8%) than non-student loan borrowers (60.9%). About 31% of non-student loan borrowers were unmarried, whereas 33.9% of student loan borrowers were unmarried. While some college education and college graduates were the largest formal education groups among both non-borrowers and student loan borrowers, a greater proportion of student loan borrowers reported having some college education (39.6%) compared to non-borrowers (31.8%). About 56% of the total sample was working full/part-time, with 50.2% of non-borrowers and 71.7% of student loan borrowers. The majority of the total sample reported being homeowners (74.2%) compared to renters (25.8%). However, the proportion of renters among the student loan borrower group was higher (33.1%) than among non-student loan borrowers (23.1%).

Table 3.

Sample Characteristics (N=7,364)

Variables	Total Sample (N=7,364) Mean Frequency (%)	Non-Borrowers (n=5,385) Mean Frequency (%)	Student Loan Borrowers (n=1,979) Mean Frequency (%)
Socio-Demographic/Personal Characteristics:			
Age/Generation:			
Millennials, Age 18-37	2,189 (29.79%)	1,015 (18.9%)	1,174 (59.3%)
Gen Xers, Age 38-53	1,975 (26.8%)	1,422 (26.4%)	553 (27.9%)
Baby boomers, Age 54-72	3,200 (43.5%)	2,948 (54.7%)	252 (12.8%)
Race/Ethnicity:			
White	5,577 (75.7%)	4,316 (80.1%)	1,261 (63.7%)
Black	686 (9.3%)	294 (5.5%)	392 (19.8%)
Hispanic/Latinx	494 (6.7%)	309 (5.7%)	185 (9.4%)
Asian/Other	607 (8.3%)	466 (8.73%)	141 (7.1%)
Gender:			
Male	4,524 (61.4%)	3,282 (60.9%)	1,242 (62.8%)
Female	2,840 (38.6%)	2,103 (39.1%)	737 (37.2%)
Marital Status:			
Married	5,030 (68.3%)	3,721 (69.1%)	1,309 (66.1%)
Unmarried	2,334 (31.7%)	1,664 (30.9%)	670 (33.9%)
Formal Education:			
High school drop/grad	1,379 (18.7%)	1,099 (20.4%)	280 (14.1%)
Some college	2,494 (33.9%)	1,711 (31.8%)	783 (39.6%)
College graduate	2,045 (27.8%)	1,507 (28.0%)	538 (27.2%)
Advanced	1,157 (19.6%)	1,068 (19.8%)	378 (19.1%)
Employment Status:			
Self-employed	694 (9.4%)	495 (9.2%)	199 (10.1%)
Full/Part-time working	4,123 (56.0%)	2,703 (50.2%)	1,420 (71.7%)
Not-working	2,547 (34.6%)	2,187 (40.6%)	360 (18.2%)
Homeownership Status:			
Renters	1,898 (25.8%)	1,243 (23.1%)	655 (33.1%)
Homeowners	5,466 (74.2%)	4,142 (76.9%)	1,324 (66.9%)
Income Levels:			
Less than $25,000	907 (12.3%)	645 (11.0%)	262 (13.2%)
$25,000 - $49,999	1,429 (19.4%)	1,057 (19.6%)	372 (18.8%)
$50,000 - $74,999	1,438 (19.5%)	1,089 (20.2%)	349 (17.6%)
$75,000 - $99,999	1,379 (18.7%)	863 (16.0%)	516 (26.1%)
$100,000 or more	2,211 (30.0%)	1,731 (32.2%)	480 (24.3%)
Risk Attitude (1-10):			
Low risk (1-7)	4,019 (69.2%)	4,019 (74.6%)	1,075 (54.3%)
High risk (8-10)	2,270 (30.8%)	1,366 (25.4%)	904 (45.7%)

Among non-student loan borrowers, only 11.0% reported an income of less than $25,000 and 32.2% reported an income of $100,000 or more. Among student loan borrowers, 13.2% reported an income of less than $25,000 and 26.1% reported an income of $75,000 - $99,999. When considering the personal characteristic of risk attitude, a greater proportion of student loan borrowers reported having high risk tolerance (45.7%) than non-student loan borrowers (25.4%). Overall, compared to the total sample, a greater proportion of student loan borrowers were millennials, Black, Hispanic, male, unmarried, had some college education, were self-employed or working full/part-time, were renters, and had an income of less than $25,000.

Table 4 shows the differences between non-student loan borrowers and student loan borrowers by financial education, financial literacy, student loan characteristics, student loan repayment, and financial well-being. There was a significant difference in financial education participation between the two groups, indicating that a greater proportion of student loan borrowers participated in financial education (41.7%) than non-student loan borrowers (29.3%). However, the mean levels for objective financial knowledge and financial capability were significantly higher among non-student loan borrowers (5.5 and 6.2, respectively) than among student loan borrowers (4.6 and 5.9, respectively). There was no significant difference in the mean level of subjective financial knowledge between the two groups, with a score of 5.7 for both non-borrowers and student loan borrowers.

In this study, budgeting and emergency savings were included to measure having financial literacy, since measure of financial literacy includes having financial knowledge and doing financial behaviors. A greater proportion of student loan borrowers reported

spending equal to or more than they earned (60.1%), while a greater proportion of non-student loan borrowers reported spending less than they earned (53.1%).

Table 4.

Sample Characteristics: Financial Education, Financial Literacy, Student Loan Decision, Student Loan Characteristics, and Financial Well-being (N=7,364)

	Student Loan Non-Borrowers (n=5,385)	Student Loan Borrowers (n=1,979)	Test-Statistics
Financial Education (FE):			
Did not participate in FE	3,805 (70.7%)	1,154 (58.3%)	$\chi^2 = 100.31^{***}$
Participated in FE	1,580 (29.3%)	825 (41.7%)	
Financial Literacy (FL):			
Objective financial knowledge (1-7)	5.5	4.6	$t= 24.14^{***}$
Subjective financial knowledge (1-7)	5.7	5.7	t= -0.32
Financial Capability (1-7)	6.2	5.9	$t= 8.80^{***}$
Financial Self-Efficacy (FSE):			
No FSE	757 (14.1%)	280 (14.2%)	$\chi^2 = 0.0099$
Have FSE	4,628 (85.9%)	1,699 (85.8%)	
Budgeting:			
Spend equal/more	2,526 (46.9%)	1,189 (60.1%)	$\chi^2 = 100.45^{***}$
Spend less	2,859 (53.1%)	790 (39.9%)	
Emergency Savings:			
No emergency savings	1,579 (29.3%)	806 (40.7%)	$\chi^2 = 85.97^{***}$
Have emergency savings	3,806 (70.7%)	1,173 (59.3%)	
Financial Well-Being (1-10)	6.7	6.4	$t= 4.06^{***}$
Student Loan Characteristics:			
Whose Lose:	n/a		n/a
Self		1,158 (58.5%)	
Spouse		482 (24.4%)	
Child/grand children		339 (17.1%)	
Calculate Future Payment:	n/a		n/a
Not calculated		818 (41.3%)	
Calculated		1,161 (58.7%)	
Concern of Repayment:	n/a		n/a
Not concerned		944 (47.7%)	
Concerned		1,035 (52.3%)	
Student Loan Repayment:	n/a		n/a
Not delinquent		1,562 (78.9%)	
Delinquent		417 (21.1%)	

It is also noted that over 40% of student loan borrowers reported not having an emergency savings, whereas less than 30% of non-borrowers reported having an emergency savings. There was a significant difference in the mean level of financial well-being between the two groups, showing that non-student loan borrowers reported higher levels (6.7) than that of student loan borrowers (6.4). However, there was not a significant difference in financial self-efficacy between the two groups.

Table 4 also presents student loan related characteristics among student loan borrowers. This study examined who the student loan was for that the borrower held, if the borrower calculated their student loan payment before taking out their loan, if they were concerned about loan repayment, and if they were delinquent on their student loan payments. The majority of student loan borrowers held student loans for themselves (58.5%); however, 24.4% of them held a loan for a spouse and 17.1% of them held a loan for a child. About 59% of student loan borrowers attempted to calculate their student loan payment. The majority of student loan borrowers were concerned with repaying their student loan (52.3%), while about 48% were not concerned with student loan repayment. Most student loan borrowers were not delinquent on their student loan (78.9%), but 21.1% of them were delinquent on their student loan repayments.

Table 5 includes financial education participation and financial literacy scores across socio-demographic groups. There was a significant difference in the age groups of financial education participants, with the majority of individuals who participated being baby boomers (37.3%) compared to millennials and Generation Xers (36.4% and 26.3%, respectively). About 72% of individuals who reported participating in financial education were White, while 13% were Black, 7% were Hispanic, and 8.3% were Asian/Other,

reporting a significant difference in financial education participation across race/ethnicity. Gender was a significant characteristic in financial education participation, as the majority were male (65.6%). Being married was not a significant characteristic of financial education participation.

In terms of formal education, the majority of individuals who participated in financial education has some college education (36.0%) or were college graduates (31.6%). Among financial education participants, 59.5% were working full/part-time, while 30.1% were not working and 10.4% were self-employed. About 33% of those who participated in financial education made $100,000 or more, whereas 20.3% made $75,000 - $99,999, with income being a significant characteristic of financial education participation.

Table 5 also presents the mean levels of financial literacy scores across socio-demographic characteristics of the study sample. Financial literacy scores ranged from 8-29, and this variable was created by summing the scores from six different financial literacy categories that included objective financial knowledge, subjective financial knowledge, financial capability, financial self-efficacy, budgeting, and emergency savings. Across age groups, millennials had the lowest mean financial literacy had a mean score of 22.3, Generation Xers has a mean score of 23.1, and baby boomers had a mean score of 24.7, with age being significant. When comparing financial literacy scores across racial/ethnic groups, White individuals had a mean score of 23.9, Asian/Other individuals had a mean score of 23.2, Black individuals had a mean score of 22.4, and Hispanic individuals had a mean score of 22.3.

Table 5.

Descriptive Results – Analysis of Variance (ANOVA), t-tests, Chi-Square Tests Financial Education and Financial Literacy across Socio- Demographics (N=7,364)

	Financial Education Participated	Financial Literacy Score (8-29)
Age/Generation:		
Millennials, Age 18-37	36.4%	22.3
Gen Xers, Age 38-53	26.3%	23.1
Baby Boomers, Age 54-72	37.3%	24.7
	$\chi^2 = 84.37^{***}$	$F = 380.04^{***}$
Race/Ethnicity:		
White	71.7%	23.9
Black	13.0%	22.4
Hispanic	7.0%	22.3
Asian/Other	8.3%	23.2
	$\chi^2 = 59.48^{***}$	$F = 72.56^{***}$
Gender:		
Male	65.6%	23.9
Female	34.4%	23.0
	$\chi^2 = 26.33^{***}$	$t = 11.88^{***}$
Marital Status:		
Married	67.9%	23.9
Unmarried	32.1%	22.9
	$\chi^2 = 0.27$	$t = 11.92^{***}$
Education:		
High school drop/grad	10.2%	22.1
Some college	36.0%	23.2
College graduate	31.6%	24.2
Post college	22.2%	24.8
	$\chi^2 = 174.74^{***}$	$F = 203.88^{***}$
Homeownership:		
Renter	24.7%	21.8
Homeowners	75.3%	24.2
	$\chi^2 = 2.59$	$t = -26.0^{***}$
Employment Status:		
Self-employed	10.4%	23.9
Full/Part-time working	59.5%	23.4
Not-working	30.1%	23.7
	$\chi^2 = 32.2^{***}$	$F = 8.85^{***}$
Income Levels:		
Less than $25,000	10.9%	20.8
$25,000 - $49,999	17.6%	22.5
$50,000 - $74,999	8.3%	23.5
$75,000 - $99,999	20.3%	24.1
$100,000 or more	32.9%	25.1
	$\chi^2 = 30.04^{***}$	$F = 373.40^{***}$

Males had a significantly higher financial literacy score than females (23.9 and 23.0, respectively), while married individuals had a significantly higher financial literacy score than unmarried individuals (23.9 and 22.9, respectively). Individuals with a post-college education had the highest average financial literacy score (24.8) compared to high school dropouts/grads (22.1), those with some college education (23.2), and college graduates (24.2). Homeowners had a significantly higher mean financial literacy score than renters, with 24.2 and 21.8 respectively. Self-employed individuals had a mean financial literacy score of 23.9, while full/part-time working individuals had a mean score of 23.4 and not working individuals had a mean score of 23.7. The income group with the lowest average financial literacy score was those making less than $25,000 with a score of 20.8, while the income group with the highest average financial literacy score were those making $100,000 or more with a score of 25.1.

Table 6 shows the descriptive results of student loan borrowers regarding who the student loan is for, if borrowers calculated their student loan payment, if they were concerned about repaying their student loan, and if the borrower was delinquent on their student loan. Among student loan borrowers, 58.5% held a student loan for themselves. Table 6 provides the percentage of individuals in each socio-demographic across the student loan characteristics as well as relative to the total student loan borrower sample.

For example, among individuals who held a student loan for themselves, 67.7% were millennials. Additionally, among student loan borrowers who held a student loan for themselves, 25.5% were Generation Xers, and 6.8% were baby boomers. Considering race, 57.9% of student loan borrowers who held a student loan for themselves were White, 25.5% were Black, 10.1% were Hispanic, and 6.5% were Asian/Other.

Table 6.

Descriptive Results –Chi-Square Tests
Student Loan Characteristics and Behavior across Socio-Demographics (n=1,979)

	Student Loan For Self n=1158 58.5%	Calculated Payment n=1161 58.7%	Concern for Repayment n=1035 52.3%	Student Loan Delinquency n=417 21.1%
Age/Generation:				
Millennials, Age 18-37	67.7%	64.9%	68.8%	61.6%
Gen Xers, Age 38-53	25.5%	23.0%	25.0%	31.2%
Baby Boomers, Age 54-72	6.8%	12.1%	6.2%	7.2%
Race/Ethnicity:				
White	57.9%	59.2%	57.6%	49.9%
Black	25.5%	24.6%	26.7%	35.2%
Hispanic	10.1%	8.4%	9.7%	8.4%
Asian/Other	6.5%	7.8%	6.0%	6.5%
Gender:				
Male	61.3%	67.5%	63.2%	65.7%
Female	38.7%	32.5%	36.8%	34.3%
Marital Status:				
Married	48.5%	65.2%	60.2%	62.8%
Unmarried	51.5%	34.8%	39.8%	37.2%
Education:				
High school drop/grad	12.4%	15.7%	15.7%	10.8%
Some college	44.7%	40.8%	45.7%	53.9%
College graduate	24.9%	24.6%	22.7%	19.7%
Post college	18.0%	18.9%	15.9%	15.6%
Employment Status:				
Self-employed	9.5%	12.1%	11.9%	13.9%
Full/Part-time working	71.8%	72.4%	71.4%	68.8%
Not-working	18.7%	15.4%	16.7%	17.3%
Homeownership Status:				
Renters	39.8%	25.9%	31.6%	36.6%
Homeowners	60.2%	74.1%	68.4%	63.4%
Income Levels:				
Less than $25,000	17.5%	11.7%	14.4%	15.3%
$25,000 - $49,999	21.8%	16.9%	21.5%	22.1%
$50,000 - $74,999	17.7%	15.7%	15.9%	16.1%
$75,000 - $99,999	26.0%	31.8%	32.5%	30.2%
$100,000 or more	17.0%	23.9%	15.7%	16.3%
Risk Tolerance Attitude:				
Low risk tolerance	49.6%	44.8%	44.6%	42.2%
High risk tolerance	50.4%	55.2%	55.4%	57.8%

Only 38.7% of borrowers who held a student loan for themselves were female and 51.5% were unmarried. A greater proportion of borrowers who held a student loan for themselves had some college education (44.7%) and were working full/part-time (71.8%). Less than half of borrowers who held a student loan for themselves were renters (39.8%). About 22% of borrowers who held a student loan for themselves had an income of $25,000 - $49,999 and 26% had an income of $75,000 - $99,999. Just over half of borrowers who held a student loan for themselves (50.4%) had high risk tolerance.

Table 6 also shows demographic information on those who calculated their student loan payment before taking out their loan. Calculating one's payment before taking out a student loan can play an important role in the student loan decision. Of the total sample, 58.7% of student loan borrowers calculated their student loan payment before taking out their student loan. Of borrowers who calculated their student loan payment, 64.9% were millennials, 23.0% were Generation Xers, and 12.1% were baby boomers. About 59% of borrowers who calculated their payment were White, 24.6% were Black, 8.4% were Hispanic, and 7.8% were Asian/Other. A greater proportion of borrowers who calculated their student loan payment were male (67.5%), married (65.2%), had some college education (40.8%), and were working full/part-time (72.4%). Only about 26% of those who calculated their student loan payment were renters and over 30% had an income of $75,000 - $99,999. Fifty-five-point two percent of borrowers who calculated their student loan payment had high risk tolerance.

The student loan characteristics of whether an individual was concerned about their student loan payment was examined in this study because concern for one's student loan payment could influence the student loan borrower's financial well-being. Of

student loan borrowers, 52.3% were concerned about repaying their student loan. Across age groups, the majority of those who were concerned were millennials (68.8%), followed by Generation Xers (25.0%) and baby boomers (6.2%). Most borrowers concerned with repayment were White (57.6%), while 26.7% were Black, 9.7% were Hispanic, and 6.0% were Asian/Other. Only 36.8% of those concerned with student loan repayment were female, 39.8% were unmarried, 45.7% had some college education, 71.4% were working full/part-time, and 31.6% were renters. The greater proportion of borrowers concerned with repayment had an income of $75,000 - $99,999 and 55.4% had high-risk tolerance.

Table 6 also reports student loan delinquency across demographic characteristics. The parentheses in Table 6 represent the percentage of each group relative to the total student loan borrower sample. Twenty-one-point one percent of student loan borrowers were delinquent on their student loan payments. While most individuals who were delinquent on their student loan payments were millennials (61.6%), over 30% were Generation Xers and about 7% were baby boomers. Less than half of borrowers who were delinquent on their payment were White (49.9%), 35.2% were Black, 8.4% were Hispanic, and 6.5% were Asian/Other. Among delinquent student loan borrowers, 65.7% were Male, 62.8% were married, 53.9% had some college education, and 68.8% were working full/part-time. Over 35% of delinquent student loan borrowers were renters and 30.2% made an income of $75,000 - $99,999. Considering risk tolerance, 57.8% of individuals delinquent on their student loan payments.

Table 7 illustrates the levels of financial well-being among student loan borrowers across socio-demographics. A total of 27.3% of student loan borrowers reported having

low financial well-being, 31.6% had mid financial well-being, and 41.1% had high financial well-being. Among generations, a greater proportion of millennials (71.3%) had high financial well-being, while a greater proportion of Generation Xers (36.3%) had low financial well-being, and baby boomers (32.1%) had mid financial well-being. Considering race/ethnicity, the largest proportion of White student loan borrowers (67.4%) had mid financial well-being, while a greater proportion of Black student loan borrowers (28.2%) had high financial well-being. The greater part of Hispanic student loan borrowers (11.1%) had low financial well-being and a greater share of Asian/Other individuals had mid financial well-being. A greater proportion of female student loan borrowers (53.9%) had low financial well-being, while the majority of borrowers with high financial well-being were male (76.3%).

Considering marital status, a greater proportion of unmarried individuals (41.7%) had low financial well-being, while more married individuals (67.0%) had high financial well-being. A larger proportion of those with low financial well-being had some college education (41.8%), were working full/part-time (65.4%), and were renters (56.6%). A greater proportion of borrowers with high financial well-being had some college education (42.3%), were working full/part-time (74.0%), and were homeowners (84.2%). The majority income levels of those with low financial well-being included $25,000 - $49,999 (30.9%), less than $25,000 (21.9%), and $50,000 - $74,999 (21.3%). The income of those with mid financial well-being had incomes of $100,000 or more (29.5%), $50,000 - $74,999 (21.2%), and $25,000 - $49,999 (18.9%). Student loan borrowers with high financial well-being had incomes of $75,000 - $99,999 (39.9%) and $100,000 or more (28.8%).

Table 7.

Descriptive Results –Chi-Square Tests
Financial Well-being of Student Loan Borrowers across Socio-Demographics (N=1,979)

	Low FWB (1-4) n=540 27.3%	Mid FWB (5-7) n=626 31.6%	High FWB (8-10) n=813 41.1%	
Age/Generation:				
Millennials, Age 18-37	50.2%	51.6%	71.3%	$\chi^2 = 86.65^{***}$
Gen-Xers, Age 38-53	36.3%	32.1%	19.2%	
Baby Boomers, Age 54-72	13.5%	16.3%	9.5%	
Race/Ethnicity:				
White	65.7%	67.4%	59.5%	$\chi^2 = 68.75^{***}$
Black	15.4%	12.8%	28.2%	
Hispanic	11.1%	10.9%	7.0%	
Asian/Other	7.8%	8.9%	5.3%	
Gender:				
Male	46.1%	59.6%	76.3%	$\chi^2 = 130.15^{***}$
Female	53.9%	40.4%	23.7%	
Marital Status:				
Married	58.3%	71.7%	67.0%	$\chi^2 = 23.71^{***}$
Unmarried	41.7%	28.3%	33.0%	
Education:				
High school drop/grad	10.6%	12.6%	17.7%	$\chi^2 = 38.28^{***}$
Some college	41.8%	34.0%	42.3%	
College graduate	30.2%	31.3%	22.0%	
Post college	17.4%	22.1%	18.0%	
Employment Status:				
Self-employed	6.8%	7.5%	14.2%	$\chi^2 = 72.78^{***}$
Full/Part-time working	65.4%	74.3%	74.0%	
Not working	27.8%	18.2%	11.8%	
Homeownership Status:				
Renters	56.6%	35.6%	15.9%	$\chi^2 = 243.61^{***}$
Homeowners	43.4%	64.4%	84.1%	
Income Levels:				
Less than $25,000	21.9%	12.3%	8.2%	$\chi^2 = 291.15^{***}$
$25,000 - $49,999	30.9%	18.9%	10.7%	
$50,000 - $74,999	21.3%	21.2%	12.4%	
$75,000 - $99,999	14.6%	18.1%	39.9%	
$100,000 or more	11.3%	29.5%	28.8%	
Risk Tolerance Attitude:				
Low risk tolerance	81.3%	72.5%	22.4%	$\chi^2 = 576.10^{***}$
High risk tolerance	18.7%	27.5%	77.6%	

Most borrowers with low and mid financial well-being had low risk tolerance (81.3% and 72.5%, respectively), while a greater proportion of student loan borrowers with high financial well-being had high risk tolerance (77.6%).

OLS Regression Results: Determinants of Financial Literacy

This study attempted to examine the relationship between financial education participation and financial literacy. In this study, financial literacy was measured by the sum of six financial questions (objective financial knowledge, subjective financial knowledge, financial self-efficacy, financial capability, budgeting, emergency savings) related to one's financial literacy. Table 8 shows the OLS results that indicate the determinants of financial literacy. Based on Table 8, the OLS regression model produced an Adj-R2=0.285 and F=155.74 (df=19), $p<.0001$, indicating that 29% of the variance of financial literacy was explained by the variables in this model.

This study hypothesized that those who participated in financial education would have higher levels of financial literacy than those who did not participate (Hypothesis 1). Table 8 shows that the coefficient associated with financial education participation was statistically significant, indicating that all else being equal, those who participated in financial education reported significantly higher levels of financial literacy than those who did not ($\beta=0.656$, $p<.0001$).

In the OLS regression model, socio-demographic and personal factors were included as controlling variables. These variables included age, race, gender, marital status, education, employment status, homeownership status, income level, and risk tolerance. The OLS results show that millennials and Generation Xers had lower levels of financial literacy than baby boomers.

Table 8.

OLS Results – Determinants of Financial Literacy, Total Sample (N=7,364)

Variables	β	SE	P-value	b
Financial Education: (Not part.)				
Participated **(H1)**	0.656	0.074	<.0001	0.090
Socio-Demographic Factors:				
Age/Generation: (Boomers, Age 54-72)				
Millennials, Age 18-37	-1.718	0.093	<.0001	-0.239
Gen Xers, Age 38-53	-1.382	0.091	<.0001	-0.179
Race/Ethnicity: (White)				
Black	-0.592	0.111	<.0001	-0.057
Hispanic	-0.573	0.105	<.0001	-0.056
Asian/Other	-0.363	0.119	0.0023	-0.031
Gender: (Male)				
Female	-0.308	0.073	<.0001	-0.043
Marital Status: (Unmarried)				
Married	-0.181	0.078	0.0210	-0.025
Education: (Post college)				
High school drop/grad	-1.139	0.117	<.0001	-0.139
Some college	-0.608	0.102	<.0001	-0.087
College graduate	-0.114	0.107	0.2829	-0.014
Employment: (Not working)				
Self-employed	-0.096	0.128	0.4511	-0.008
Full/Part-time working	-0.364	0.085	<.0001	-0.053
Homeownership: (Renters)				
Homeowners	0.821	0.085	<.0001	0.109
Income Levels: ($100,000 or more)				
Less than $25,000	-2.843	0.136	<.0001	-0.289
$25,000 - $49,999	-1.832	0.110	<.0001	-0.217
$50,000 - $74,999	-0.966	0.104	<.0001	-0.112
$75,000 - $99,999	-0.591	0.103	<.0001	-0.068
Risk Tolerance Attitude: (Low tolerance)				
High risk tolerance	0.876	0.077	<.0001	0.122
Intercept	25.404	0.153	<.0001	
F	155.74			
Adj-R^2	0.285			

Note. Weighted results.

There was a significant difference in financial literacy across race/ethnicity. It shows that Black, Hispanic, and Asians/Other individuals reported significantly lower levels of financial literacy than their White counterparts. The coefficient associated with females was statistically significant, indicating that female individuals reported significantly lower levels of financial literacy than their male counterparts. Regarding marital status, the coefficient associated with married was statistically significant and negative; suggesting that married individuals had lower levels of financial literacy as compared to unmarried individuals. The coefficients associated with both high school dropouts/graduates and those with some college education were statistically significant, indicating that those with high school grads/dropouts and those with some college education had lower levels of financial literacy as compared to those with post-college education.

In terms of employment status, working part-time or full-time was a significant factor in predicting the levels of financial literacy. Table 8 shows that full/part-time working individuals had lower levels of financial literacy when compared to non-working individuals; however, the coefficient associated with self-employment was not statistically significant. Table 8 also shows that the coefficient associated with homeowners was statistically significant and positive, indicating that, all else being equal, homeowners had significantly higher levels of financial literacy than renters. The coefficients associated with all levels of income were significant and negative, meaning that as compared with those making more than $100,000, those who make $75,000-$99,999, $50,000 - $74,999, those with $25,000 - $49,999, and those with less than $25,000 had lower levels of financial literacy. Risk tolerance was included in the OLS

regression model to see any association between risk tolerance level and financial literacy level. The coefficient associated with high-risk tolerance was significant and positive, suggesting that those with high-risk tolerance had higher levels of financial literacy than those with low-risk tolerance.

Logistic Regression Results: Determinants of Taking out a Student Loan

Table 9 shows the results from the logistic regression analysis. In this study, the student loan decision was a main dependent variable, whether or not the individual was holding a student loan. This study examined the effects of financial education participation (Hypothesis 2) and financial literacy (Hypothesis 3) on the likelihood of taking out a student loan and investigated what socio-demographic and personal factors are associated with the likelihood of taking out a student loan. The -2 Log likelihood ratio and chi-squared statistics are presented in the Table 9. The -2 Log likelihood ratio is 6631.956 and the chi-squared statistic of 2120.848 is statistically significant (p<.0001). Thus, the model shown is statistically significant in taking out a student loan.

In this study, it was hypothesized that participating in financial education would be associated with taking out a student loan (Hypothesis 2). On the other hand, it was hypothesized that those with high levels of financial literacy will be less likely to take out a student loan than those with low levels of financial literacy (Hypothesis 3). The logistic regression results show that the coefficient associated with financial education was statistically significant and positive, indicating that individuals who participated in financial education were more likely to take out a student loan than individuals who did not participate in financial education (Odds Ratio=1.407, p<.0001).

Table 9.

Logistic Regression Results – Determinants of Taking Out a Student Loan, Total Sample (N=7,364)

Variables	β	SE	P-value	Odds Ratio
Financial Education: (Not participated)				
Participated (**H2)**	0.342	0.065	<.0001	1.407
Financial Literacy (H3)				
Objective financial knowledge	-0.238	0.025	<.0001	0.789
Subjective financial knowledge	0.013	0.029	0.6490	1.013
High self-efficacy: (Low self-efficacy)	-0.057	0.093	0.5418	0.945
Financial capability	-0.088	0.025	0.0003	0.915
Spending less: (Spending equal/more)	-0.195	0.066	0.0029	0.823
Having emergency savings: (No savings)	-0.244	0.073	0.0009	0.784
Socio-Demographic Factors: (H4)				
Age/Generation: (Boomers, Age 54-72)				
Millennials, Age 18-37	2.030	0.093	<.0001	7.611
Gen Xers, Age 38-53	1.193	0.093	<.0001	3.297
Race/Ethnicity: (White)				
Black	0.806	0.093	<.0001	2.238
Hispanic	0.213	0.087	0.0150	1.237
Asian/Other	-0.566	0.113	<.0001	0.568
Gender: (Male)				
Female	0.143	0.068	0.0360	1.154
Marital Status: (Unmarried)				
Married	0.290	0.070	<.0001	1.337
Education: (Post college)				
High school drop/grad	-1.007	0.114	<.0001	0.365
Some college	-0.291	0.094	0.0014	0.748
College graduate	-0.212	0.097	0.0283	0.809
Employment: (Not working)				
Self-employed	0.383	0.119	0.001	1.466
Full/Part-time working	0.381	0.084	<.0001	1.464
Homeownership: (Renters)				
Homeowners	-0.076	0.075	0.3127	0.927
Income Levels: ($100,000 or more)				
Less than $25,000	0.110	0.125	0.3767	1.117
$25,000 - $49,999	-0.063	0.105	0.5507	0.939
$50,000 - $74,999	0.027	0.099	0.7845	1.027
$75,000 - $99,999	0.631	0.094	<.0001	1.879
Risk Tolerance Attitude: (Low tolerance)				
High risk tolerance	0.441	0.070	<.0001	1.554
Intercept	-0.779	0.282	0.0058	
-2 Log likelihood	6631.956			
χ^2 =	2120.848			

Note. Weighted results.

Financial literacy was also included in the regression model to measure the effect of financial literacy on the likelihood of taking out a student loan. As a proxy of financial literacy, objective financial knowledge, subjective financial knowledge, financial self-efficacy, financial capability, budgeting, and emergency savings were included in the model. Table 9 shows that the coefficients associated with objective financial knowledge, financial capability, budgeting, and emergency savings were statistically significant. As the level of objective financial knowledge increased, individuals were less likely to take out a student loan (Odds Ratio=0.789, $p<.0001$). Similarly, as the level of financial capability increased, individuals were less likely to take out a student loan (Odds Ratio=0.915, $p=0.0003$). Individuals who spent less than they earned were less likely to take out a student loan compared to those who spent equal to or more than they earned (Odds Ratio=0.823, $p=.0029$). Individuals who had emergency savings were less likely to take out a student loan compared to those who did not have emergency savings (Odds Ratio=0.784, $p=.0009$). However, the coefficients associated with subjective financial knowledge and financial self-efficacy were not statistically significant.

To test Hypothesis 4 that socio-demographic and personal factors would be associated with taking out a student loan, the socio-demographic and personal factors (i.e., age, race, gender, marital status, education, employment status, homeownership status, income level, and risk-tolerance attitude) were included in the regression model. Table 9 shows that the coefficients associated with both millennials and Generation Xers were statistically significant, suggesting that both millennials and Generation Xers were more likely to take out a student loan than their baby boomer counterparts (Odds Ratio=7.611, $p<.0001$; Odds Ratio=3.297, $p<.0001$, respectively). The logistic regression

results also show that Black and Hispanic individuals were more likely to take out a student loan than their White counterparts (Odds Ratio=2.238, $p<.0001$; Odds Ratio=1.237, $p=0.015$, respectively). In addition, there was a significant difference in the likelihood of taking out a student loan between Asian/Other and White individuals, suggesting that Asians/Others were less likely to take out a student loan than Whites (Odds Ratio=0.568 $p<.0001$). It is also noted that female individuals were more likely to take out a student loan than their male counterparts (Odds Ratio=1.154, $p=0.036$), and married individuals were more likely than unmarried individuals to take out a student loan (Odds Ratio=1.337, $p<.0001$).

The effects of formal education on the likelihood of taking out a student loan were statistically significant, showing that lower levels of education were negatively associated with the likelihood of taking out a student loan. For example, as compared to individuals with post-college education, those with high school grads/dropouts (Odds Ratio=0.365, $p<.0001$), those with some college education (Odds Ratio=0.748, $p=0.0014$), and those with college graduates (Odds Ratio=0.809, $p=0.0283$) were less likely to take out a student loan. The coefficients associated with self-employed (Odds Ratio=1.466, $p=.001$) and working full/part-time (Odds Ratio=1.464, $p<.0001$) were also statistically significant, indicating that individuals working full/part-time were more likely to take out a student loan than non-working individuals. As for the income level, only the coefficient associated with $75,000 - $99,999 was statistically significant, meaning that individuals making $75,000 - $99,999 were more likely to take out a student loan than those making $100,000 or more (Odds Ratio=1.879, $p<.0001$). Individuals with a high-risk tolerance were more likely to take out a student loan than those with low-risk tolerance (Odds

Ratio=1.554, $p<.0001$). Homeownership status was not a significant determinant of taking out a student loan.

Logistic Regression Results: Determinants of Student Loan Delinquency

One of the research questions for this study was "What factors are associated with the likelihood of being delinquent on student loan payments among student loan borrowers (n=1,979)?". Student loan delinquency is the condition of being late on one's student loan payments and can lead to major financial consequences. Table 10 presents the results from the logistic regression analysis that examined the effects of financial literacy and financial education participation on the likelihood of being delinquent on student loan payments. This study also examined the effects of student loan characteristics (e.g., whose loan, future payment calculation, repayment concern) on the likelihood of student loan delinquency. This study further investigated what socio-demographic and personal factors are associated with the likelihood of being delinquent in student loan payment among student loan borrowers. Thus, financial literacy, financial education participation, student loan characteristics, and socio-demographic/personal factors were included in the logistic regression model. The -2 Log likelihood ratio and chi-squared statistics are presented in the Table 10. The -2 Log likelihood ratio is 1864.119 and the chi-squared statistic of 370.2267 is statistically significant ($p<.0001$). Thus, it can be said that the model shown is statistically significant in the likelihood of being delinquent in student loan payment.

It was hypothesized that those with low levels of financial literacy will be more likely to be delinquent on their student loan than those with high levels of financial literacy among student loan borrowers (Hypothesis 5). As expected, the logistic

regression results show that the effect of financial literacy on likelihood of being delinquent on student loan payments was statistically significant and negative, suggesting that as the level of financial literacy increased, the likelihood of being delinquent on student loan payments decreased.

In this study, it was also hypothesized that student loan characteristics (e.g., whose loan, future payment calculation, and repayment concern) would be associated with student loan delinquency among student loan borrowers (Hypothesis 6). Table 10 presents that the coefficients associated with both self and not concerned were statistically significant, but the coefficient associated with future payment calculation was not statistically significant. The findings suggest that student loan borrowers who held a student loan for themselves were more likely to be delinquent on their student loan than those holding a loan for their spouse (Odds Ratio=1.515, p=0.0186). Borrowers who were not concerned about repaying their loan were less likely than those concerned with repayment to be delinquent on their student loan (Odds Ratio=0.268, p<.0001).

Regarding socio-demographic factors that predict the likelihood of being delinquent in their student loan, race/ethnicity, gender, marital status, education, income, and risk tolerance levels were statistically significant. Table 10 shows that Black and Asian/Other individuals were more likely to be delinquent on their student loan (Odds Ratio=2.143, p<.0001; Odds Ratio=1.781, p=0.0204, respectively). Females were less likely to be delinquent on a student loan than their male counterparts (Odds Ratio=0.680, p=0.0086). Married individuals were more likely to be delinquent on their student loan than their unmarried single counterparts (Odds Ratio=1.509, p=0.0022).

Table 10.

Logistic Regression Results – Determinants of Student Loan Delinquency among Student Loan Borrowers (n=1,979)

Variables	β	SE	P-value	Odds Ratio
Financial Literacy (H5)				
Objective financial knowledge	-0.064	0.049	0.1928	0.938
Subjective financial knowledge	0.027	0.057	0.6325	1.028
High self-efficacy: (Low self-efficacy)	-0.499	0.172	0.0037	0.607
Financial capability	-0.037	0.047	0.4358	0.964
Spending less: (Spending equal/more)	-0.352	0.131	0.0072	0.703
Having emergency savings: (No savings)	-0.369	0.152	0.0151	0.692
Financial Education: (Not participated)				
Participated	0.197	0.123	0.1081	1.218
Student Loan Characteristics: (H6)				
Whose Loan: (Spouse)				
Self	0.416	0.177	0.0186	1.515
Children/Grand	0.193	0.202	0.3383	1.213
Calculate Future Payment: (Not calculated)				
Calculated	-0.036	0.142	0.8001	0.965
Concern of Repayment: (Concerned)				
Not concerned	-1.318	0.143	<.0001	0.268
Socio-Demographic Factors:				
Age/Generation: (Boomers, Age 54-72)				
Millennials, Age 18-37	-0.212	0.247	0.3920	0.809
Gen Xers, Age 38-53	0.374	0.28	0.1322	1.453
Race/Ethnicity: (White)				
Black	0.762	0.146	<.0001	2.143
Hispanic	-0.004	0.184	0.9843	0.996
Asian/Other	0.577	0.249	0.0204	1.781
Gender: (Male)				
Female	-0.385	0.147	0.0086	0.680
Marital Status: (Unmarried)				
Married	0.411	0.135	0.0022	1.509
Education: (Post college)				
High school drop/grad	-0.839	0.239	0.0005	0.432
Some college	0.225	0.181	0.2147	1.252
College graduate	-0.265	0.200	0.1857	0.767
Employment: (Not working)				
Self-employed	0.437	0.233	0.0606	1.548
Full/Part-time working	0.071	0.182	0.6955	1.074
Homeownership: (Renters)				
Homeowners	-0.163	0.148	0.2732	0.850
Income Levels: ($100,000 or more)				
Less than $25,000	0.407	0.246	0.0980	1.503
$25,000 - $49,999	0.481	0.211	0.0224	1.618
$50,000 - $74,999	0.211	0.211	0.3156	1.235

$75,000 - $99,999	0.017	0.187	0.9291	1.017
Risk Tolerance Attitude: (Low tolerance)				
High risk tolerance	0.627	0.152	<.0001	1.870
Intercept	-0.933	0.593	0.1158	
-2 Log likelihood	1864.119			
χ^2 =	370.2267			

Note. Weighted results.

Among the coefficients associated with education levels, only the coefficient associated with high school dropouts/graduates was statistically significant, indicating that those with a high school graduate/drop out was less likely to be delinquent on their student loan compared to those with a post college education (Odds Ratio=0.432, p=0.0005).

Considering income levels, individuals making $25,000 - $49,999 were more likely to be delinquent on their student loan than those making $100,000 or more (Odds Ratio=1.618, p=0.0224). Individuals with high-risk tolerance were more likely to be delinquent on their student loan than those with low-risk tolerance (Odds Ratio=1.870, p<.0001). Table 10 also indicates that financial education participation, calculating one's future student loan payment, age/generation, working, and homeownership status were not significant factors in determining the likelihood of being delinquent on their student loan among student loan borrowers.

OLS Regression Results: Determinants of Financial Well-being among Student Loan Borrowers

Table 11 presents the OLS regression results regarding the determinants of student loan borrower financial well-being, such as student loan delinquency, student loan characteristics, and socio-demographic factors. Financial well-being of student loan

borrowers was measured by responses to the question of how satisfied an individual was with their financial situation on a scale of 1(not at all satisfied) to 10 (extremely satisfied). This study hypothesized that those who are delinquent on their student loan would have lower levels of financial well-being than those who are not delinquent among student loan borrowers (Hypothesis 7). It is also hypothesized that student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) would be positively associated with levels of financial well-being (Hypothesis 8). Based on Table 11, with an Adj-R2=0.4327, F=66.60 (df=23), $p<.0001$, 43% of the variance in financial well-being among student loan borrowers was explained by the variables in this model.

Table 11 shows that, all else being equal, being delinquent on one's student loan payment was a significant determinant of financial well-being among student loan borrowers ($\beta=-0.245$, $p=0.062$). Student loan borrowers who held a student loan for a child or grandchild had significantly higher financial well-being than individuals who held a student loan for their spouse ($\beta=0.563$, $p<.001$). Those who calculated their future student loan payment ($\beta=0.861$, $p<.0001$) and were not concerned about their student loan ($\beta=0.480$, $p<.0001$) reported significantly greater financial well-being compared to student loan borrowers who did not calculate their payment or were concerned about repaying their student loan.

In this study, socio-demographic variables were included as controlling factors in predicting the levels of financial well-being among student loan borrowers. Table 11 shows that the coefficient associated with millennials was significant and positive.

Table 11.

OLS Results – Determinants of Financial Well-being among Student Loan Borrowers (n=1,979)

Variables	β	SE	P-value	b
Student Loan Delinquency: (No)				
Delinquency **(H7)**	-0.245	0.131	0.0618	-0.034
Student Loan Characteristics: (H8)				
Whose Loan: (Spouse)				
Self	-0.069	0.146	0.6364	-0.010
Children/Grand	0.563	0.172	0.0011	0.068
Calculate Payment: (Not calculated)				
Calculated	0.861	0.112	<.0001	0.142
Concern of Repayment: (Concerned)				
Not concerned	0.480	0.115	<.0001	0.080
Socio-Demographic Factors:				
Age/Generation: (Boomers, Age 54-72)				
Millennials, Age 18-37	0.080	0.190	<.0001	0.130
Gen Xers, Age 38-53	0.187	0.194	0.3367	-0.028
Race/Ethnicity: (White)				
Black	0.387	0.135	0.0042	0.055
Hispanic	-0.158	0.147	0.2820	-0.020
Asian/Other	-0.332	0.212	0.1166	-0.029
Gender: (Male)				
Female	-0.441	0.119	0.0002	-0.069
Marital Status: (Unmarried)				
Married	0.094	0.121	0.4370	0.015
Education: (Post college)				
High school drop/grad	0.942	0.188	<.0001	0.365
Some college	0.469	0.156	0.0027	0.078
College graduate	0.211	0.165	0.2003	0.030
Employment: (Not working)				
Self-employed	0.065	0.205	0.7534	0.006
Full/Part-time working	0.126	0.152	0.4085	0.019
Homeownership: (Renters)				
Homeowners	1.034	0.124	<.0001	0.164
Income Levels: ($100,000 or more)				
Less than $25,000	-1.256	0.207	<.0001	-0.151
$25,000 - $49,999	-1.145	0.178	<.0001	-0.148
$50,000 - $74,999	-0.561	0.172	0.0011	-0.070
$75,000 - $99,999	0.090	0.155	0.5608	0.013
Risk Tolerance Attitude: (Low tolerance)				
High risk tolerance	2.178	0.117	<.0001	0.367
Intercept	3.671	0.340	<.0001	
F	66.60			
Adj-R^2	0.4327			

Note. Weighted results.

This suggests that millennials reported higher levels of financial well-being than baby boomers among student loan borrowers. Black student loan borrowers reported higher levels of financial well-being than White student loan borrowers. Females had lower financial well-being than males, thus the variable of gender was significant and negative. Student loan borrowers with high school education or some college education had higher financial well-being than those with post college education.

Considering income, three of the income groups were significant and negative, suggesting that individuals making less than $25,000, $25,000 - $49,999, or $50,000 - $74,999 reported lower levels of financial well-being compared to those making $100,000 or more among student loan borrowers. Considering risk attitude, student loan borrowers with high-risk tolerance had higher levels of financial well-being than borrowers with low-risk tolerance. Marital status and employment status were not significant determinants of financial well-being among student loan borrowers.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND CONCLUSION

Discussion

As student loan debt grows across the country, it is important to understand who may be more likely to take on student loan debt, what factors could contribute to taking out a student loan, and how student loans influence one's financial well-being. The purpose of this study was to understand how financial education, financial literacy, and other factors play a role in the student loan decision. Furthermore, this study sought to explain how student loan characteristics, such as holding a student loan for one's self, calculating one's payment, being concerned with student loan payments, and being delinquent, could be related to financial well-being. This study found important results that are consistent with the findings in previous research on student loan use and behavior. The findings also provide important insights on unexplored components of student loan use.

Using descriptive analyses, it was possible to profile who is taking out student loans, to understand the behaviors of student loan borrowers, and to identify who among student loan borrowers has high financial well-being. Similar to the findings in the literature, this study found that relative to the whole sample, a greater proportion of student loan borrowers were millennials (Draut & Silva, 2004; Fry, 2012), Black (Addo et al., 2016; Jackson & Reynolds, 2013), male, single unmarried (Gicheva, 2016), had some college education (Looney & Yannelis, 2015), were working full/part-time (Luong, 2010), and had high risk tolerance (Lucarelli & Brighetti, 2010). Compared to non-

student loan borrowers, a larger proportion of student loan borrowers were renters and individuals with an income of $75,000 - $100,000. Renting is becoming more common with the growth of the housing market. In terms of income, the student loan crisis may be growing beyond those with low-income and expanding to the middle class.

Surprisingly, we found that a greater proportion of student loan borrowers received financial education as compared to non-student loan borrowers. However, they reported lower levels of financial literacy and financial well-being (Cherney et al., 2020; Elliott & Lewis, 2015; Gutter & Copur, 2011). It could be concerning that more student loan borrowers seemed to be receiving financial education compared to non-student loan borrowers, as someone might assume that receiving more financial education could help deter an individual from taking out student loans. It could be that individuals have weighed the pros and cons of student loan use and feel student loans could be beneficial.

Considering the foundations of the conceptual framework used to guide this study, it was also important to understand to what extent people in the US participated in financial education and their levels of financial literacy. Some of the main socio-demographic groups who participated in financial education included millennials, baby boomers, Whites, males, those with some college education or college graduates, those working full/part-time, and those with an income of $100,000 or more. Concerning financial literacy, socio-demographic groups who reported the highest levels of financial literacy were baby boomers, Whites, Asians/Others, males, married individuals, college graduates and post-college graduates, homeowners, and those with an income of $75,000 - $99,999 or $100,000 or more.

These borrower characteristics can help us to better understand who is currently participating in financial education and what groups may experience the most financial literacy. The results of the two were similar, which could be influenced by the relationship between financial education and financial literacy as discussed by the Huston model (2010). These profiles outline that those in majority groups, older individuals, Whites, males, those with high education, and those with greater income, seem to have participated in financial education and have higher levels of financial literacy. This could be due to a combination of greater access/ease of access for these majority groups and their personal life situations that may provide greater financial growth and experience.

Among student loan borrowers, the majority held a student loan for themselves. This included a small percentage of baby boomers, individuals ages 54-72. It could be that these are either individuals who are still in student loan repayment after many years, or they have taken the opportunity later in life to return to school and further their education. More student loan borrowers also calculated their future loan payments and were concerned about repaying their student loan. These financial behaviors are becoming more common and could contribute to the lower percentage of student loan borrowers who reported being delinquent on their student loan payments (Andruska et al., 2014; Chan et al., 2012; Montalto et al., 2019). Compared to non-student loan borrowers, student loan borrowers reported lower levels of financial well-being, which could be related to holding a student loan as well as other financial behaviors, such as holding other debts or budgeting, of student loan borrowers (Cherney et al., 2020; Sabri, 2011).

When examining the financial well-being of student loan borrowers, socio-demographic characteristics played a large role in greater financial well-being. It seemed

that, compared to low or medium levels of financial well-being, a greater proportion of those with high financial well-being were millennials, Blacks, males, unmarried individuals, those with some college education, self-employed homeowners, made $75,000 - $99,999 and had high risk tolerance. While this study did not delve deeper into the socio-demographic difference among student loan borrowers and their influences, it is important to note that student loan borrower socio-demographics seem to play a role in an individual's financial well-being beyond the loan.

Table 12 presents summary results of the study hypotheses. This study developed these eight hypotheses based on literature on the student loan topic as well as the conceptual framework of financial literacy and financial well-being developed by Huston (2010). These hypotheses examined similar factors to Huston's conceptual framework, walking through the influences and relationships of financial education, financial literacy, financial and student loan behaviors, socio-demographic and personal factors, and financial well-being. By utilizing Huston's financial well-being model, this study was able to build on previous groundwork and understandings of these financial factors and focus on how the use of student loans and the characteristics of student loan borrowers could be found in the Huston's map to financial well-being. The findings of this study further support the interactions that Huston discussed, as the hypotheses of this study indicate that there are significant relationships between financial education, financial literacy, student loan use, socio-demographic and personal factors, student loan characteristics and behaviors, and financial well-being.

Table 12.

Summary Results of Hypotheses

H1: Those who participated in financial education will have higher levels of financial literacy than those who did not participate in financial education.	*Supported*
H2: Participating in financial education will be associated with taking out a student loan.	*Supported*
H3: Those with high levels of financial literacy will be less likely to take out a student loan than those with low levels of financial literacy.	*Partially Supported*
H4: Socio-demographic and personal factors will be associated with taking out a student loan.	*Partially Supported*
H5: Those with low levels of financial literacy will be more likely to be delinquent on their student loan than those with high levels of financial literacy among student loan borrowers.	*Supported*
H6: Student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) will be associated with student loan delinquency among student loan borrowers.	*Partially Supported*
H7: Those who are delinquent on their student loan payment will have lower levels of financial well-being than those who are not delinquent on their student loan payment among student loan borrowers.	*Supported*
H8: Financial well-being will vary by student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) among student loan borrowers.	*Partially Supported*

Financial Literacy

In this study, Hypothesis 1, that those who participated in financial education would be more likely to have financial literacy than those who did not participate in financial education, was proposed to examine the association between financial education and financial literacy. Financial education and knowledge are components of an

individual's financial literacy; thus, it is important to understand exactly how financial education could influence levels of financial literacy. Hypothesis 1 was supported, as those who participated in financial education reported higher levels of financial literacy than those who did not participate in financial education.

Previous literature examined in this study presented conflicting results on the effectiveness of financial education. Studies such as Varcoe et al. (2005), Walstad et al. (2010), and Xiao et al. (2020) found positive impacts of financial education on financial literacy, with formal financial education increasing financial literacy and positive financial behaviors. On the other hand, Mandell (2008) and Fernandes et al. (2014) found little or no impact from financial education on one's level of financial literacy. As some studies discussed, this conflict could be due to the lack of national financial education standards and requirements, specifically in school programs (Fox et al., 2005; Hathaway & Khatiwada, 2008). It could be necessary to expand the reach of financial education programs and ensure that financial educators are properly trained to such standards.

The Student Loan Decision

While some may initially think that financial education could deter or reduce one's use of debt, such as student loans, previous studies found that individuals who participated in financial education were more likely to take out a student loan (Booij et al., 2012, Johnson et al., 2016, Markle, 2019). This study sought to determine if this interesting result was true and understand why this may be the case. Thus, Hypothesis 2 of this study was proposed, that participating in financial education would be associated with taking out a student loan. Hypothesis 2 was supported, as participating in financial education increased one's likelihood of taking out a student loan.

While it may seem contradictory that more financial education could be related to an individual choosing to take out student loans, taking out student loans may be influenced by other factors outside of financial education. Specifically, the cost of a college education has risen beyond the personal financial resources of most individuals (Akers & Chingos, 2014; Fry, 2012). While students may have the knowledge and understanding of positive financial behaviors, debts, and even student loans, having this information may not prevent them from pursing a college education at the expense of student loans. For many individuals, the value of a college education could outweigh the cost (Hess et al., 1994). If student loans can help an individual obtain a college education that could open many career opportunities, it may feel worth the debt.

One can also consider what kinds of financial education are offered. As previously discussed, many school financial education programs prior to college may be lacking substantial student loan information (Fernandes et al., 2014; Mandell, 2008). Individuals may be unfamiliar with the details and terms of the student loans there are obtaining. Furthermore, the required student loan entrance counseling provides only a brief overview of the complicated nature of student loans. While the Federal Student Aid website states that entrance counseling can help an individual learn more about how their loan works, the website also states that this version of student loan education only takes about 30 minutes and is completed in one sitting (Federal Student Aid, 2021e).

Unlike financial education, financial literacy requires the application of one's financial knowledge. Therefore, it is important to examine financial literacy as a separate component of financial decision making. Hypothesis 3 of this study examined how levels of financial literacy could be related to taking out a student loan, specifically it was

hypothesized that those with high levels of financial literacy would be less likely to take out a student loan than those with low levels of financial literacy. In this study, financial literacy was composed of six components, including objective financial knowledge, subjective financial knowledge, financial capability, financial self-efficacy, budgeting, and having an emergency savings. Of these six components, objective financial knowledge, financial capability, budgeting, and emergency savings were significant factors negatively associated with taking out a student loan. Thus, Hypothesis 3 was partially supported.

When understanding the results of Hypotheses 2 and 3, some may wonder why those with financial education were more likely to take out a student loan whereas those with financial literacy were less likely to take out a student loan. While financial education provides individuals with knowledge and resources on various financial topics, financial literacy has been defined as not only having financial knowledge, but also the capability to apply financial knowledge in the appropriate situations (Huston, 2010; Lind et al., 2020). Objective financial knowledge is the factual financial information an individual learns and retains, while budgeting and emergency savings are ways individuals apply financial knowledge to financial behaviors. Individuals who take their financial knowledge and apply it towards their financial decisions and behaviors could be more inclined to consider the use of student loans more thoroughly and could seek out other resources to pay for college. Because these individuals have greater levels of financial literacy, it could be possible that they are making different decisions in their financial management, not just about student loans, that allow them to be prepared for a financial bypass such as taking out student loans.

As a part of this study, it was important to understand the associations with taking out a student loan among financial factors as well as socio-demographic and personal factors. Hypothesis 4 proposed that socio-demographic and personal factors would be associated with taking out a student loan. There were many socio-demographic factors related to taking out a student loan; however, homeownership was not a significant factor. Thus, Hypothesis 4 was partially supported. Among socio-demographic factors, it is important to note that both millennials and Generation Xers were more likely to take out a student loan than baby boomers. This is likely due to the constantly rising cost of college, which has increased immensely for the millennial generation (Draut & Silva, 2004; Fry, 2012). The environment in which each generation attended college in could also influence the student loan issue, as many factors changed, such as the job market for young adults, expectations of family support beyond high school, and opportunities for scholarship and grant assistance.

The findings of this study suggested that both Blacks and Hispanics were more likely than Whites to take out a student loan. These minority groups have been discussed in previous research, as they may come from a background with less community, educational, and financial resources (Addo et al., 2016; Jackson & Reynolds, 2013). It could be more difficult for them to try and attend college without the help of student loans. On the other hand, Asians/Others were less likely to take out a student loan than Whites. In some cultures, education is a top priority, and families may remain more involved in educational decisions in order to help their child to attend school (Ouyang et al., 2019).

Another socio-demographic factor related to taking out a student loan was formal education, as those with less formal education were less likely to take out a student loan compared to those with post-college education. Pursing a post-college degree often requires more financial resources, and as stated in previous literature, student loans may deter individuals from obtaining higher education beyond a bachelor's degree (Britt et al., 2017). Individuals working full/part-time were more likely to take out a student loan than non-working individuals. This result could reflect the human capital concept that individuals use education to expand their careers (Becker, 1975; Hess et al., 1994; Schultz, 1961). Those working may feel a desire to improve in their career, whether it be climbing the ladder in a current position or obtaining education to enter a different field of work. This could lead to individuals pursing a college education, more than likely with the help of student loans.

Considering income, those making $75,000 – $99,999 were more likely to take out a student loan than those making $100,000 or more. The student loan crisis is reaching beyond low-income groups, as many middle-class households also turn to student loans to send children to school (Baker et al., 2017; Luna-Torres et al., 2018). As the economy has changed over recent decades, inflation and other factors have increased everyday living expenses. Making $75,000 once seemed successful and wealthy; however, now the income category seems to have shifted to the lower end of the middle class. Regarding another factor in this study, as previously discussed in the literature, individuals with a high-risk tolerance were more likely to take out a student loan, likely due to their greater risk-taking behaviors and possibly greater comfort taking on debts (Lee et al., 2018; Lucarelli & Brighetti, 2010; Sung & Hanna, 1996).

Student Loan Delinquency

Making one's debt payments on time is an important positive financial behavior, which could be related to one's financial literacy skills (Lusardi & Mitchell, 2007; Xiao et al., 2020). Hypothesis 5, that those with low levels of financial literacy would be more likely to be delinquent on their student loan than those with high levels of financial literacy among student loan borrowers, was supported, as those with low levels of financial literacy were more likely to be delinquent on their student loan than those with high levels of financial literacy among student loan borrowers. Because financial literacy is a combination of having financial knowledge and applying it in the appropriate situation, making a payment on time such as a student loan payment could be directly related to one's level of financial literacy (Dudley, 2018; Huston, 2010; Mangrum, 2021). Making one's bill payments on time is an important part of positive financial management. Financial literacy could play an important role in the student loan decision and student loan behavior, as this study found it was significant in both taking out a student loan and student loan repayment.

The characteristics of the student loan itself and the student loan borrower could play a role in whether or not an individual is delinquent on their student loan. Hypothesis 6 sought to understand how these characteristics could be related to a student loan borrower's financial well-being. Hypothesis 6 states that student loan characteristics (whose loan, figure out payments before decision, concern repaying student loan) would be associated with student loan delinquency among student loan borrowers. Hypothesis 6 was partially supported, as who the loan was for and concern over loan repayment were

significant factors in determining if a student loan borrower was delinquent on their student loan payment.

Holding a student loan for one's self indicated that an individual could be more likely to be delinquent on their student loan than holding a loan for a spouse. On the other hand, student loan borrowers who were not concerned with their loan repayment were less likely to be delinquent on their student loan than those concerned about their loan payment. It could be possible that the concern for repayment stems from personal income and financial behaviors (Dudley, 2018; Hillman, 2014; Mangrum, 2021). Stress and anxiety could be a part of one's concern over student loan repayment, increasing an individual's negative financial behaviors (Britt et al., 2017; Huston, 2012; Fan & Chatterjee, 2019; Walsemann et al., 2015). Many other socio-demographic factors, such as race, education, and income also increased one's likelihood in being delinquent on a student loan. Personal factors and circumstances likely play a large part in one's financial management and their ability to repay debts such as a student loan.

Financial Well-Being

Financial well-being is an important part of one's financial life, regardless of whether or not they are a student loan borrower. Financial well-being is a culminating feeling of one's financial management skills, decision making, and financial health. This study examined the perception of one's financial well-being, or the respondent's own thoughts about their financial well-being. Debt management and repayment can be large factors in one's financial health and well-being. Specifically, among student loan borrowers, it can be important to understand how student loan repayment could influence their financial well-being.

One of the key objectives of this study was to explore how student loan delinquency influenced one's financial well-being. This study found that individuals who were delinquent on their student loan had significantly different financial well-being compared to individuals who made their student loan payment on time, thus, Hypothesis 7 was supported. Financial management and financial stress are important components of financial well-being. It could be that as individuals mismanage their student loan debt and become overwhelmed with it, their financial well-being as a student loan borrower decreases (Chan et al., 2012; Cherney et al., 2020; Walsemann et al., 2015). Furthermore, various kinds of debt, including student loan debt, have been found to influence financial well-being, and becoming delinquent could further decrease a borrower's financial well-being (Elliott & Lewis, 2015; Gutter & Copur, 2011; Luong, 2010).

Among student loan borrowers, there are important characteristics that can play a part in their student loan management and financial well-being. It is important to understand who is holding the loan and who the loan is for, as it can be related to the individual's purpose of taking out a student loan. Whether the borrower calculated their payment can prepare their financial plan for their student loan. Having concern for one's student loan payment can influence one's financial stress and financial well-being. Hypothesis 8 proposed that the level of financial well-being could vary by the student loan characteristics of the borrower, such as who the borrower held the loan for, whether the borrower calculated their payment, and if the borrower was concerned with their payment.

Considering who the borrower held the loan for, holding a loan for themselves was not significantly different than holding a loan for one's spouse in terms of financial

well-being. However, holding a student loan for one's child or grandchild indicated a greater perception of financial well-being than compared to holding the loan for one's spouse. Thus, Hypothesis 8 was partially supported. It could be that holding a loan for a child or grandchild feels may be expected of some households, as parents support their children through their education (Flaster, 2018; Friedline et al., 2017).

Calculating one's student loan payment is an important aspect of financial management, as it can help an individual prepare their finances to best handle their student loan. Those who calculated their student loan payment and were not concerned about repayment also had greater levels of financial well-being compared to those who did not calculate their payment or were concerned about their loan. There could be other factors that play a role in this relationship, such as financial knowledge, behaviors, and resources that allow an individual to properly manage and repay their student loan (Dudley, 2018; Mangrum, 2021; Shim et al., 2009). In this way, they could experience greater financial well-being.

While the socio-demographic determinants of financial well-being were not tied to a hypothesis in this study, the results are still important to discuss in order to understand which groups may be struggling or thriving in terms of financial well-being. For example, Black individuals actually had greater financial well-being compared to Whites, which could indicate a difference in financial priorities and how different individuals and cultures may interpret important financial decisions and assets. Females had lower levels of financial well-being than males, which could be related to the financial differences the gender has experienced (Chen & Volpe, 1998; Lusardi, 2008; Miller, 2017). Education and income were also significant factors in determining

financial well-being. While previous research has indicated that higher income can be related to financial well-being, some lower levels of education were significant indicators of higher financial well-being. It could be that more individuals decide that a college education is not necessary to be considered successful or happy in one's finances and life (Cherney et al., 2020).

Limitations and Direction for Future Research

There were some limitations to this study that should be considered. First, the data set that was used for this research was the 2018 National Financial Capability Study (NFCS). This survey included various questions related to financial education, financial literacy, student loan behaviors, and financial well-being. Having financial education could play an important role in student loan decisions. However, there were only a handful of questions that specifically asked about financial education and the student loan decision and behaviors. The NFCS data set did not include survey questions regarding family financial socialization, which is important for young adults preparing to make the student loan decision. Further, the data also did not include specific types of student loans or amounts of student loan debt, which can influence an individual's student loan payment, interest rate, and length of the loan term.

Second, this cross-sectional data does not provide a completely accurate timeline for the student loan decision, student loan repayments, and financial well-being. Some respondents may have recently taken out student loans, while others may have taken out student loans two or three decades ago. While this secondary data may lack specific questions to better understand the proposed topics, the NFCS is a detailed, expansive

financial survey that provides more data on financial behaviors and factors than other current datasets in the field of personal and family finances.

Results from this study indicated some significant relationships between socio-demographic factors, the student loan decision, student loan characteristics, and financial well-being. Due to the focus of this study of student loans and financial well-being, it did not further examine and attempt to explain some of these important results related to socio-demographic characteristics. Future research could seek to shift the focus of this conceptual framework and the considered variables to socio-demographic characteristics in order to develop a better understanding of what groups may or may not need more assistance and help regarding student loan use, behaviors, and financial well-being.

In addition, future research could attempt to resolve the other limitations addressed by conducting primary data surveys that ask more detailed questions on the student loan decision, family financial socialization, the type and amount of student loan debt held, and student loan repayment behavior. For example, a future study could focus on individuals more closely related to the student loan decision, such as individuals and families of high school and college students. Finally, further examining family financial socialization and student loan financial education programs could provide a better understanding of what financial knowledge individuals have before they make the student loan decision.

Implications

The variables examined in this study, such as financial education, financial literacy, student loan use, and student loan characteristics, are all important components of one's financial behavior and well-being, specifically for student loan borrowers. This

study was developed with the purpose of providing crucial findings and knowledge to aid financial educators, financial counselors, and policy makers. It is critical that research such as this be implemented by professionals in the financial and student loan field in order to attempt to do what is best for student loan borrowers and provide as much information about the use and impact of student loans as possible. Specifically, financial educators can play an important part in the development and application of an individual's financial knowledge and financial literacy.

Financial Educators

A main factor examined in this study was financial education and the impact of financial education on financial literacy and the student loan decision. Financial education was found to positively influence financial literacy, one's ability to not only have financial knowledge but also know when to apply it. In developing their model of financial literacy and financial well-being, Huston (2010) explained that financial literacy required application of financial knowledge. Financial educators can continue to help this trend by incorporating scenarios and real-life examples in to curriculum that could help their students understand when to employ their financial knowledge. By increasing an individual's financial literacy through financial education, financial educators can prepare individuals to properly manage their personal finances.

Financial education participation was also positively related to taking out a student loan. As discussed, a college education may be becoming so expensive that, regardless of an individual's awareness about the dangers of debt, student loans are necessary in order to achieve higher education. Financial educators can do their best to prepare individuals and families for the student loan decision by providing them with as

much information possible about student loans and other financial resources to attend college. Financial educators could expand their reach and seek to provide more student loan and college specific education to graduating high school and current college students as well as their families.

This study also found that some socio-demographic groups, for instance ethnic minorities such as Black and Hispanic individuals, millennials, Gen-xers, females, those working full/part-time, those with low-middle income, and others were more likely to take out student loans and less likely to have high levels of financial literacy or financial well-being. It could be important for financial educators to provide additional financial education access to these individuals, through materials, community classes, resources, and more. The farther financial educators can reach, the more individuals they are helping each day to improve their financial situation and financial well-being.

Financial Counselors

This study found that student loan characteristics, such as who the student loan was for, and if they were concerned about their student loan payments, influenced an individual's student loan repayment. Financial counselors play an active role in how individuals handle current financial situations. They can often provide useful strategies for repayment and methods that can decrease financial stresses and concerns. Financial counselors should take care to address student loans with their clients and help clients to calculate their student loan payments, understand the loan terms, and how the loan plays into their overall financial management in order to reduce the borrower's concern over the loan.

Financial well-being is another vital component in financial management and health. In this study, it was also found that student loan delinquency and student loan characteristics influenced a student loan borrower's financial well-being. Financial counselors could teach their clients strategies manage financial situations such as student loans and develop greater financial well-being. While having a student loan may be becoming unavoidable, financial counselors can support clients handling their loans and help plan student loan payments in order to reduce concern with repayment and increase financial well-being possible while holding a student loan. This study found that student loan borrowers had significantly lower levels of financial well-being compared to non-student loan borrowers, so financial counselors could share alternative financial opportunities and resource for families who may be planning for college in the future.

Another characteristic related to student loan use and delinquency was high risk tolerance. This study found that, among student loan borrowers, risk tolerance significantly increased the likelihood of being delinquent on a student loan. Individuals with high risk tolerance may be more prone to making dangerous financial decisions. It could be beneficial for financial counselors to discuss the pros and cons of financial decisions with clients who have high risk tolerance. In this way, these individuals may be more aware of the impacts their financial decisions could have on behaviors such as taking out a student loan and student loan delinquency.

Policy Makers

While this study examined which individuals were more likely to take out a student loan and the characteristics of student loan borrowers, it also revealed interesting information about what factors could influence the student loan decision. For example,

individuals with financial education were actually more likely to take out a student loan than those without financial education. This could be due to low-quality financial education programs, little material related to student loans within financial education programs, or even a lack of financial resources for college beyond student loans. Student loans may seem like the "best" option or solution for the individual. The student loan crisis and college tuition are growing at a rate with which the average household cannot maintain pace. Policy makers need to work together and consider various options in order to take significant steps in tackling the student loan crisis. While many individuals are asking what the government will do about the current student loan debt, such as student loan forgiveness, it does not address increasing college expenses or prevent future student loan issues for potential student loan borrowers.

Policy makers need to discuss strategies to manage the growth of college tuition, as it continues to increase faster than the average salary and inflation rates. Without addressing the growth of college costs, even if the current student loan debt is forgiven, student loans will remain the main resource families use to attend school. In this way, student loan debt will grow all over again and will continue to increase at an accelerated rate.

Along with policy on college costs and tuition rates, policy makers could address student loan policy and scholarship and grant opportunities. Incoming college students often do not get the information necessary about federal grants, scholarships, and other resources beyond student loans. Many students apply for numerous scholarships and do not receive any funding due to low grades or limited community involvement, often due to personal situations and issues such as working while in high school or caring for

family members. While these requirements may be expected and sometimes necessary for private scholarships, community and government scholarships could seek to expand their acceptance to individuals who may not meet higher criteria due to personal situations rather than a lack of effort.

While financial education participation was more common among student loan borrowers, financial education participation also increased an individual's level of financial literacy. Financial literacy was a vital component of the student loan decision, student loan characteristics, and financial well-being. Only about 33% of the study sample reported participating in financial education. Policy makers should seek to expand financial education opportunities and courses in school and communities, as well as incorporate financial literacy education in order to increase financial literacy rates.

As addressed in previous literature and the current study, the requirements and standards of financial education may vary across programs. It could be important to implement more harmonious standards for school and community financial education programs. Policy makers should seek to establish financial education criteria for all age groups as well as provide courses and information for financial educators as well to ensure that they are qualified and prepared to educate future and current student loan borrowers as well as other individuals. Huston (2010) expressed that financial literacy education is not "one-size-fits-all" and that people in different situations, stages in life, and with different financial backgrounds need individualized financial literacy education. In expanding and coordinating financial education access and standards, policy makes could also expand the types of financial education courses that are provided to help further improve financial education.

Conclusion

Student loan debt is a seemingly never-ending topic of conversation among financial professionals, policy makers, and even the average individual considering attending school. However, the conversation can often feel like less of a decision on whether to take out a student loan and more a discussion of when and how much. College costs in the United States continue to rise, yet more individuals than ever seem eager to obtain a college degree either for themselves or their career (Baker et al., 2017; Cho et al., 2015; Johnson et al., 2016; Johnstone, 2005).

This study sought to tackle the challenge of understanding student loan use, and the impacts of holding student loans and student loan characteristics on an individual's financial well-being among student loan borrowers. Using data from the 2018 National Financial Capability Study (NFCS), this study found how participation in financial education, financial literacy, and socio-demographic factors were associated with student loan decision making as well as how these factors and student loan repayment behaviors could influence financial well-being among student loan borrowers.

While a college education can play a role in an individual's well-being by building on their human capital, the debt that comes along with it may have a negative impact on one's financial well-being. It can be important for researchers and financial practitioners to consider what factors play a role in one's financial well-being and develop more education and skills that could help the individual and families to improve their financial well-being. The current study revealed important information in terms of student loan use, such as individuals who participated in financial education were more likely to take out a student loan, while those who had greater levels of financial literacy

were less likely to take out a student loan. Some socio-demographic groups (e.g., millennials, Black or Hispanic individuals, or women) were also more prone to take out student loans, which could indicate a need for more targeted financial assistance and guidance for individuals looking to attend college.

Overall, this study sought to expand on the current body of literature financial educators, professionals, and policy makers have access to regarding student loan borrowers. Currently, there is not a permanent solution for the student loan issue and increasing college costs. Thus, it is important that researchers and financial experts work together, even with individuals and families to increase student loan information and awareness for individuals who have or will take out a student loan. Committing to the debt of a student loans may not feel as overwhelming as other debts due to the role they play in getting a college education. However, they are a debt individuals carry for decades that does little to improve their financial situation, but rather, can add to one's financial stress and burden.

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Appendices

Appendix A.

Key Variables of Conceptual Framework in Survey Questions from 2018 NFCS

Key Variables	Questions	Responses
Financial Education		
Financial Education Participation	Was financial education offered by a school or college you attended, or a workplace where you were employed? (M20)	1 = Yes, but I did not participate in the financial education 2 = Yes, and I did participate in the financial education 3 = No
Financial Education Source	When did you receive that financial education? – In high school (M21_1) In college [2015 base] (M21_2) From an employer (M21_3)	M21_1 = Yes M21_1 = No M21_2 = Yes M21_2 = No M21_3= Yes M21_3 = No
Human Capital/Financial Literacy		
Objective Financial Knowledge	Measured by summing the correct answers for the six financial literacy questions, including numeracy (M6), inflation (M7), bonds (M8), mortgage (M9), stock diversification (M10), and compound interest (M31).	
Numeracy	Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? (M6)	**1 = More than $102** 2 = Exactly $102 3 = Less than $102
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? (M7)	1 = More than today 2 = Exactly the same **3 = Less than today**
Bonds	If interest rates rise, what will typically happen to bond prices? (M8)	1 = They will rise **2 = They will fall** 3 = They will stay the same

		4 = There is no relationship between bond prices and the interest
Mortgage	A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. (M9)	**1 = True** 2 = False
Investment	Buying a single company's stock usually provides a safer return than a stock mutual fund. (M10)	1 = True **2 = False**
Compound Interest rate on loan	Suppose you owe $1,000 on a loan and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double? (M31)	1 = Less than 2 years **2 = At least 2 years but less than 5 years** 3 = At least 5 years but less than 10 years 4 = At least 10 years
Subjective Financial Knowledge	On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge (M4)	1 = Very Low 7 = Very High
Financial Self-Efficacy	If you were to set a financial goal for yourself today, how confident are you in your ability to achieve it? (J43)	1 = Not at all confident, Not very confident 2 = Somewhat confident, Very confident
Financial Capability	How strongly do you agree or disagree with the following statements? – I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses (M1_1)	1 = Strongly Disagree 7 = Strongly Agree
Budgeting	Over the past year, would you say your [household's] spending was less than, more than, or about equal to your [household's] income? (J3)	1 = Spending less than income 2 = Spending more than income 3 = Spending about equal to income
Emergency Savings	Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies? (J5)	1 = Yes 2 = No
Financial Behaviors		

Student Loan Decision	Do you currently have any student loans? If so, for whose education was this/were these loan(s) taken out? – Yourself (G30_1) Your spouse/partner (G30_2) Your child(ren) (G30_3) Your grandchild(ren) (G30_4) Other person (G30_5) No, do not currently have any student loans (G30_97)	1 = Yes if responded to holding student loan for any category 0 = No if no response to any category
Student Loan Repayment Behavior	How many times have you been late with a student loan payment in the past 12 months? (G35)	1 = More than once 2 = Never, payments are not due on my loans at this time; or Never, I have been repaying on time each month; or delayed in payment once
Student Loan Characteristics		
Whose Loan	Do you currently have any student loans? If so, for whose education was this/were these loan(s) taken out? – (G30_1, G30_2, G30_3)	(G30_1) = 1, then your loan (G30_2) = 1, then your spouse/partner loan (G30_3) = 1, then your child(ren) loan
Calculate Future Payment	Before you got your most recent student loan, did you try to figure out how much your monthly payments would be? (G33)	1 = Yes 2 = No
Concern	Are you concerned that you might not be able to pay off your student loans? [2015 base] (G22_2015)	1 = Yes 2 = No
Cultural Factors		
Race/Ethnicity	Which of the following best describes your race or ethnicity? – (A4a)	1 = White or Caucasian 2 = Black or African-American 3 = Hispanic or Latino/a 4 = Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, or Other
Age/Generation	What is your age? (2012 codes) (A3A)	Continuous, R's age ranges 18 - 93
Personal Factors		
Gender	What is your gender? (A3)	1 = Male 2 = Female

Marital Status	What is your marital status? (A7a)	1 = Married 2 = Single, Separated, Divorced, Widowed/widower
Formal Education	What was the highest level of education that you completed? [2015 codes] (A5_2015)	1 = Did not complete high school, High school graduate - regular high school diploma, High school graduate - GED or alternative credential 2 = Some college, no degree, Associate's degree 3 = Bachelor's degree 4 = Post graduate degree
Employment Status	Which of the following best describes your current employment or work status? (A9)	1 = Self-employed 2 = Work full-time for an employer [or the military], Work part-time for an employer [or the military] 3 = Homemaker, full-time student, permanently sick, disabled, or unable to work, unemployed or temporarily laid off, retired
Homeownership Status	Do you [or your spouse/partner] currently own your home? (EA_1)	1 = Homeowners 2 = Renters
Income	What is your [household's] approximate annual income, including wages, tips, investment income, public assistance, income from retirement plans, etc.? (A8)	1 = Less than $15,000, At least $15,000 but less than $25,000 2 = At least $25,000 but less than $35,000, At least $35,000 but less than $50,000 3 = At least $50,000 but less than $75,000 4 = At least $75,000 but less than $100,000 5 = At least $100,000 but less than $150,000, $150,000 or more
Risk Tolerance	When thinking of your financial investments, how willing are you to take risks? (J2)	1 = Not At All Willing 10 = Very Willing
Financial Well-Being		

	Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition? (J1)	1 = Not At All Satisfied 10 = Extremely Satisfied