Student loan debt use and awareness: A social learning approach

by

Kristen E. Stutz

B.A., University of California, San Diego, 1994
M.S., San Francisco State University, 2002

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Personal Financial Planning
School of Family Studies and Human Services
College of Health and Human Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

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Abstract

Earning a bachelor's degree is still a wise economic decision as college graduates have lower unemployment rates and higher weekly income averages than their high school graduate counterparts (Torpey, 2018). However, when students must go into debt to finance this opportunity, the clarity of these benefits becomes economically, personally, and socially more convoluted, and the question arises whether college students have sufficient financial literacy and social capital to make the complex financial decisions related to college financing. While studies have explored students' perception of their debt after they have graduated (Baum & O'Malley, 2003; Baum & Saunders, 1998), it can also be useful to explore students' perceptions of debt while in school. Using a social learning theoretical lens and a focus on first-generation college students, this study attempts to explore how students use and view their student loan debt at the point-in-time that they are making their student loan debt level decision. To achieve this, three empirical models were developed to explore relationships between environmental and internal factors and student loan use, balance, and balance awareness. Results generally indicate that both subjective and objective financial need variables and financial anxiety consistently predicted student loan behaviors. Implications for student loan educators, front line student service providers, and policymakers are discussed.

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Approved by:

Major Professor
Sonya L. Lutter

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Chapter 1 - Introduction

A college education is perceived by high school students to be a pathway to increased job prospects, a higher income, and protection from unemployment (Perna, 2008). According to data from the U.S. Bureau of Labor Statistics, getting a college degree is a wise decision (Torpey, 2018). Individuals holding a bachelor's degree are almost half as likely to be unemployed when compared to high school graduates, and college graduates' median weekly income is $461 more than their high school graduate counterparts (Torpey, 2018). Choosing to attend college comes with many complex decisions to make outside of which major to choose and if one should live on campus. It can be argued that the decisions with the most long-standing consequences have to do with finances and the economic potential of the human capital being developed. The debate has intensified as to whether students are arriving to college with sufficient financial literacy to make the complex financial decisions before them (Anderson, Conzelmann, & Lacy, 2018). At the forefront of this discussion is the use of student loans. With the cost of tuition increasing faster than inflation at an average rate of 3.1% per year between 2008-2009 and 2018-2019 (Ma, Baum, Pender, & Libassi, 2018) and student loans funding up to 36% of college expenses (Baum, Ma, Pender, & Welch, 2016), financing higher education with student loans is a likely endeavor for those entering college. In fact, 65% of students graduating with a 4-year degree in 2017 had student loan debt, and the average amount of that debt was $28,650 (Institute for College Access & Success, 2018).

With close to two-thirds of students utilizing student loans to finance their college education (Institute for College Access & Success, 2018), it is important to acknowledge and examine the potential ramifications of acquiring this debt, especially since students look at college as an investment that will increase opportunity and life quality throughout the lifespan.

Although data point to the general success of the college investment (Torpey, 2018), the media is awash with individual stories of college graduates crippled by their student loan debt. While studies have explored students' perception of their debt after they have graduated (Baum & O'Malley, 2003; Baum & Saunders, 1998), it can also be useful to explore students' perceptions of debt while in school in order to contribute to our understanding so that educational services can be improved upon to better support students while they are making consequential student loan decisions. The current study attempts to explore how students view their student loan debt at the point-in-time that they are making their student loan debt level decision. Students' awareness of the debt they are taking on and the debt they already have should have an influence on the financial decisions they are making while in college. Decisions include which major to choose, where to live while in school, whether (and how much) to work while a student, the extra-curricular activities to engage in while in college, and how long to take to graduate.

At the aggregate level, there is some evidence that students and college graduates are either intentionally misrepresenting balances or are unaware of the level of student loan debt that they have secured. In a report by the Federal Reserve Bank of New York, Brown, Haughwout, Lee, and van der Klaauw (2013) compared aggregate self-report and lender-reported debt levels of consumers. Patterns for mortgage-related and vehicle debt were "strikingly" similar, but credit card and student loan debt differed among self-reported and lender-reported data. Aggregate student loan debt reported was 25% less than what was reported by lender sources. Credit card debt was underreported by between 37% and 40%. Even when taking into consideration research limitations and unaccounted for confounding variables, this difference in alignment between the self-report aggregate balances of secured debt (mortgages and vehicles) and unsecured debt (student loans and credit cards) should be explored (Brown et al., 2013).

Justification

College is a developmentally important time when students are managing more money and making more complex financial decisions than ever before. They are doing this while gaining more independence and individuating from parents or primary caregivers (Chickering, 1969). This combination of being faced with decisions that are more complex than previously encountered and burgeoning independence creates a vacuum of learning space in which effective teaching tools and support systems can have much influence. With debate centered on the long-term retention of financial education, an argument has been made that preparatory financial literacy education is not very effective in increasing positive financial behaviors later in life (Mandell & Klein, 2009). In a meta-analysis examining the connection between financial education and financial behaviors "downstream," Fernandes, Lynch, and Netemeyer (2014) concluded that "just-in-time" education that focuses on specific, in the moment financial decisions may be more effective than general financial education. If this is the case, financial decision-making support that colleges and universities offer to college students has great potential to influence at minimum the critical financial decisions that are being made in the moment, and at most, the financial habits, knowledge, and attitudes of students moving into adulthood.

Financial learning is practical learning. Making financial learning immediately relevant and practical, takes understanding the learner and meeting learners where they are. The financial socialization process that each student brings to college is unique and has been shaped by his or her environment (Solheim, Zuiker, & Levchenko, 2011). The more that can be understood about the environments in which students are being financially socialized and the ways that students are internalizing this financial learning will allow colleges and universities to deliver opportune

financial education in a format and level of relevance that assists with immediate financial decision making and broadens the foundation for future learning.

Financial decision making is a complex process that reflects many of the values and beliefs of the individual. For many years, the field of economics asserted rational choice theory (Simon, 1955) as the primary individual decision-making framework. More recently, behavioral economics has incorporated cognitive psychological theories to acknowledge and explore the seemingly irrational financial decision making of the individual. The purpose of the current study is to bridge these two approaches by shedding light on the cognitive processes of individual students from a social learning framework and finish with recommendations for personal finance curricula and support services that can facilitate optimum financial choices in college students.

Statement of Problem

With student loan debt a cornerstone of the modern college experience for so many students, it is important to understand the impacts of this debt before and after college graduation. Not surprisingly, student loan debt has been shown to be related to college student financial stress and anxiety levels. Before graduation, anticipated student loan debt is a better predictor of financial stress than actual student loan debt (Heckman, Lim, & Montalto, 2014; Morra, Regehr, & Ginsburg, 2008).

The matching of debt to anticipated income has received attention in the media as a contributor to the student loan problem. The increased focus on aligning major choice to debt accumulation has convinced some students to move into Science, Technology, Engineering, and Math (STEM) majors (Schmeiser, Stoddard, & Urban, 2015). A group of Montana State University and University of Montana students were sent a letter to the effect that they were amassing student debt loads that “may become difficult to repay” (Schmeiser et al., 2015, p. 2).

When compared to students with a similar level of debt who did not receive the letter and lower debt students who did not qualify to receive the letter, students who received the letter were two percentage points more likely to switch into majors with greater income potential (Schmeiser et al., 2015). This could have adverse effects on the lower-paid, but needed, occupations such as childcare, education, and other skilled fields.

After graduation, there is evidence that student loan debt is related to post-graduation career choices. In a natural experiment brought on by a highly selective university's policy to replace loans with grants, data showed that students affected by the no-debt policy were more likely to choose lower-paid "public interest" jobs after graduation than students before the policy change (Rothstein & Rouse, 2011). Additionally, there was no significant change in academic performance or choice in major before graduation because of the policy shift (Rothstein & Rouse, 2011).

Student loan debt has also been shown to have a relationship with the timing of key life events such as home buying, marriage, having children, and saving for retirement. In the first five years after graduation, Mezza, Ringo, Sherlund, and Sommer (2016) found student loan debt was related to lower homeownership rates and Houle and Berger (2015) found this effect more significant for young Black adults. Student loan debt had been associated with delayed marriage by women (Bozick & Estacion, 2014) and graduate students (Gicheva, 2016), and retirement savings delayed in the short term (Elliot, Grinstein-Weiss, & Nam, 2013). Delays in having children has been associated with student loan debt and is more pronounced as student loan balances increase (Nau, Dwyer, & Hodson, 2015). In an American Student Assistance (2015) national survey report titled, *Life Delayed: The Impact of Student Debt on the Daily Lives of Young Americans*, 55% of respondents with student loan debt said that the debt affected their

decision or ability to purchase a home, 62% indicated that they delayed saving for retirement, 21% delayed marriage, and 53% responded that student loan debt had a considerable impact on their career choice.

With consequences such as these, it is easy to see that students who underestimate or overestimate student loan debt while in school can suffer life-altering consequences. Students who underestimate student loan debt and potentially do not align the amount of student loans borrowed with their expected ability to repay them, could make riskier financial decisions while in school and delay some of life's milestones beyond what aligns with their ideal plan. Students who overestimate their student loan debt could choose majors that do not match their preference, suffer from financial stress and anxiety while in school, and make choices (i.e., increase work hours, forgo internships and study abroad opportunities) that negatively affect their marketability and earning potential when starting their career.

Purpose of the Study

This study focuses on traditional-aged college students which make up 73% of the undergraduate population (National Center for Education Statistics, 2017). The majority of the students who transition immediately into college and successfully graduate from college with a bachelor's degree usually do so in an average of 5.3 calendar years for public institution graduates and 4.8 calendar years for private non-profit graduates (Shapiro, Dundar, Wakhungu, Yuan, & Hwang, 2016). Because of their proximity to adolescence and dependence on parents or caregivers, it can be argued the nature and types of environmental influence experienced by traditional college students would be somewhat different than the environmental influences experienced by non-traditional college students. As this study is examining the relationship

between environmental and internal factors to student loan use and debt awareness, the focus will be on this more homogenous group.

A significant subset of traditional college students who are potentially more vulnerable to the negative effects of low student debt awareness are first-generation college students. By definition, first-generation college students are lacking the benefit of informed guidance from parents or caregivers who have successfully navigated all aspects of the college-going experience, including finding ways to cover the costs. First-generation college students are also disproportionally from historically disadvantaged racial and economic groups, and as such, experience obstacles to entry and persistence through college that are not as commonly experienced by continuing-generation students (Lohfink & Paulsen, 2005).

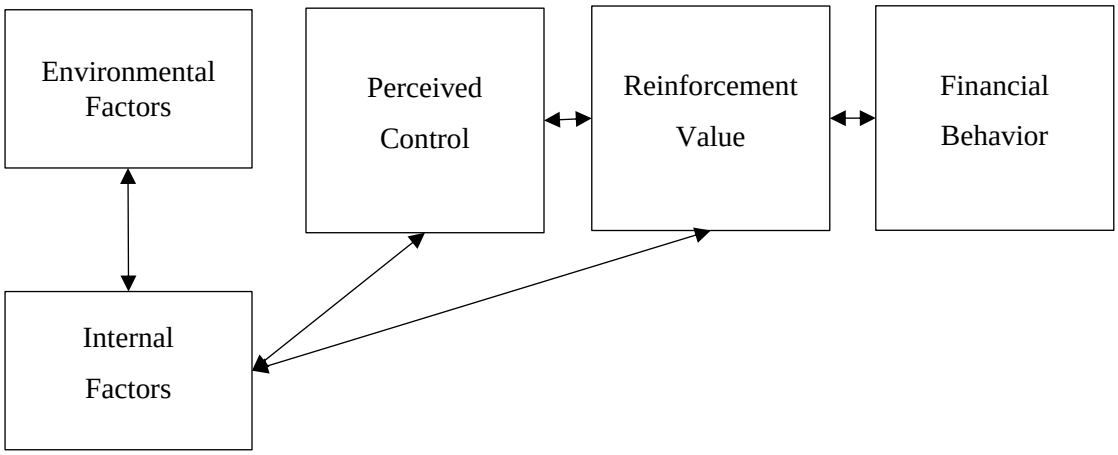
Although first-generation students experience obstacles to enrollment and graduation from college, they also have much to gain. Students who are most likely not to attend college due to socioeconomic factors gain the greatest increase in economic benefits over a lifetime due to earning a college degree (Brand & Xie, 2010). With almost 48% of first-year undergraduate students being first-generation college students (U.S. Department of Education, 2014), it is important to focus research on this population to build more understanding and services specialized to first-generation college student success. This study will include a focus on this significant group of students who have different environmental influences than their continuing-generation peers.

With the focus on traditionally-aged first-generation students, there are two primary objectives of this study. The first objective is to attempt to identify relationships between key cognitive and environmental variables and student loan debt awareness in order to build more understanding about how students conceptualize student loan debt. The second goal is to frame

student loan awareness through a social learning lens in order to add to the cognitive behavioral and financial socialization literature.

Since individual students have their own unique awareness and knowledge of student loans based on their learning experiences, attempting to identify influential relationships in this learning process is worthwhile. To explore debt awareness, a theoretical framework that outlines the building blocks of learning has been utilized (see Figure 1-1). First developed by Rotter (1954), social learning theory (SLT) builds on the tenants of behaviorism (environmental stimulus) and cognitive learning theories (internal processes) and asserts that people develop as the result of the constant interaction between the individual and the environment. Rotter also asserted that the environment and individual combine and produce an individual's expectancy or probability that a behavior will produce a certain outcome and that people put a personal value on that outcome—i.e., the reinforcement value. In other words, behavior or outcome is the function of expectancy and reinforcement value, both of which are subjective and result from the interaction of learning from one's external environment and then processing that learning with internal factors. This framework will be applied to this study by specifically examining the predictive ability of college student environmental factors, internal factors, and expectancy concepts to explain student loan debt balances and awareness.

Figure 1-1 A Conceptual Model of Social Learning



If the financial behaviors of traditional college students are being shaped by their environment and filtered through their internal cognitive factors, then it follows that to better understand this process, exploration of the relationships between specific environmental and internal factors and financial behaviors should occur. Because of the importance of student loans to college access, experience, and financial health (before and after college), this study focuses on student loan debt—both use of and awareness of debt.

Research Questions

Using the framework of social learning theory, the following research questions were developed to explore student loan debt levels and awareness.

$RQ_{1:}$ What is the relationship between environmental factors and student loan debt for traditional college students?

$RQ_{2:}$ What is the relationship between internal factors and student loan debt for traditional college students?

$RQ_{3:}$ Do first-generation college students differ from continuing-generation college students in the accumulation of student loan debt?

RQ_4: What is the relationship between environmental factors and student loan debt awareness among traditional college students?

RQ_5: What is the relationship between internal factors and student loan debt awareness among traditional college students?

RQ_6: Do first-generation college students differ from continuing-generation college students in student loan debt awareness?

Chapter 2 reviews student loan debt and awareness of debt, and further explains how the literature has examined environmental and internal factors as they relate to student loan borrowing behaviors.

Chapter 2 - Review of Literature

Student loan use has evolved into our current system in the United States from the interest-free private loan model implemented at Harvard University in 1838 to the modern-day government guaranteed "student-based intermediary model of lending" (Fuller, 2014, p. 54) enacted with the 1972 reauthorization of the Higher Education Act of 1965. The 1992 reauthorization created the student loan landscape that we know today, whereas subsidized and unsubsidized guaranteed federal loans are available to independent and dependent undergraduate applicants based on the level of financial need as determined by the Free Application for Federal Student Aid (FAFSA; Wei, Berkner, & Carroll, 2008).

Student loan use and college pricing have followed a similar pattern since the 1990s. Inflation-adjusted in-state college tuition and fees at four-year public universities increased annually by 3.9% from 1986-1987 to 1996-1997 to 4.2% from 1996-1997 to 2006-2007 (Ma, Baum, Pender, & Welch, 2016. College pricing slowed to annual increases of 3.5% from 2006-2007 to 2016-2017 with a low of 2.4% (before adjusting for inflation) between the 2015-2016 and 2016-2017 academic years (Ma et al., 2016). Total student loan use (public and private sources) steadily increased from 1995-1996 until 2010-2011 when the trend reversed and slowly declined through the 2017-2018 year (Baum, Ma, Pender, & Libassi, 2018). Although these two indicators currently have reversed their long-term patterns, student loan debt still seems to be putting pressure on those in repayment. For borrowers of federal loans, enrollment in income-driven repayment plans has jumped from 11% in 2013 to 28% in 2018 (Baum et al., 2018).

The federal loan and grant programs created as part of the Higher Education Act of 1965 were intended to address college access disparities experienced by students from lower socioeconomic groups by making college more accessible, regardless of the ability to pay costs.

Also, during this period, the Economic Opportunity Act of 1964 (and its subsequent amendments), authorized three federally-funded pre-college and college-level guidance and support programs for low-income students, later known as TRIO Programs (Office of Postsecondary Education, 2017; the term "TRIO" refers to three original programs authorized by the Economic Opportunity Act of 1964). It is with the 1980 amendment to the Higher Education Act of 1965, that "first-generation" college student became a federal concept and was added as a targeted population of TRIO Programs (Council for Opportunity in Education, 2017). Since that time, awareness has grown as to the unique needs of this population and the need for targeted services.

Student Loan Borrowing Behaviors

With student loans a mainstay of the modern college experience for many students, it is important to examine the differences and similarities in student loan borrowing behaviors between different groups. The most recent analysis of trends in undergraduate borrowing put out by the U.S. Department of Education and authored by Wei et al. (2008) compared the data from the academic years of 1995-1996 and 2003-2004. Trends that emerged included the proportion of students taking out student loans that were solely subsidized declined from 15% to 1%, with the number of students receiving both subsidized and unsubsidized increasing from 7% to 15% during the same time period. Dependency status trends saw independent student's federal loan use increase from 20% to 31% and dependent student loan use grow from 30% to 36%. During this period, the percentage of low-income borrowers remained fairly constant and only increased three percent (from 34% to 37%), however this same group started taking out more unsubsidized loans in combination with subsidized. Students from middle and high-income families also increased their use of federal loans during this period.

While these figures set the stage for understanding student loan borrowing behaviors in the aggregate, Cunningham and Santiago (2008) contributed an understanding of student loan aversion based on institutional, financial, and demographic characteristics. Within these specific domains, the prominent patterns that emerged were that (a) students chose lower-cost options and varied their attendance pattern to avoid loans, (b) students utilized other sources of income to pay for college costs such as work or family support, and (c) students from various cultural and ethnic backgrounds had cultural reasons to avoid debt. Prominent patterns of student loan behaviors amongst students offered subsidized or need-based loans emerged. Namely, (a) students with a low amount of need were less likely to borrow to meet their need, (b) students with high remaining need were more likely to borrow if they were full-time and attended a more expensive institution, and (c) students with high need that were more likely than other groups to be student loan adverse were Asian, Latino, or community college attendees (Cunningham & Santiago, 2008).

The literature reports mixed findings on the relationship between student loan use and the college completion rates of students. In their study of community college students, Dowd and Coury (2006) reported that the college completion levels of students who used student loans were lower than those who did not use student loans. Alternatively, Dowd (2004) reported that student loan use in the first year of college at four-year institutions was positively correlated with successful college completion. Student loan debt load has a negative relationship with persistence levels for most students, this relationship was most pronounced in first-generation students (by at least 10 percentage points at all levels of debt; Somers, Woodhouse, & Cofer, 2004).

Student Loan Debt Awareness

Students view their student loan debt burden in different ways (Baum & O'Malley, 2003; Baum & Saunders, 1998). In a study of student loan debt awareness by researchers at Iowa State University, 13% of students reported they had not taken out a student loan when financial aid records indicated that they had (Andruska, Hogarth, Fletcher, Forbes, & Wohlgemuth, 2014). Further, 37% of students in the sample underestimated their student loan debt with 9% of these students underestimating by more than $10,000. Within a $1,000 range of accuracy, 30% of first-year students are able to give an accurate estimate of their student loan debt, 47% of students underestimated their debt and 23% overestimated their debt (Akers & Chingos, 2014). A key finding from a qualitative study showed that students have little knowledge about college financing options and the amount owed (Johnson, O'Neil, Worthy, Lown, & Bowen, 2016). Higher debt ranges have been associated with a higher likelihood of discontinuing college when compared to students with no debt (Britt, Ammerman, Barrett, & Jones, 2017). Interestingly, students in the highest institution-reported student loan debt categories at the same university had a reduced likelihood of discontinuing college when compared to students with no debt. There seems to be a fair amount of evidence that college students are not always aware of their actual debt levels.

Theoretical Framework

With use and awareness level of student loan debt the focus of this study**,** Rotter's (1954) social learning theory (SLT) has been utilized because of its focus on the process of learning and therefore the precursors to "awareness." SLT asserts that behavior or outcome is the result of stimulus in the environment combined with the internal processes of the individual. Internal processes include the outcomes of previous learning and experiences, such as attitudes, beliefs,

knowledge, and personality. This cycle is constantly in flux with the influence of the environment interacting with internal processes, therefore, creating new learning and altering attitudes, beliefs, and knowledge. Figures 2-1 and 2-2 illustrate the application of the framework of SLT to the outcome variables of student loan use and awareness.

Figure 2-1 Student Loan Debt Levels

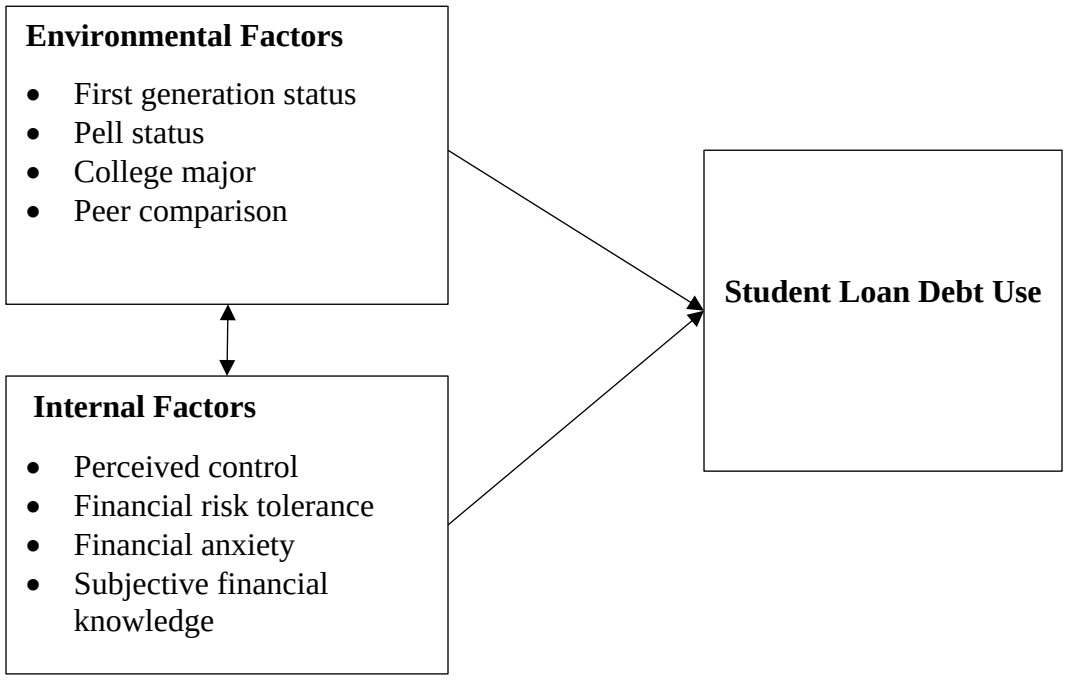
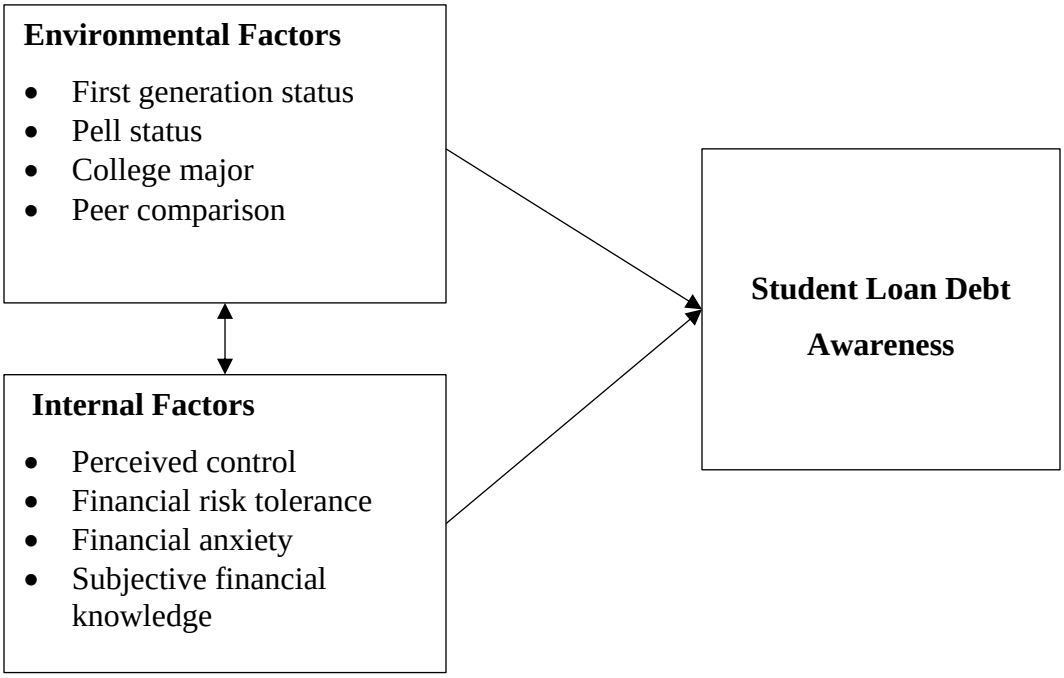


Figure 2-2 Student Loan Debt Awareness



While not many studies of student loan debt have applied SLT directly to the exploration of student loan debt awareness, it is important to note that key constructs in SLT are closely related to elements of other theoretical frameworks that have explored student debt behaviors. For instance, the financial socialization process discussed in detail in this chapter is directly related to the learning component of SLT.

Other social learning theories such as social cognitive theory (Bandura, 1977) have been applied to the examination of college student loan behaviors. The expectancy construct in social cognitive theory that is similar to locus of control is self-efficacy. Self-efficacy is the level of belief in one's ability to affect a particular outcome and it is derived from experiences and learning that result from the interactions of the individual with their environment (Bandura, 1977). Using the Pearlin mastery scale (Pearlin, Menaghan, Lieberman, & Mullan, 1981) as a proxy for self-efficacy, Financial stress in college students is generally more prominent among

freshmen, those with low perceived mastery, and median (versus the extreme high and low) levels of student loan debt (Britt, Canale, Fernatt, Stutz, & Tibbetts, 2015). Financial knowledge tends to increase financial self-efficacy, suggesting that knowledge of the details governing the processes and qualities of student loans (or lack thereof) could affect the decision to use a student loan (Heckman & Grable, 2011).

The theory of planned behavior (Ajzen, 1991) also uses an expectancy construct and has been utilized to frame the study of college student financial behaviors. The conceptualization of perception of control in the theory of planned behavior is most similar to Bandura's (1977) notion of self-efficacy and Rotter's (1954) locus of control, and reflects a person's judgment of the ability that they possess to perform a behavior. One in six students does not use the need-based loans offered to them (Cadena & Keys, 2013). It is important to note that subsidized loans are need-based loans (determined by the FAFSA) as opposed to unsubsidized loans which are awarded for student use regardless of financial need. Cadena and Keys' (2013) analysis of this phenomenon demonstrated that subsidized loans that would be administered to a student in the form of cash (loan funds that are intended to help the student pay for the out of pocket living and education expenses not directly billed by campuses) were less likely to be taken out than loans used to pay for billed educational expenses. Students may be controlling their consumption by avoiding loans that will add to their "liquidity" (Cadena & Keys, 2013). In the context of this study, this finding adds a layer to the construct of perceived behavioral control/locus of control by letting perceived potential spending options affect the intention to take out a student loan. When evaluating students' perception of control over taking out a student loan, it is important to keep in mind the multi-step process and purpose for taking out loans and therefore the multiple

areas in which students' judgment of control becomes a potential influencing factor. It can be theorized, that all of these steps can have an effect on awareness of debt level.

Environmental Factors

The theoretical framework for this study suggests that student loan debt awareness is related to the social learning process that results from the reciprocal interaction of the individual (and their internal cognitive factors) with their environment. Parents seem to have the greatest amount of financial socialization influence on their children (Danes, 1994; Gutter, Garrison, & Copur, 2010; Jorgensen & Savla, 2010; Shim, Barber, Card, Xiao, & Serido, 2010). If parents are indeed the greatest source of financial influence (implicit and explicit), then the environmental learning that happens in college students' households as they are growing up is expected to influence later financial behaviors.

Parent Financial Socialization. Parental financial socialization is the process by which parents explicitly and implicitly impart financial attitudes, behaviors, and knowledge to their children (Serido, Shim, Mishra, & Tang, 2010). A similar concept that focuses on the student's conscious and unconscious internalizing of this explicit and implicit parental influence is anticipatory parental financial socialization (Shim et al., 2010). Young adults have the perception that parents significantly affected their financial attitudes and behaviors when they were explicitly taught about finances (Jorgensen & Savla, 2008). In the same study, young adults who had the perception that they learned about finances implicitly from parents had higher levels of financial knowledge than those who claimed to have learned explicitly (Jorgensen & Savla, 2008). It seems that how finances are discussed (or not discussed) in the household has an influence on college students' debt attitudes, knowledge, and behaviors.

One parent financial socialization tool that has been examined in the literature and could be viewed as providing environmental influence on college students is allowance use. Generally, receiving an allowance as a child is associated with positive financial outcomes such as lower financial anxiety (Kim, LaTaillade, & Kim, 2011) and full responsibility for financial management (Kim & Chatterjee, 2013). More specifically, college students who were helped to budget their allowance by their parents had lower levels of credit card debt than their peers (Norvilitis & MacLean, 2010), although not all research has found positive benefits of allowances (Mandell, 2013).

Parents can also influence their students' financial behaviors in college through the perceived expectations placed on them. Perceived parental expectations have been shown to be related to the "proactive financial coping behaviors" of saving and budgeting in college students (Serido et al., 2010). In a structural model of the hierarchical financial socialization process, adopting parental role modeling predicted higher parental subjective norms (parental expectations and motivation to meet these expectations), which in turn predicted healthy financial behavior (Shim et al., 2010).

The literature explains little about parent financial socialization and college student loan debt awareness and more about parents' role in students' attitudes and knowledge related to credit card debt. Explicitly, active parent financial mentoring is associated with lower levels of credit card debt, and students whose parents avoided financial discussions reported more problematic credit card use (Norvilitis & MacLean, 2010). Implicitly, college students who reported growing up in a household in which parents frequently used credit cards had a more positive attitude towards credit than students whose parents were not frequent users of credit cards (Joo, Grable, & Bagwell, 2003).

There is also direct evidence that parents are influencing college students' student loan borrowing decisions. The comprehensive (90 institutions) and prolific (n = 28,539) 2017 Study on Collegiate Financial Wellness, found that 35.5% of students who took out a student loan consulted with a parent, guardian, or family member to help determine how much to borrow (Montalto, Phillips, McDaniel, & Baker, 2019). Additionally, of the 49.8% who had been offered a student loan and decided not to take it out, 39.2% of students indicated that it was parent, guardian, or family member who had discouraged them to use student loans (Montalto et al., 2019).

Peer Influence. The transition to adolescence and young adulthood, especially for college students often marks a transition to spending more time with peers than with family members. As such, there is evidence that peers exert increasing influence on college students' consumer behaviors (Moschis & Churchill, 1978; Harris, 1995). Female students tend to have significantly more financial discussions with peers and more observations of positive peer financial behaviors than male students (Garrison & Gutter, 2010). Additionally, when examining the relationship between financial social learning opportunities and the financial behavior of college students in the same sample, discussing finances with friends was positively related to budgeting and saving behaviors. While there is not much research evaluating the nature of peer influence on student loan behaviors and attitudes, there is a body of research that has found increased student loan aversion with various groups of students (Cunningham & Santiago, 2008; Hillman, 2015; Somers et al., 2004).

College Major. In a study of upper-division business students' student loan debt levels and perceptions, accounting and finance majors had higher salary expectations than marketing and management majors as well as higher levels of confidence in their ability to manage their

debt (Kuzma, Kuzma, & Thiewes, 2010). Interestingly in this same study, 35% of the business majors surveyed could not correctly estimate the monthly payment on a hypothetical student loan with necessary parameters provided ($10,000 at a rate of 5% to 6% and 120 payments). If roughly one-third of business majors are having trouble making these calculations and picking the correct answer out of a multiple-choice format, it can be inferred that perhaps students from non-business majors would have a more skewed perception of what their student loan repayment realities will be upon graduation.

The knowledge that student loan debt levels are amassing at an accelerated rate has been associated with college students changing their major. In a natural experiment at two large public universities in the same state, college students at one institution were sent letters indicating possible repayment challenges with current student loan balances and offering financial counseling and career counseling resources (Schmeiser et al., 2015). The likelihood that these students would change their major in the subsequent term to a STEM major was increased by 1.9% for all undergraduate students and by 11% for freshmen students. Roughly 18% of students receiving these notifications lowered their student loan amount in the subsequent term (spring semester) which was in the same academic year and financial aid awarding period. The average amount of the reduction was $1,361.

Demographic Factors

Gender and Race. Demographic factors such as gender, race, and socioeconomic status are individual qualities of a person that are affected and socialized by the environment in which they develop. For example, a person is born a male or female, but what that quality means to that individual is largely determined by the implicit and explicit rules that govern their immediate environment. While there have been many studies linking demographic variable differences to

certain financial outcomes and behaviors, there has been little research exploring why there may be these differences (Gudmunson & Danes, 2011). Demographic differences in financial outcomes are more of an indirect relationship filtered through the family financial socialization process which supports the theoretical model being used in this study as the external influences of the demographic variables are filtered through the internal factors, expectancy factors, and reinforcement value factors when determining influence on student loan awareness and use behaviors.

Empirical data show that there are longstanding patterns of student loan use along gender and racial lines. In the American Association of University Women's 2017 analysis of the 2011-2012 National Postsecondary Student Aid Study put out by the U.S. Department of Education, females make up the majority of undergraduate and graduate students in the United States and take out loans at higher rates than their male counterparts. Specifically, 44% of female undergraduate students took out an average $3,100 per year versus 39% of males borrowing a yearly average of $2,700. Women of all races (Asian, Black, and White) except Hispanic, graduate with higher mean cumulative debt. Black women graduate with the highest mean amount at $29,051 and Asian men graduate with lowest average amount at $10,868 (Miller, 2017).

Student loan debt levels have also been shown to affect the persistence patterns of male and female students in different ways. Lower levels of student loan debt are associated with higher chances of graduating in women over men, and male students are more likely to drop out of college at lower levels of educational debt than women (Dwyer, Hodson, & McCloud, 2012). When this same data is evaluated along racial lines, female Black and Hispanic students are more likely to graduate with higher levels of debt than male students in the same racial categories.

However, White students of both genders were found to have higher levels of debt tolerance when examining the relationship between persistence, graduation, and educational debt (Dwyer et al., 2012).

Socioeconomic Status. One may assume that the level of financial resources and human capital available in the family of a college student would have a direct relationship to their need and therefore use of student loans, but that relationship is non-linear. A "middle income squeeze" could be evident in that students from middle-income families report a higher risk for debt than students from the lower and higher income tiers (Houle, 2014). Interestingly, low socioeconomic status was a strong predictor of using debt to finance college but it did not account for any of the differences in loan balances at graduation. College students from the highest income brackets who also have college-educated parents use student loans at a lower rate than their middle and low-income counterparts, and the relationship between the socioeconomic status of a college student's family and debt is modified by the characteristics of the institution (Houle, 2014).

Empirical evidence suggests that socioeconomic status may influence how educational debt is viewed by the individual (Perna, 2008). Some students see educational debt as a necessary investment in their future quality of life and overall earnings potential, and some see debt as a barrier to earning a college degree (Baum & O'Malley, 2003). In their study on the differences in the sociocultural views of money and college affordability between financial aid counselors and low-income students, McDonough and Calderone (2006) stressed the importance of habitus in shaping financial decisions regarding college. Habitus is defined as "a common set of objective, internalized, class-based perceptions that shape an individual's expectations, attitudes and aspirations" (McDonough & Calderone, 2006, p. 1705). Using a qualitative method, these authors attributed perceptual differences of college affordability between

counselors and students to be a result of differences in habitus between the two groups. Specifically, these differences stemmed from the middle-class (counselors) and low-income (students) environments. This research suggests that the socioeconomic environment that a student grows up in may influence attitudes related to college finances. If parents are the primary financial socialization influence on students, then it reasonable to predict that amount of financial resources and human capital available to the parents could color the implicit and explicit money management messages that they are sending to their children.

The quantitative data seems to point out that awareness of student loan debt and lower socioeconomic status are related. Students with financial need as determined by the FAFSA, were significantly less loan confused then students with no financial need (Andruska et al., 2014). Akers and Chingos (2014) findings seem to corroborate this finding indicating that students with higher expected family contributions (also determined by the FAFSA) were more likely to be unaware of having student loan debt when indeed they did.

Internal Factors

Like the external factors just explored, internal factors such as financial anxiety, financial risk tolerance, subjective financial knowledge, perceived control, and reinforcement value are proposed to have influence on student loan use and balance awareness through the social learning process.

Financial Anxiety. Mental health markers such as depression and anxiety have been associated with lower levels of academic success in college (Eisenberg, Golberstein, & Hunt, 2009) and student financial problems are associated with higher risk for anxiety and depression (Eisenberg, Gollust, Golberstein, & Hefner, 2007) which makes for a circular process. Students who grew up in low-income households are more likely to screen positive for anxiety and

depression and have more suicidal thoughts than students who grew up in higher income households. Financial stress and general anxiety are significantly correlated but that there are differences between the type of social support system and gender (Tran, Lam, & Legg, 2018). Specifically, male students' financial stress was moderated by family support but not general support, and female students reported higher levels of financial stress than male students. The measure of financial stress variable in the Tran et al. study (2018) was a financial anxiety scale, which is distinct from generalized anxiety and depression, and it also been found to be related to financial information processing delays (Shapiro & Burchell, 2012). These research results point to the proposed theoretical interplay between environmental external factors and internal cognitive factors and how they possibly influence the cognitive mechanisms involved in the making of financial decisions and navigating awareness.

In terms of the relationship between anxiety and the distinct financial behaviors of college students, the literature has documented a few key correlates. Anxiety is significantly related to the money management behaviors of spending beyond earnings, bill paying difficulty due to inadequate income and bumping up to the maximum limit on credit cards (Sages, Britt, & Cumbie, 2013), but the relationship between anxiety and holding debt is not as clear. Student loans significantly predict financial anxiety, but when other types of debt (credit cards, auto, etc.) are included, student loans are not predictive of anxiety (Archuleta, Dale, & Spann, 2013).

Financial Risk Tolerance. In a general sense, financial risk tolerance is the level of variability in investment returns that an individual can tolerate. While there is debate as to whether risk tolerance level is situational or persistent over time, there is evidence for both assertions (Sahm, 2012). While risk tolerance decreases with age and fluctuates with conditions in the economy, time-stable predictors such as gender, race, and educational level are also

associated with differences in risk tolerance. Specifically, men are 14% more risk-tolerant than women, Blacks are 28% less risk-tolerant than Whites, and college graduates are 22% more risk-tolerant than high school graduates (Sahm, 2012).

For college students, financial risk tolerance has been noted to be similar to their parents, and college students who had some exposure to financial education in high school were more risk-tolerant (Ryack, 2011). Levels of financial well-being are positively related to above average levels of financial risk tolerance (Gutter & Copur, 2011). High school seniors and community college students who have higher levels of risk aversion have been associated with student loan aversion in an experiment examining the labeling effects of equivalent college financing options when presented as a "loan" vs an "income share agreement (ISA)" (Evan, Boatman, & Soliz, 2019). Additionally, this result was more prevalent with Black high school students and Hispanic high school and community college students, who were twice as likely as White respondents to choose the ISA over the loan in the labeling experiment (Evan et al., 2019).

Subjective Financial Knowledge. Subjective financial knowledge (or perceived financial knowledge) and objective financial knowledge have been amply studied in the literature. It is generally accepted that subjective financial knowledge is equally or more strongly linked to financial behavior than objective knowledge (Allgood & Walstad, 2016; Robb & Woodyard, 2011; Xiao, Ahn, Serido, & Shim, 2014). While it can be asserted that both objective and subjective financial knowledge are important to overall financial literacy (Huston, 2010; Kim, Anderson, & Seay, 2019), subjective or perceived financial knowledge, is a more complicated construct that is a product of the social learning process. A good illustration of the social learning nature of financial knowledge acquisition and its relationship to student loan use and debt levels comes from Smith and Barboza (2014)—students who discussed financial issues

with their parents, were less likely to hold high levels of debt (student loan and credit), pointing to a transfer of financial knowledge in the home environment.

Subjective financial knowledge and more specifically, financial overconfidence was studied longitudinally in a sample of young adults (Harvey, Burke, Serido, & Shim, 2018). Individuals self-identified as having a higher financial knowledge than the median, but scoring lower in objective financial knowledge than the median were classified as overconfident. High school financial education has been linked to financial overconfidence, although financial education in adulthood can increase subjective financial knowledge (Harvey et al., 2018).

Perceived Control

A well-known expectancy construct of social learning theory (SLT) is perceived control. This precursor to behavior refers to the position of an individual's generalized expectancy of control over reinforcement behavior outcome (Rotter, 1990). A person with an internal locus of control believes that the probability of a certain outcome is mostly his or her own doing, whereas a person with an external locus of control believes that the probability of a certain outcome is determined by environmental factors and the actions of influential others. In a study examining the relationship between subjective financial knowledge, income, and perception of control on consumer financial behavior, perception of control mediated the impact of subjective financial knowledge and income on behavior (Perry & Morris, 2005). It follows that if individuals perceive that they control their financial behaviors, then they may be more motivated to acquire financial knowledge and skills, whereas individuals who believe outside forces control financial outcomes may not be motivated to build skills because the skills have less opportunity for influence.

External locus of control tends to be associated with poor financial behaviors (Britt, Cumbie, & Bell, 2013) and a positive attitude toward debt (Davies & Lea, 1995; Joo et al., 2003). Higher levels of internal locus control and financial communication from parents tends to be related to positive financial behaviors (Jorgensen, Rappleyea, Schweichler, Fang, & Moran, 2017). Using structural equation modeling to validate a financial socialization approach to understanding college student financial behavior, this same study found that financial communication and locus of control mediated the effect of attachment insecurity (parent/child bond) on financial behavior (Jorgensen et al., 2017).

In a study of the willingness to borrow for graduate school using a sample of mostly undergraduate students of color, students with an external locus of control were more likely to have more debt tolerance then those with an internal locus of control and external locus of control predicted debt tolerance more than any other variable in the study (Trent, Lee, & Owens-Nicholson 2006).

Reinforcement Value. Although no specific reinforcement value variables were available in the data used in the current study, it is important to point out that the internal, external, and expectancy variables explored in this study theoretically may have an influence on student loan use and awareness. In social learning theory, reinforcement value is the level of value that the individual puts on a behavior or outcome. These reinforcements can be viewed as incentives or disincentives and are learned, internalized and assigned by the individual in the social learning process. It could be easy to see how financial anxiety and parent financial socialization could influence reinforcement value as related to student loan debt awareness in the individual. Although the reinforcement value construct has not been specifically operationalized

in this study's theoretical model, depending on the results it may be worth further study to validate this social learning approach to student loan debt awareness.

Hypotheses

To test the research questions addressing the relationship between environmental factors and internal factors with student loan debt level and student loan debt awareness, several hypotheses were developed using the reviewed literature. As the sub-focus of this study, hypotheses were also developed to test the student loan borrowing behaviors of first-generation college students. The hypotheses were as follows:

Student Loan Debt Level

Environmental Factors.

H_1: First-generation college student status will be associated with lower student loan debt as compared to continuing-generation students.

H_2: Receipt of Pell grants will be associated with lower student loan debt as compared to students not receiving Pell grants.

H_3: Majoring in a STEM degree program will be associated with higher student loan debt as compared to majoring in a non-STEM degree.

H_4: Higher (lower) perceived peer financial comparison will be associated with lower (higher) levels of student loan debt.

Internal Factors.

H_5: Lower perception of control will be associated with higher student loan debt.

H_6: Higher financial risk tolerance will be associated with higher student loan debt.

H_7: Higher financial anxiety will be associated with higher student loan debt.

H_8: Higher subjective financial knowledge will be associated with higher student loan debt.

Student Loan Debt Awareness

Environmental Factors.

H_9: First-generation college students will be more likely to overestimate student loan debt.

H_{10}: Students who do not receive Pell grants will be more likely to underestimate their student loan debt.

H_{11}: Students with STEM majors will be more likely to accurately estimate their student loan debt.

H_{12}: Higher (lower) peer comparison will be more likely to underestimate (overestimate) student loan debt.

Internal Factors.

H_{13}: Students with a higher perception of control will be more likely to accurately estimate student loan debt.

H_{14}: Students with a higher level of financial risk tolerance will be more likely to underestimate student loan debt.

H_{15}: Students with a higher level of financial anxiety will be more likely to overestimate student loan debt.

H_{16}: Students with a higher level of subjective financial knowledge will be more likely to accurately estimate student loan debt.

The current study aims to get a better understanding of key determinants in predicting student loan debt awareness from a social learning perspective. It is expected that environmental

factors and internal factors such as locus of control will predict which students are more aware of their student loan debt.

As a sub-focus in this study, first-generation college students' actual loan behavior will also be examined through a social learning lens. This is justified because it is important to identify if this population with distinct environmental influences from their continuing-generation peers shows any different environmental or internal patterns in the amount of loan they are actually taking out to pay for college.

Chapter 3 - Methods

Data

Data for this study were obtained from three sources during the spring 2014 semester. The first source was a campus-wide online survey administered to at least half-time enrolled undergraduate students at a large Midwestern university. The other sources were corresponding administrative data reported from the Office of Financial Assistance and the Office of the Registrar at the same university. The survey was introduced to students as a means of understanding the money issues that they were facing and incentives were provided for participation. A total of 16,675 emails produced 3,137 viable surveys attained from traditional-aged students.

Missing and Deleted Cases

For the purposes of this study, 2,224 out of the 3,137 were eligible for the regression analyses. To achieve this sample, incomplete surveys, defined as missing more than one complete section on the self-report survey were eliminated. This process removed approximately 29% of the initial sample. Mean substitution was then utilized on cases missing no more than one item on the multi-item self-report survey scales used to provide data to a variable in use to this research.

Students who were removed from the analysis because of missing data were slightly different from the sample who initially agreed to participate in the survey. The mean average of expected family contribution for those who completed the survey was about $4,000 less than the students who were not included in the multivariate analysis [$t(457.66) = 2.28$, $p < .05$; *M* included in analyses = $16,227, *SD*= $25,999; *M* not included in analyses = $20,225, *SD* = $30,073]. The mean for students classified as financial dependents was .89 (*SD* =

.32) for those who were included in the multivariate analyses and slightly higher (M = .92, SD = .27) for those who were not included in the multivariate analyses [t(565.98) = 2.10, p < .05]. Eighteen percent (SD = .39) of the sample included in the multivariate analyses were Pell grant eligible whereas only 15% (SD = .36) of the sample were Pell grant eligible who were not included in the analyses [t(905.23) = -2.02, p < .05]. Students who were included in the multivariate analyses were farther along in their academic career [M = 2.77, SD = 1.10 included in multivariate analyses and M = 2.65, SD = 1.09 not included in analyses; t(3,134) = -2.34, p < .05] and older [M = 20.43, SD = 1.46 included in multivariate analyses and M = 20.30, SD = 1.41 not included in analyses; t(3,135) = -2.04, p < .05]. There were no differences in the samples based on completion of the FAFSA, institutionally-reported or self-reported student loan debt, gender, first-generation status, race, or GPA.

Dependent Variables

Self-reported student loan debt was collected using a single item asking students how much subsidized and unsubsidized loan debt they had incurred to date. Institutionally-reported debt was the Direct Loan (subsidized and unsubsidized) debt obtained by the institution to the most current term from the National Student Loan Data System (NSLDS).

To create the student loan debt awareness variable, the self-report debt was subtracted from the institutionally reported debt amount. Results were organized into the following groups: “overestimators” were respondents who had a negative result of $5,501 or more, the “understimators” were the respondents that had a positive result of $5,501 or more and the “accurate” respondents estimated their student loan debt to be plus or minus $5,500 of their institutionally-reported debt.

The $5,500 was the range chosen to create the awareness groups because that was the maximum subsidized and unsubsidized loan amount permitted in the 2013-2014 academic year for dependent first-year students (sophomore limit = $6,500 and junior/senior limit = $7,500). The logic being that the students that are more than one year's worth off in their calculations would be "unaware." Additionally, Akers and Chingos (2014) found in the National Postsecondary Student Aid Study (2011-2012) that the majority of students who lacked accurate awareness of their student loan balance misreported between the $5,000 and $6,000 range. Previous studies have used a $10,000 range (Andruska et al., 2014) and $5,000/$10,000 ranges (Akers & Chingos, 2014).

Independent Variables

Environmental Factor Variables

First-generation college student status was self-reported by the student to the Office of Registrar and was defined as a student who does not have a parent or guardian who has earned a bachelor's degree.

Family socioeconomic data was represented with the Pell grant eligible variable (yes/no) and was determined by the Expected Family Contribution (EFC) which is a measure of a family's financial strength calculated by the Free Application for Federal Student Aid (FAFSA) and provided by the Office of Financial Assistance. In the 2013-2014 academic year when these data were collected, full-time students with an EFC below $4,234 were Pell grant eligible. Respondents who did not file a FAFSA and so therefore could not qualify for the Pell grant were coded separately from those who filed a FAFSA and were not eligible for a Pell grant.

College major data was also provided by the Office of Registrar. Majors were organized by the researcher into the categories of science, technology, engineering, and math (STEM),

Non-STEM (majors in the social sciences, arts, letters, education), and business (all majors within the college of business) to better align major groups to probable career path and facilitate result interpretation in the context of previous research (Kuzma et al., 2010; Schmeiser et al., 2015).

The financial peer comparison variable was measured using a single item. Respondents were asked, "Compared to my friends, I am worse, the same, or better off financially" where perceptions of being the same as peers financially served as the reference category.

College grade level was institutionally reported as of April 2014, and students were categorized into freshman, sophomore, junior, and senior categories. The minimal number of respondents classified as high school or non-degree were excluded from analysis because by definition of those two classifications, they were not eligible to receive federal financial aid, including student loans. Because it would be theoretically expected that seniors would have the opportunity to take out more loan than other grade levels, and because this grade level had the highest frequency in the sample (at 36%), it served as the reference category

Race was reported by the Office of Registrar and obtained via self-report on the college admissions application. Students were asked to select a code from seven options (White, Black Hispanic, Asian, American Indian, Multiracial, and not specified) that best represented the description of the group of people who they identified with. When running the empirical models, the race variable was collapsed into White = 1 and non-White = 0 because of lack of sufficient cell size in the other racial categories. White served as the reference category because it was 83.8% of the sample. Gender was coded with females =1 and males = 0 with females holding the majority (64.0%) of the sample.

Internal Factor Variables

Perceived control was measured using the seven-item Pearlin Mastery Scale (Pearlin et al., 1981). Respondents were asked to indicate their level of agreement for each of the seven statements with 1 = almost never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = almost always. Responses to (*a) There is really no way I can solve some of my problems, (b) I am being pushed around in my life, (c) There is little that I can do to change the important things in my life, (d) I am helpless in dealing with the problems of my life, and (e) I have little control over the things that happen to me* were reverse coded and added to (*f) I can do anything I set my mind to and (g) What happens in the future depends on me.* Items were aggregated for a total score of 7 to 35. Cronbach's alpha for the summated scale was .81.

Financial risk tolerance was measured in a single item in which respondents were instructed to rate themselves as *a real gambler, willing to take risks after completing adequate research, cautious, or a real risk-avoider.* To prepare the variable for analysis, the variable was collapsed into three degrees of financial risk tolerance (low, medium, and high) and dummy coded. The mid-level rating had the highest frequency with 54.8% and served as the reference category.

Subjective financial knowledge was assessed using a single item where respondents were asked *How would you rate your financial knowledge level compared to your peers?* The answer option included a scale from 1-10 with l labeled the lowest level, and 10 labeled the highest level. To prepare the variable for analysis, the variable was collapsed into three degrees of subjective financial knowledge (low, medium, and high) and dummy coded. The mid-level served as the reference category because it comprised the largest group of respondents (n = 890)

Finally, financial anxiety was measured using the seven-item Financial Anxiety Scale (Archuleta, Dale, & Spann, 2013) with individual item answer options ranked from *never* to *always*. Responses were aggregated with lower scores indicating little to no financial anxiety and higher scores indicating occasional to frequent feelings of financial anxiety. Cronbach's alpha for the summated scale was .96.

Control Variable

To clarify relationships between the theory-driven proxies for the environmental and internal factors and actual and perceived student loan debt, actual financial need as determined by the FAFSA was used. The FAFSA determines which students are to receive a Pell grant, and this metric serves as a decent representative of the financial ability of the student.

Analyses

Comprehensive analyses were conducted on sample data in order to assess for relationships between environmental, internal, and mastery variables and student loan use and awareness. To test the studies' hypotheses, binomial logistic regression, ordinary least squares regression, and multinomial logistic regression models were selected. IBM SPSS Statistics (Version 25) was utilized to estimate all descriptive statistics and empirical models.

Binomial Logistic Regression

To be able to ascertain the predictive effects of the internal and external factor variables on the likelihood of holding an institutionally-reported student loan balance (student loan = yes or no) a binomial logistic regression was run. Cases found to successfully predict student loan debt were then used to predict institutionally-reported student loan use using an OLS regression model.

OLS Regression

To be able to focus the internal factor and external factor variable relationships on student loan use, an ordinary least squares (OLS) regression model was used to test which environmental and internal variables significantly predicted institutionally reported student loan balance. Follow-up analyses would have been focused on the predictive ability of the internal and external variables specifically on first-generation college students' institutionally and self-reported balances if first-generation college student status was found to be significant when running this regression. Results did not dictate moving forward with these analyses.

Multinomial Logistic Regression

A multinomial logistic regression was used to analyze the relationship between key environmental variables (first-generation status, college major, family socioeconomic situation, and peer comparison) and internal variables (mastery, financial risk tolerance, financial anxiety, and subjective financial knowledge) and the student loan debt estimation categories of underestimated, accurate, and overestimated. Again, follow-up analyses focused on the relationships between the external, internal, and control variables and the student loan awareness of the first-generation college students would have been conducted if first generation was a significant predictive variable in the first multinomial logistic regression model. Because it was not a significant predictor, further analyses were not conducted.

Chapter 4 - Results

Descriptive Statistics of Sample

The average institutionally-reported student loan balance was $9,533. Self-reported average student loan balance was $9,980 which is $447 higher than the institutionally reported average. Approximately 18% of sample respondents were eligible for a Pell grant (meaning that their estimated family contribution (EFC) was below $4,234), and 32% of respondents were first-generation college students. Female respondents totaled 64% of the sample and ethnic and racial identity was reported as follows: 83.9% White, 2.9% Black, 6.1% Hispanic, 1.9% Asian, 0.4% American Indian, 3.0% multiracial, and 1.8% unspecified. The sample ethnic and racial identity breakdown was representative of the entire campus population at the time of survey: 75.7% White, 5.4% Hispanic, 3.9% Black, 2.6% multiracial, 1.7% unspecified, 1.5% Asian, 0.4% American Indian, and 0.1% Hawaiian/Pacific Islander (Office of Institutional Research, n.d.; the remaining 8.7% were international students and did not report ethnic or racial identity).

Student majors were grouped into three distinct categories based on the precedent set in the literature (Kuzma et al., 2010; Schmeiser et al., 2015). This sample's breakdown was 13.4% business, 23.7% STEM, and 62.9% all other majors. Grade level distribution was approximately 16% freshmen, 26% sophomores, 22% juniors, and 36% seniors. The financial-aid reported, self-reported, student loan awareness, and registrar-reported descriptive statistics are outlined in Tables 4-1, 4-2, 4-3, and 4-4, respectively.

Table 4-1 Financial Aid Reported Variables: Descriptive Statistics (N = 2,224)

Variables	*M*	*SD*	Range
Completed FAFSA	.60	.49	0-1
Pell eligible	.18	.39	0-1
Total federal direct loans borrowed	$9,533	$11,501	0-$57,500

Note. Data Source: Office of Financial Assistance

Table 4-2 Self-Reported Variables: Descriptive Statistics (N = 2,224)

Variables	*M*	*SD*	Range	α
Dependent Variable				
Self-report loan debt	$9,980	$14,526	$0-168,000	
Independent Variables				
Financial peer comparison	2.05	.67	1-3	
Perceived control	28.75	4.63	7-35	.81
Financial risk tolerance	1.94	.67	1-3	
Financial anxiety	20.64	11.09	7-49	.96
Subjective financial knowledge	1.90	.77	1-3	

Note. Data Source: Self-report student survey

Table 4-3 Student Loan Awareness: Descriptive Statistics (N = 2,224)

Variables	*n*	*%*
Student Loan Awareness		
Underestimate	332	14.9
Overestimate	296	13.3
Accurate	1596	71.8

Note. Data Source: Combined self-report student survey and Office of Financial Assistance

Table 4-4 Registrar Reported Variables: Descriptive Statistics (N = 2,224)

Variables	*n*	*%*
Major discipline		
Business	299	13.4
STEM	526	23.7
Other	1,399	62.9
Grade level		
Freshman	346	15.6
Sophomore	584	26.3
Junior	497	22.3
Senior	797	35.8
Gender		
Male	802	36.1
Female	1,422	63.9
First-generation	691	31.5
Race/ethnicity		
White	1,867	83.9
Black	65	2.9
Hispanic	135	6.1
Asian	42	1.9
American Indian	10	.4
Multiracial	66	3.0
Not specified	39	1.8

Note. Data Source: Office of the Registrar

Model 1: Student Loan Use

Student loan debt use (institutionally reported student loan use –yes or no) was evaluated against the environmental and internal variables in this study using a binary logistic regression model. Table 4-5 summarizes the results. The model was statistically significant, x^2 (18) = 961.16, $p < .001$ and explained 47.5% (Nagelkerke R^2) of the variance in student loan use and correctly predicted 79.6% of the cases.

Environmental Factors

Of the proxies for environmental factors, major, gender, and race were not statistically significant. Pell classification, first-generation status, financial peer comparison, and grade level were statistically significant. When compared to Pell eligible students, students that did not file the FAFSA had odds that were .06 times ($p < .001$) lower for student loan use, and first-generation college students had odds that were ($p < .01$) 1.42 higher for student loan use than continuing generation college students. Students who identified themselves as being worse off financially than their peers had odds that were 2.03 ($p < .001$) times higher for student loan use when compared to students who self-identified as being just as well off financially as their peers. Students who identified as being better off than their peers had odds that were .38 ($p < .001$) lower for student loan use when compared to students who self-identified as being just as well off financially as their peers. When compared to college seniors, juniors had odds that were .27 ($p < .001$) lower for student loan use, sophomores had .19 ($p < .001$) lower odds, and freshmen odds were .16 ($p < .001$) lower than seniors.

Internal Factors

Of the proxies for internal factors, subjective financial knowledge and low financial risk tolerance were not statistically significant. Students with high levels of financial risk tolerance

had odds that were 1.35 ($p < .05$) higher for student loan use than those with medium levels of financial risk tolerance. Financial anxiety was statistically significant at the $p < .001$ level, and with each unit increase in financial anxiety, odds increased by 1.05 for student loan use. Perceived control was statistically significant at the $p < .01$ level and for a one unit increase in perception of control, odds increased 1.04 for use of student loans.

Table 4-5 Logistic Regression Analysis for Variables Predicting Student Loan Use (N = 2,224)

Predictor	*B*	*SE B*	Odds Ratio
Environmental			
First Generation	.35**	.13	1.42
Pell Status (ref = Pell eligible)			
Filed-not eligible	-.25	.17	.78
No FAFSA	-2.83***	.19	.06
Major (ref = all other majors			
Business	-.07	.17	.93
STEM	-.21	.14	.80
Peer Comparison (ref = same)			
Worse off	.71***	.18	2.03
Better off	-.96***	.14	.38
Grade Level (ref = senior)			
Freshman	-.1.85***	.19	.16
Sophomore	-1.66***	.17	.19
Junior	-1.31***	.17	.27
Male	-.28	.12	.97
White	.15	.16	1.16
Internal			
Fin. Risk Tolerance (ref = medium)			
High	.30*	.14	1.35
Low	-.08	.15	.93
Subj Fin Knowledge (ref = medium)			
High	-.27	.14	.76
Low	-.14	.13	.87
Financial Anxiety	.05***	.01	1.05
Perceived Control	.04*	.01	1.04
Constant	.73		
χ^2		964.16***	
df		18	
% using student loans		59.5	

Notes: *B* = unstandardized beta, *SE B* = standard error, *$p < .05$. **$p < .01$. ***$p < .001$

Model 2: Student Loan Balance

Dollar amount of student loan use was evaluated using an ordinary least squares (OLS) regression model, with the environmental and internal factors regressed onto cases with an institutionally–reported student loan balance. Because dollar amount of student loan use was evaluated in Model 2, 901 cases with no institutionally-reported student loan balance were eliminated, resulting in a total of 1,323 cases. The model was statistically significant F (18, 1304) = 44.19, $p < .001$, adjusted $R^2 = .37$. Results are summarized in Table 4-6.

Environmental Factors

Of the proxies for environmental factors, first-generation status, major, and gender were not statistically significant. Pell status, financial peer comparison, grade level, and race were statistically significant. Pell eligible students had, on average, $5,790 ($p < .001$) more debt than non-Pell eligible students, and $4,751 ($p < .001$) more debt than students who did not file the FAFSA. Students who identified themselves as being worse off financially than their peers had on average $2,708 ($p < .001$) more debt. When compared to college seniors, all other grade levels had significantly less debt. Juniors had an average of $6,335 ($p < .001$) less, sophomores had $11,318 ($p < .001$) less, and freshmen had $15,101 ($p < .001$) less. Lastly, White students had $2,920 ($p < .001$) lower loan balances, on average, than their non-White peers.

Internal Factors

Of the proxies for internal factors, subjective financial knowledge was not statistically significant along with students who categorized themselves as “a real risk avoider” when compared to the financial risk tolerance reference category of “cautious.” Students with a high-risk tolerance had a statistically significant average of $1,150 ($p <. 05$) more student loan than the “cautious” students. The financial anxiety variable was significant with each point increase in

financial anxiety associated with an increase of $125 ($p <. 001$) in student loan balance. The perception of control variable was not statistically significant in estimating student loan balance. In other words, students' feeling of control over what happens to them had no relationship with the amount of student loan taken out.

Table 4-6 Summary of OLS Regression Analysis – Institutionally-Reported Debt (N = 1,323)

Variable	*B*	*SE B*	*β*
Environmental			
First Generation	592.85	508.51	.03
Pell Status (ref = Pell eligible)			
Filed-not eligible	-5790.50	588.30	-.27***
No FAFSA	-4750.83	814.18	-.18***
Major (ref = all other majors)			
Business	-1213.57	755.30	-.04
STEM	-299.18	614.69	-.01
Peer Comparison (ref = same)			
Worse off	2707.73	589.67	.11***
Better off	-1208.95	756.73	-.04
Grade Level (ref = senior)			
Freshmen	-15101.07	816.75	-.48***
Sophomore	-11318.43	686.14	-.45***
Junior	-6335.03	691.53	-.24***
Male	-428.62	538.19	-.02
White	-2919.51	638.32	-.10***
Internal			
Financial Risk Tolerance (ref = medium)			
High	1149.89	581.90	.05*
Low	-908.32	641.91	-.03
Subj Financial Knowledge (ref = medium)			
High	195.22	611.28	.01
Low	528.61	561.16	.02
Financial Anxiety	124.98	25.89	.13***
Perceived Control	64.42	57.22	.03
R^2		.37	
F		44.19***	

Notes: B = unstandardized beta, *SE B* = standard error, *β* = standardized estimate.

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

Model 3: Student Loan Balance Awareness

Student loan debt awareness was evaluated against the proxies for environmental and internal factors using a multinomial logistic regression model. The model successfully predicted student loan balance awareness when compared to the intercept-only model (x^2 (36) = 579.11, $p < .001$). The model explained 29% (Nagelkerke R^2) of the variance in student loan debt awareness and correctly predicted 72% of the cases. Results are summarized in Table 4-7.

When compared to the reference group of "accurate" (indicated within $5,500 accuracy of their actual student loan debt), the "underestimators" (actual student loan debt was underestimated by $5,501 or more) and the "overestimators" (actual student loan debt was overestimated by $5,501 or more) had the following results.

Environmental Factors - Underestimate versus Accurate

The environmental variables that were not statistically significant and therefore did not provide interpretable odds ratios when comparing the "understimators" to the "accurate" group were major, gender, and first-generation status. Pell status, grade level, race, and financial peer comparison were statistically significant when comparing "understimators" to "accurate" outcomes. Non-Pell eligible (OR = 3.20) and students who did not file the FAFSA (OR = 19.30) had higher odds of being an "accurate" relative to Pell eligible students. When compared to college seniors, freshmen (OR = 5.28), sophomores (OR = 2.81), and juniors (OR = 1.53) had higher odds of being an "accurate" in their awareness of student loan balance. In terms of the race variable, White students had higher odds of being an "accurate" (OR = 1.42) relative to non-White students. The financial peer comparison variable produced mixed results. When compared with students who felt they were as equally well off as their peers (reference group), students who identified as worse off (OR = .69) had higher odds of being an "underestimator" versus

"accurate" in student loan balance awareness, and students thought to be better off (OR = 1.56) had higher odds of being "accurate" compared to those that felt equally well off to their peers.

Environmental Factors - Overestimate versus Accurate

When the overestimate category was compared with "accurate" category, the environmental variables that were not statistically significant were first-generation status, junior grade level, Pell status designation of not filing a FAFSA, race, and gender. Non-Pell eligibility, major, freshmen and sophomore grade levels, and financial peer comparison were statistically significant. Non-Pell eligible students had higher odds of being "overestimators" (OR = .38) than "accurate" when compared to Pell eligible students. Students majoring in business (OR = 1.68) and STEM (OR = 1.43) careers had higher odds of being classified "accurate" than "overestimators" when compared to other majors. Freshmen (OR = 2.54) and sophomores (OR = 1.54) were more likely to be "accurate" than "overestimators" when compared to seniors. For financial peer comparison, when compared to the reference group of students who felt financially equal to their peers, students who felt worse off (OR = .52) had higher odds of being "overestimators" than "accurate," and students self-categorized as better off (OR = 1.71) had higher odds of being classified "accurate."

Environmental Factors - Underestimate versus Overestimate

When the underestimate category was compared to the overestimate category, the environmental variables that were not statistically significant were first-generation status, junior grade level, major, gender, race, and financial peer comparison. Pell status, and the freshmen and sophomore grade levels were statistically significant. Students who did not file the FAFSA (OR = .06) and those who were not eligible to receive the Pell grant (OR = .12) had higher odds of being "overestimators" when compared to "underestimators." This same pattern emerged for

freshmen (OR = .48) and sophomores (OR = .58) who had higher odds of being "overestimators" when evaluated with "underestimators."

Internal Factors - Underestimate Versus Accurate

Financial risk tolerance and subjective financial knowledge both had mixed results when comparing the underestimate classification to accurate. For financial risk tolerance, the "real risk avoider" group did not have statistically significant odds placement in student loan balance awareness when compared to the cautious reference group. However, students classified as having a high risk tolerance students had significantly higher odds (OR = .57) of being "underestimators" than "accurate" in their loan balance estimation when compared to the cautious group. For the subjective financial knowledge variable, the reference group was the mid-level rating when comparing one's financial knowledge level to their peers. There was not a statistically significant difference in loan awareness odds placement between students who rated themselves as having a high level of financial knowledge in comparison to their mid-level peers. Students who rated themselves as having a lower-level financial knowledge had statistically significant higher odds (OR = .71) of falling into the "understimator" category when compared with the mid-level reference category. Financial anxiety was statistically significant (OR = 1.02), with each unit increase in financial anxiety predicting increased odds that one would fall in the "accurate" category versus the 'underestimator" category.

Internal Factors - Overestimate Versus Accurate

Two proxies for cognitive influences—financial risk tolerance and subjective financial knowledge—were not statistically significant in predicting the accuracy of student loan balance, but financial anxiety was statistically significant when examining increased odds of being an

"overestimator" versus "accurate" in student loan balance estimation. For each unit increase in financial anxiety (OR = 1.04), odds increased that one would fall into the "accurate" category.

Internal Factors - Underestimate Versus Overestimate

When the "underestimator" and "overestimator" categories were assessed for significance in the odds of category placement, no internal variables were found to predict placement except financial anxiety. With each unit increase in financial anxiety, odds increased (OR = 1.02) that one would fall into the "underestimator" category.

Perceived Control

Perceived control was not statistically significant when assessing odds predictions for any of the student loan awareness classifications. This mastery construct was only statistically significant in Model 1.

Table 4-7 Summary of Odds Ratios in Multinomial Logistic Regression Analysis Predicting Student Loan Debt Awareness

	Awareness Categories by Odds Ratio		
Variables	*Underestimate vs Accurate*	*Overestimate vs Accurate*	*Underestimate vs Overestimate*
Environmental			
First Generation	.92	.83	.91
Pell Status(ref=Pell eligible)			
Filed-not eligible	3.20***	.38***	.12***
No FAFSA	19.30***	1.08	.06***
Major (ref = all other majors)			
Business	1.11	1.68*	1.52
STEM	1.17	1.43*	1.22
Peer Comparison (ref = same)			
Worse off	.69*	.52***	.76
Better off	1.56*	1.71*	1.10
Grade Level (ref = senior)			
Freshmen	5.28***	2.54***	.48*
Sophomore	2.81***	1.54*	.55**
Junior	1.53*	1.11	.73
Male	.97	1.05	1.08
White	1.42*	1.01	.71
Internal			
Financial Risk Tolerance (ref = medium)			
High	.57***	.75	1.33
Low	1.08	1.14	1.06
Subj Financial Knowledge (ref = medium)			
High	1.18	.83	.71
Low	.71*	.97	1.37
Financial Anxiety	1.02*	1.04***	1.02*
Perceived Control	1.02	1.01	.98
Nagelkerke	.29		

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

Chapter 5 - Discussion

Chapter 5 provides a discussion of the findings laid out in Chapter 4. Also discussed are implications of the study's findings, limitations of the methodology and data, and areas of suggested future research.

Discussion of Findings

Student Loan Use

The results of the first empirical model illustrate the relationship between environmental and internal factors and the use of institutionally-reported student loans. The environmental factors significantly related to the use of student loans are not surprising when viewed through the lens of financial need. Students who did not file the FAFSA had lower odds of using student loans than Pell eligible students (the proxy for low-income/financial need), and first-generation college students had higher odds of using student loans than continuing generation students. Students who considered themselves worse off financially than their peers had higher odds of student loan use than those who felt they were similarly situated to their peers. Conversely, students who felt that they were better off than their peers had lower odds for student loan use than the similarly ranked reference group. The use of student loans by individuals who have documented financial need and those with the perception of financial need is an expected approach strategy. Peer perception results seem to align with the student loan behavior of students, pointing to accurate perceptions of financial need when the context of peers is introduced.

The relationship of grade level to use of student loans is what would be expected when we view the results through the lens of the likelihood of having need of financial resources over the course of time. Results of this study suggest that when compared to seniors**,** all other grade

levels had lower odds for student loan use. These results indicate that the targeting of financial education to lower classmen or students who use student loans in their first years in college, may not adequately support the student loan decision making of upperclassmen who did not need loans in their first few years of college and so may be farther away from any student loan education that tends to be targeted at college orientation or in lower-division coursework. Having access to financial decision-making support, such as college-based financial counseling centers can ensure access to quality information for all college students as their financial need situations grow and evolve over time.

Of the internal factors predicting student loan use, high levels of financial risk tolerance, financial anxiety, and perceived control significantly predicted use. With increased odds of using student loans over their more cautious counterparts, high financial risk-takers may be more open to use all resources at their disposable to pay for higher education expenses. Interestingly, increasing levels of financial anxiety resulted in increased odds for student loan use. One way to view these two results is that they are contradictory if one views debt as a financial risk. Financial anxiety, statistically significant in all three models in this study, is a prominent variable and will be further discussed in upcoming sections. In contrast, perceived control was only statistically significant in Model 1. Results indicated that odds for student loan use increased as perceived control increased. This finding aligns with studies that have established a correlation between higher levels of debt tolerance and perceived control (Davis & Lea, 2005; Joo et al., 2003; Trent et al., 2006).

Student Loan Debt Levels

Environmental factors. When environmental factors were used to predict institutionally-reported student loan values, H_1, H_2, and H_3 were not supported.

H_1: First-generation college student status will be associated with lower student loan debt as compared to continuing-generation students.

H_2: Receipt of Pell grants will be associated with lower student loan debt as compared to students not receiving Pell grants.

H_3: Majoring in a STEM degree program will be associated with higher student loan debt as compared to majoring in a non-STEM degree.

H1 predicted that first-generation college students, the population of special focus in this research, would be associated with lower student loan balances when financial need was controlled. The fact that first-generation college students were not found to differ from continuing college students in their student loan balances when financial need was controlled for suggests that growing up in a household with parents who have not navigated college and therefore were not faced with college funding decisions in their own life does not seem to influence the amount of student loan used. Student loan aversion which has been linked with ethnic groups and low-income students which are disproportionally first-generation college students (Lohfink & Paulsen, 2005), is not indicated in this study.

Conversely, support was partially found for *H4*. Results indicated that students who identified themselves as being worse off financially than their peers had on average $2,689 more debt when compared to those who felt they were financially situated in a similar way as their peers.

H_4: Higher (lower) perceived peer financial comparison will be associated with lower (higher) levels of student loan debt.

This finding supports *H4*, although results were not statistically significant for all peer comparison groups. Because documented financial need was controlled for using the Pell eligible

variable, this result expands on the results of Model 1 and suggests that not only is the perception of being financially worse off than peers a significant predictor of student loan use, but it also can be quantified in this study as $2,689. When viewed in the context of the 2013-14 allowable federal student loan maximums (the academic year this study's survey was administered), $2,689 would be approximately half the $5,500 maximum loan amount that a dependent freshman student could use in this academic year.

Although not hypothesized, all grade levels had significantly lower amounts of student loan debt than seniors, and White students had $2,910 lower loan balances on average than non-White students. Interestingly, when compared with the yearly maximums for dependent students in 2013-2014 (freshmen = $5,500, sophomores = $6,500, and juniors = $7,500) the loan amount differences found in this study (juniors had an average of $6,727 less, sophomores had $11,714 less, and freshmen had $15,520 less) more closely indicated that for the students who use student loans, they were consistent in their use year over year.

Internal factors. When internal factors were used to predict institutionally-reported student loan values, H_5 and H_8 were not supported.

H_5: Lower perception of control will be associated with higher student loan debt.

H_8: Higher subjective financial knowledge will be associated with higher student loan debt.

Results did support H_6 and H_7. Specifically, students with higher levels of financial risk tolerance had significantly higher student loan balances than students with medium levels, and student loan balances significantly increased with higher levels of financial anxiety.

H_6: Higher financial risk tolerance will be associated with higher student loan debt.

H_7**:** Higher financial anxiety will be associated with higher student loan debt.

In both of these cases, the average amount of student loan difference between groups was not large when put into the context of the yearly maximums discussed earlier. Financial anxiety increased $127 with each point increase of the financial anxiety scale, and students with high financial risk tolerance on average had $1,196 more student loan than more cautious students. This connection between high risk tolerance and increased loan use could connect student loan use to other financial constructs. For example, students with exposure to financial education in high school were more financially risk-tolerant (Ryack, 2011). This could suggest that students with more financial knowledge may be more likely to use student loans. Although that was not found to be the case in this study, it is important to point out that this study used a subjective and comparative measure of financial knowledge and not an objective measure of knowledge.

Additionally, the association with higher levels of financial anxiety and higher student loan balances found here corroborates Archuleta et al.'s (2013) finding that student loan balances predicted financial anxiety in college students. These results also beg the question, does the propensity for increased financial anxiety lead to higher student loan balances, or does higher student loan balances lead to increased financial anxiety?

Student Loan Debt Awareness

This study's main purpose was to explore, using social learning theory, potential environmental and internal influences on student loan debt use and awareness. Student loan debt awareness was operationalized by subtracting self-report debt from the institutionally reported debt amount. Results were then organized into the following groups: "overestimators" were respondents who had a negative result of $5,501 or more, "underestimators" were the respondents who had a positive result of $5,501 or more, and "accurate" respondents estimated their student loan debt to be plus or minus $5,500 of their institutionally-reported debt. Results

generally indicated that being "accurate" in student loan debt awareness was more likely than being an "underestimator" or "overestimator," and that first-generation college student status (H_9), perception of control (H_{16}), and high level of subjective financial knowledge (H_{13}) had no significance in debt awareness classification.

> H_9: First-generation college students will be more likely to overestimate student loan debt.
>
> H_{13}: Students with a higher perception of control will be more likely to accurately estimate student loan debt.
>
> H_{16}: Students with a higher level of subjective financial knowledge will be more likely to accurately estimate student loan debt.

Results for Model 3 will be discussed according to the loan awareness accuracy group in order to better identify potential patterns, relationships, and implications of the results.

Accurate. When compared to the "underestimator" group, the environmental factors that had higher odds than their reference group for being classified "accurate" in student loan debt awareness, were not being eligible for Pell or not having filed a FAFSA when compared to Pell eligible students, feeling financially better off than peers versus feeling equally well off, being White versus non-White, and being freshman, sophomore, or junior grade level versus a senior grade level**.**

When compared to the "overestimator" group, the environmental factors that had higher odds than their reference group for being classified as "accurate" in student loan debt awareness were feeling financially better off than peers versus feeling equally well off, being a freshman or sophomore versus being a senior grade level, and being a business or STEM major versus

another major. This finding supports H_{11} which predicted that students with STEM majors would be more likely to accurately estimate their student loan debt.

H_{11}: Students with STEM majors will be more likely to accurately estimate their student loan debt.

This result viewed in conjunction with Schmeiser et al.'s (2015) findings that when presented with evidence that current student loan balances were going to be challenging to pay when projected career earnings were accounted for, freshmen students were 11% more likely to change their majors to a STEM major (1.9% increased likelihood for all students), may add to the validity of the connection between STEM majors and certain student loan behaviors. Given the national focus on increasing the number of students who receive training in the STEM fields, it may be helpful to further examine the nature of these connections.

The only internal factor that had statistically significant increased odds of classifying a student as "accurate" in their debt awareness was financial anxiety. When the "accurate" reference group was evaluated against "underestimators," increasing financial anxiety resulted in significantly higher odds for being classified in the "accurate" category.

Underestimators. Peer comparison levels were found to be the environmental factors with the most interesting results falling in the "underestimator" classification. When compared to the "accurate" group, students that felt worse off versus equally well off had higher odds of being classified as an "underestimator." Interestingly, when the "underestimator" category was compared to the "overestimator" category, peer comparison results indicated that students who felt better off versus equally well off had higher odds of being classified "underestimators." This finding supports H_{12} which asserted that higher/lower peer comparison would be more likely to underestimate (overestimate) student loan debt.

H_{12}: Higher (lower) peer comparison will be more likely to underestimate (overestimate) student loan debt.

Internal factors that resulted in increased odds of being classified as an "underestimator" were more varied. When the underestimate category was evaluated against the reference accurate category, high financial risk tolerance placement versus cautious placement had increased odds of being classified an "underestimator." This finding supports H_{14} which predicted that students with a higher level of financial risk tolerance would be more likely to underestimate student loan debt.

H_{14}: Students with a higher level of financial risk tolerance will be more likely to underestimate student loan debt.

Low subjective financial knowledge placement also had increased odds of being classified "underestimators" over their reference categories of mid-level subjective knowledge. With positive impacts on financial knowledge (both subjective and objective) being partially under the control of institutions of higher education, and underestimation of student loan balance having more potential downsides than overestimation of student loan debt, building the financial knowledge and debt awareness of college students should be a responsibility and priority of these institutions.

When the "underestimator" and "overestimator" groups were compared, financial anxiety was the only statistically significant internal factor. Results indicated that as financial anxiety increased, so did the odds of being classified as an "underestimator" of student loan debt levels. It was hypothesized (H_{15}) that higher levels of financial anxiety would predict an "overestimator" classification. Here, the opposite was found.

H_{15}: Students with a higher level of financial anxiety will be more likely to overestimate student loan debt.

Increasing anxiety was related to increased odds for being accurate or an "underestimator" depending on which groups were being compared. In fact, financial anxiety was the only internal factor to significantly predict student loan use, student loan balance, and two levels of student loan awareness.

Overestimators. When examining the environmental factors that were related to the overestimation of student loan balances, Pell status and financial peer comparison were most prominent. When compared to the "accurate" group, students' not receiving Pell grant had increased odds for overestimating student loan balance versus Pell eligible students. When the overestimation and underestimation categories were evaluated against each other, students not receiving Pell grant and students who did not file the FAFSA had increased odds of being "overestimators" versus Pell eligible students. These results are in direct contradiction of hypothesis H_{10} that predicted that students who do not receive Pell were more likely to underestimate their student loan debt.

H_{10}: Students who do not receive Pell grants will be more likely to underestimate their student loan debt.

Peer comparison, specifically feeling financially worse off rather than equally well off to peers, was an environmental factor that predicted increased odds of being an "overestimator." This result was found for both the comparisons between the overestimation versus the accurate group and the overestimation versus the underestimation group. With feeling financial worse off than one's peers also increasing odds for being an 'underestimator" (when the underestimation and accurate groups were compared), it seems that even after controlling for financial need using

the Pell eligible variable, that the feeling of being worse off is related to the generalized misrepresentation of student loan balance in either direction.

Implications

General awareness of financial obligations and responsibilities can be argued to be a hallmark of adulthood. For traditional-aged college students, student loans may be the first direct experience they have with making significant and long-term financial debt decisions. A better understanding of how aware students are of the level of debt they are taking on in college is important to our understanding of college financing decision making as well as general consumer behavior. Research has shown that student loan debt influences choice of major and career (Rothstein & Rouse, 2011; Schmeiser et al., 2015), the delay of key life events such as home buying (Houle & Berger, 2015; Mezza et al., 2016), marriage (Bozick & Estacion, 2014; Gicheva, 2016), having children (Nau, et al., 2015) and retirement savings (American Student Assistance, 2015; Elliot et al., 2013). The impact of these documented effects on the national economy has instigated a conversation focused on global student loan forgiveness and tuition-free college as ways to free up the income of millennials and strengthen the economy. Regardless of the outcome of these conversations, it is important that college students leave college with increased money management skills. Use and awareness of debt are some of these skills.

The specific implications that stem from this research are varied due to the broad nature of the theoretical framework used to answer the research questions. This study evaluated student loan use, debt levels, and awareness of debt level using a social learning framework to explore relationships between selected environmental and cognitive factors. Findings indicated that first-generation college students and students who considered themselves less well off than their peers had higher odds of using student loans. Additionally, students with this perception of being less

well-off also had higher student loan balances. With all college grade levels having decreased odds of using student loans and having lower balances when compared to college seniors, college campuses need to make sure that they are providing student loan decision making support to all students at all grade levels, and especially to those who are the first generation in their family to attend college and those that come from low income environments (or in the case of the findings presented here, perceive that they do). Students are given the choice of taking out a student loan at the beginning of each academic year, and merely providing decision making support at the time of first student loan (as is required by the U.S. Department of Education for federal student loans) is not enough guidance to support changing situations and the yearly variance in expenses and needs.

Results from this research pertaining to the loan awareness of students with different majors has implications for college student financial literacy efforts. When compared to other majors, both business majors and STEM majors were more likely to accurately identify their student loan balance when evaluated against "overestimators." One area that these two broad disciplines share in common is that they usually require quantitative reasoning classes beyond the typical general math requirements. If business and STEM majors are more likely to be able to accurately calculate or recall their student loan balances over other majors, there could be a math preparation or comfortableness with numbers effect that is creating this disparity. Developmental levels of financial education and target financial decision-making support should be considered by college campuses to address the different levels of mathematical foundational knowledge and comfortableness using numbers that can widely vary across college student populations.

Financial anxiety was a prominent cognitive factor in this research as it was statistically significant in each model. With financial anxiety correlating with multiple qualities of student

loan decision making and debt level awareness (accurate prediction and underestimation), as well as other money management behaviors (Sages et al., 2013; Britt et al., 2015), it seems to be an important quality to assess in college students. Financial anxiety has been found to be distinct from generalized anxiety and depression (Shapiro & Burchell, 2012). Financial stress, which is often used interchangeably in the literature with financial anxiety, has been associated with reduced course loads and breaks in persistence (Britt et al., 2017; Joo, Durband, & Grable, 2008). Institutions of higher education that are interested in supporting and increasing the retention and graduation of students should assess the prevalence of financial anxiety on their campuses and formulate services to address its management. Even though this study found that as financial anxiety increased in some comparison groups, so did odds of being accurate in student loan balance awareness (as well as being an "underestimator" in another comparison group), this seemingly positive trait of debt vigilance could have negative effects on students overall wellness and have other financial repercussions. Financial anxiety has been associated with cognitive processing delays in undergraduate students who were presented with "financially loaded" words, and it has also been found to behave like a phobia with financially loaded words (even positive and neutral) words being associated with avoidance (Shapiro & Burchell, 2012). Being accurately aware of student loan balance is just one step in positive debt management behaviors. Interventions such as financial counseling centers and other targeted services can give college students the opportunity to identify the financial issues that may be getting in the way of their financial planning, college experience, and path to graduation.

A special focus of this research project was to determine if first-generation college student status was an environmental factor that correlated with the student loan behaviors assessed for in this analysis. First-generation college students were found to have odds that were

almost one and a half times higher for student loan use than continuing generation college students, suggesting that first-generation college student status may be associated with increased likelihood for use of student loans. No relationship, however, was found between first-generation status and student loan balance or awareness.

Although first-generation status did not figure prominently in the results of this study, other environmental qualities such as Pell grant status, college major, peer comparison, and grade level did. The variety of these environmental factors combined with the significant internal factors of financial risk tolerance, subjective financial knowledge, and financial anxiety suggest that various environmental and internal factors combine in individual students to produce suboptimal as well as optimal student loan behaviors. Because these factors combine in a unique way for each individual student, the general implications of this research support more specialized campus-level support for college students making consequential student loan decisions, as well as additional research exploring the nature of these differences.

Limitations

The most noteworthy limitation of this research is that the data were collected from one institution and so the results are not generalizable to college student populations falling outside of the demographics of that institution. Additionally, because of the pairing of institutionally-reported data to self-reported data, all data analyzed were associated with respondents that self-selected to participate in the online survey, therefore introducing self-selection bias into the sample. One other limitation related to use of self-report data was the need to reduce the sample because of omitted responses related to key variables used in this study.

Constraints to the research also exist due to limitations in the measurement reliability of some of the environmental and internal factor variables. Of most note, is the use of Pell grant

eligibility as a proxy for low-income home environment as well as for financial need. Pell grant eligibility is often used in research and policy as a proxy for low-income status because of the wide use of federal financial aid and the availability of the data. Research has shown that Pell grant eligibility figures do not encompass all low-income individuals because not all low-income students fill out the Free Application for Federal Student Aid (FAFSA), and some middle-income students receive Pell grants (Delisle, 2017; Rosinger & Ford, 2019). According to the most recent data report from the U.S. Department of Education, 72.7% of dependent Pell grant recipients in 2016-2017 came from households with adjusted gross incomes of $40,000 or less (U.S. Department of Education, 2019). Household resources and income have a great effect on experiences and opportunities that shape an individual, especially when viewed through a social learning lens. Future research is needed to determine more accurate and consistent measures of low-income levels of college students.

Constrained measurement of two internal factor variables also presented a limitation to this study. Both subjective financial knowledge and financial risk tolerance were measured by a single-item on the self-report survey used to collect study data. Single-item measures of complex qualities such as financial knowledge and financial risk tolerance may limit the validity of the constructs and therefore generalizability of the research findings (Fowler, 2009).

The existence of private student loans introduces a limitation to the validity of the loan awareness variable that should be noted. Institutionally-reported loan balance in this study was acquired from the National Student Loan Data System (NSLDS), which is the repository for federal student aid data. The NSLDS does not aggregate private student loan balances made by non-governmental entities. The loan awareness variable was created by subtracting the self-report student loan balance from the loan balance reported to the institution from the NSLDS. If

a respondent had used a private student loan and reported this balance on the self-report survey, the awareness variable would not accurately account for this situation. Federal student loans are generally viewed to be preferred over private student loans because of subsidized interest rates and subsidized interest payments for need-based loans, loan deferral and flexible repayment options, and guaranteed status (Avery &Turner, 2012). At the time this survey was administered, it was estimated that private loans made up 7.2% (Feshback, Parikh, Patel, & Mitchell, 2015) of the student loan market in the United States, with current estimates at 7.7% (MeasureOne, 2019).

Recommendation for Future Studies and Conclusions

Despite limitations to this research, the implementation of a social learning framework to examine student loan behaviors has informed the use of this theory for future explorations into the nature of college student financial awareness and decision making. Each individual college student makes consequential college financing decisions from a perspective informed by the unique interplay of environmental and internal factors. Outcomes from this research suggest that further study into the qualities of these environmental and internal factors as well as the moderation and mediation effects of these factors is warranted and can be useful to college student educators and service providers. Specifically, future study of the effects of financial status comparison perceptions of college students and the effects of financial anxiety on the financial decision making of college students are suggested.

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Appendix A - Survey Codebook

Coping with Financial Stress in College

APPROVAL DATE OF PROJECT: EXPIRATION DATE OF PROJECT:

PRINCIPAL INVESTIGATOR: Sonya Britt, 785-532-3541, sbritt@k-state.edu

IRB CHAIR CONTACT/PHONE INFORMATION: *(This information is for the subject in case he/she has questions, or needs or wants to discuss any aspect of the research with an official of the university or the IRB)*

Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

Jerry Jaax, Associate Vice President for Research Compliance and University Veterinarian, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

SPONSOR OF PROJECT: You will be entered in a random drawing for a $250 KSU Union Bookstore giftcard (sponsored by Pat Bosco) and other gifts from local venders. ALL participants will have the option of printing a certificate for a free cookie to be redeemed outside of the Student Union.

PURPOSE OF THE RESEARCH: The survey addresses how college students are coping with financial stress. We ask questions related to peer comparison of financial well-being, identification of expenses college students are solely responsible for paying, inability to pay expenses, willingness to engage in activities to earn extra money, current financial status, life stressors, financial behaviors, and perceived control.

The following data will be collected from the Registrar's Office and linked via your email address to your Qualtrics survey: age, gender, grade level, marital status, first generation college student status, permanent address zip code, Greek affiliation, religious affiliation, academic major, and GPA.

The Office of Financial Aid will link your Expected Family Contribution and current student loan balances numbers with the data collected and strip all identifying information (email address) before your data is analyzed.

LENGTH OF STUDY: The survey contains 27 questions. We anticipate it will take you approximately 5 to 10 minutes to complete the survey.

RISKS OR DISCOMFORTS ANTICIPATED: There are no known risks associated with completing this survey. You could become more aware of your financial situation and desire more information. Powercat Financial Counseling provides FREE information and education to students who are seeking help with financial issues. www.ksu.edu/pfc

BENEFITS ANTICIPATED: You will be entered into a drawing for a $250 KSU Union Bookstore giftcard among other prizes by completing this survey. You will also automatically win a free cookie just for completing the survey!

By completing this survey, you give your consent that you understand the above terms and agree to have your data be used for research purposes.

I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

○ Continue

Next page: You are one step closer to winning a prize!

Coping with Financial Stress in College

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PRINCIPAL INVESTIGATOR: Sonya Britt, 785-532-3541, sbritt@k-state.edu

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Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

Jerry Jaax, Associate Vice President for Research Compliance and University Veterinarian, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

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○ Continue

Next page: You are one step closer to winning a prize!

Compared to my friends, I am worse, the same, or better off financially?

Worse off	About the same	Better off
○	○	○

Over the last three months, how often have you NOT had enough money to pay for:

	Never	Once	Twice	3 - 5 times	More than 5 times	not applicable
Textbooks	○	○	○	○	○	○
Groceries	○	○	○	○	○	○
Rent	○	○	○	○	○	○
Utilities	○	○	○	○	○	○
Transportation expenses	○	○	○	○	○	○
Student loan/tuition payment	○	○	○	○	○	○
Other school supplies	○	○	○	○	○	○
Greek dues	○	○	○	○	○	○
Contraceptives (birth control pills, condoms)	○	○	○	○	○	○
Medical expenses (doctor visits, prescription drugs)	○	○	○	○	○	○
Mental health counseling	○	○	○	○	○	○
Refraining from club activities	○	○	○	○	○	○
Other expenses	○	○	○	○	○	○

Which of the following activities would you or another K-State student you know be willing to engage in for extra money?
Mark all that apply.

	I would never do this.	I might do this.	I would definitely do this.	I have done this once before.	I have done this multiple times.	I know someone who has done this.
Borrow from friends/family	○	○	○	○	○	○
Take out more student or bank loans	○	○	○	○	○	○
Pawn personal items	○	○	○	○	○	○
Take out a payday loan	○	○	○	○	○	○
Take on more hours at one job	○	○	○	○	○	○
Take on a new or additional job	○	○	○	○	○	○
Skip meals	○	○	○	○	○	○
Sell plasma	○	○	○	○	○	○
Sell drugs	○	○	○	○	○	○
Sell textbooks back early	○	○	○	○	○	○
Share or not buy textbooks	○	○	○	○	○	○
Drop classes to save tuition	○	○	○	○	○	○
Enter romantic relationship (sugar daddy/momma)	○	○	○	○	○	○

Steal	○	○	○	○	○	○
Engage in prostitution	○	○	○	○	○	○
Engage in other illegal activities	○	○	○	○	○	○

<< Next page: You are one step closer to winning a prize!

How stressed do you feel about your current financial situation?

1 Not at all	2	3	4	5 Average	6	7	8	9	10 Extremely
○	○	○	○	○	○	○	○	○	○

How would you rate your financial knowledge level compared to your peers?

1 Lowest Level	2	3	4	5	6	7	8	9	10 Highest Level
○	○	○	○	○	○	○	○	○	○

Monthly Take Home Pay (enter as number with no dollar signs or commas)

How much do you currently have in savings? (enter as number with no dollar signs or commas)

What percent of your income do you save? Enter as whole number (e.g., 10 instead of .10 for 10%).

How many credit cards do you have (not belonging to your parents)?

How much revolving credit card debt (debt that you don't pay off at the end of the month) do you currently owe? If none, please write 0. (enter as number with no dollar signs or commas)

How much in student loans (subsidized and unsubsidized) do you have? If none, write 0. (enter as number with no dollar signs or commas)

<< Next page: You are one step closer to winning a prize!

To what extent do you think your current income is enough for you to live on?

Can't meet necessities	Can meet necessities only	Can afford some but not all of the things I want	Can afford nearly everything I want	Can afford everything I want and still have money left over
○	○	○	○	○

Please read each family life change and decide whether it happened to you or any member of your family in the last 12 months.

	You	A family member
Transferred to a different school	☐	☐
Started school	☐	☐
Started a new job	☐	☐
Moved	☐	☐
Pregnancy/birth of child(ren)	☐	☐
Abortion	☐	☐
Began having sexual intercourse	☐	☐
Damage to or loss of property due to fire, burglary, or other disaster	☐	☐
Death of a close friend or family member	☐	☐
Became seriously ill or injured	☐	☐
Has/had emotional problems	☐	☐
More financial debts due to use of credit cards	☐	☐
Increased pressure to get "good" grades or do well in sports or school activities	☐	☐
Uses drugs (not given by a doctor)	☐	☐
Drinks too much alcohol	☐	☐
Jail time or placed on court probation	☐	☐
Robbed or assaulted, physically or sexually	☐	☐

Please indicate your level of agreement with the following statements.

	Almost Never	Seldom	Sometimes	Often	Almost Always
I make myself aware of the total amount of money I owe.	○	○	○	○	○
When I borrow money (e.g., for a car, big purchase, or credit cards) I shop around for the lowest interest rate.	○	○	○	○	○
I spend more money than I earn.	○	○	○	○	○
I have difficulty paying bills because of not enough income.	○	○	○	○	○
I pay credit cards in full each month and avoid finance charges.	○	○	○	○	○
I pay only the minimum due on my credit card each month.	○	○	○	○	○
I reach the maximum limit on my credit cards.	○	○	○	○	○
I obtain cash advances to pay money toward other credit	○	○	○	○	○

balances.					
I have a weekly or monthly spending plan that I follow.	○	○	○	○	○
I have specific short-term, or long-term written financial goals.	○	○	○	○	○
I set money aside for savings.	○	○	○	○	○

Please indicate your level of agreement with the following statements.

	Almost Never	Seldom	Sometimes	Often	Almost Always
There is really no way I can solve some of my problems.	○	○	○	○	○
I am being pushed around in my life.	○	○	○	○	○
There is little that I can do to change the important things in my life.	○	○	○	○	○
I can do anything I set my mind to.	○	○	○	○	○
I am helpless in dealing with the problems of life.	○	○	○	○	○
What happens to me in the future depends on me.	○	○	○	○	○
I have little control over the things that happen to me.	○	○	○	○	○

<< Next page: You are one step closer to winning a prize!

If you began today, how many years will it take to pay off your debts in full?

▼

Suppose you were to sell all of your major possessions (including your home), and turn all of your retirement, investment, and other assets into cash, and pay all of your debts off. Would you....

Remain in serious debt	Have some debt	Break even	Have money left over	Be financially set for life
○	○	○	○	○

For each item, please indicate the response that best describes how well your needs are met on a consistent basis.

	Does not apply	Not at all adequate	Seldom adequate	Sometimes adequate	Usually adequate	Almost always adequate
Food for two meals a day	○	○	○	○	○	○
House or apartment	○	○	○	○	○	○
Enough clothes for you or your family	○	○	○	○	○	○
Money to pay monthly bills	○	○	○	○	○	○
Good job for yourself or spouse/partner	○	○	○	○	○	○
Medical care for you/family	○	○	○	○	○	○

	Does not apply	Not at all adequate	Seldom adequate	Sometimes adequate	Usually adequate	Almost always adequate
Dependable transportation or access to public transportation	○	○	○	○	○	○
Time to get enough sleep/rest	○	○	○	○	○	○
Furniture for your home or apartment	○	○	○	○	○	○
Time to be by yourself	○	○	○	○	○	○
Time to be with family/friends	○	○	○	○	○	○
Telephone or access to a phone	○	○	○	○	○	○

	Does not apply	Not at all adequate	Seldom adequate	Sometimes adequate	Usually adequate	Almost always adequate
Someone to talk to	○	○	○	○	○	○
Time to keep in shape and looking nice	○	○	○	○	○	○
Money to save	○	○	○	○	○	○
Travel/vacation	○	○	○	○	○	○
Job finding expenses	○	○	○	○	○	○

When you face difficulties or feel tense, how often do you...

	Never	Rarely	Sometimes	Often	Most of the time
Go along with others' requests and rules	○	○	○	○	○
Try to reason with others and talk things out; compromise	○	○	○	○	○
Let off steam by complaining to others	○	○	○	○	○
Get angry at people or blame them	○	○	○	○	○
Try to be funny and make light of it all	○	○	○	○	○

	Never	Rarely	Sometimes	Often	Most of the time
Try to stay away from home as much as possible					
Eat food					
Smoke					
Cry					
Use drugs prescribed by a doctor					
Go shopping or to the movies					
Do a strenuous physical activity (jogging, biking, lifting, etc.)					
Drink alcohol					
Sleep					

	Never	Rarely	Sometimes	Often	Most of the time
Talk to a religious leader/pray					
Hang out with friends/family					
Get professional counseling					
Try to think of the good things in your life					
Try, on your own, to figure out how to deal with your problems or tension					
Organize your life and what you have to do					
Take on more work at school or at your job					

	Never	Rarely	Sometimes	Often	Most of the time
Try to help other people solve their problems					
Read, watch TV, listen to music, or play games					
Tell yourself the problem is not important					
Daydream about how you would like things to be					

<< Next page: You are one step closer to winning a prize!

Please check the numbered box that best represents your response to the following questions reflecting on the past 12 months.

	1 Never	2	3	4 Sometimes	5	6	7 Always
I feel anxious about my financial situation	○	○	○	○	○	○	○
I have difficulty sleeping because of my financial situation	○	○	○	○	○	○	○
I have difficulty concentrating on my school / or work because of my financial situation	○	○	○	○	○	○	○
I am irritable because of my financial situation	○	○	○	○	○	○	○
I have difficulty controlling worrying about my financial situation	○	○	○	○	○	○	○
My muscles feel tense because of worries about my financial situation	○	○	○	○	○	○	○
I feel fatigued because I worry about my financial situation	○	○	○	○	○	○	○

Please check what you consider to be the correct answer

	True	False
You may obtain at least one free copy of your credit report each year	○	○
Higher insurance deductibles lead to lower insurance premiums	○	○
An annuity is a contract issued by a financial institution that guarantees a series of payments for over a lifetime.	○	○
A mutual fund is an investment company that invest its shareholder's money in a diversified portfolio of securities	○	○
Social security and company pension plans are sufficient to meet retirement needs	○	○
Over 20 years, you will earn more money to invest in bonds compared to stocks	○	○
Student loans must be repaid within 10 years after graduation.	○	○

In general, how would you describe yourself as a risk taker?

A real gambler	Willing to take risks after completing adequate research	Cautious	A real risk avoider
○	○	○	○

In general, how would you describe yourself as a financial risk taker?

A real gambler	Willing to take risks after completing adequate research	Cautious	A real risk avoider
○	○	○	○

How many people are dependent on your income, including yourself? (Single with no children = 1)

******START OF DATA RECEIVED VIA OFFICE OF FINANCIAL ASSISTANCE*****

CAMPUS_ID

Campus ID is a 9-digit beginning with the number 8 used to identify students.

CAMPUSID

Campus ID for those whose data was updated in Spring 2015.

IN_STATE

Students qualifying for in-state tuition are coded 1, otherwise 0.

COMPLETEDFAFSA

Students who completed a Free Application for Federal Student Aid (FAFSA) application are coded 1, otherwise 0.

EFC

The Expected Family Contribution (EFC) is a measure of your family's financial strength and is calculated according to a formula established by law. Your family's taxed and untaxed income, assets, and benefits (such as unemployment or Social Security) are all considered in the formula. Also considered are your family size and the number of family members who will attend college during the year.

The information you report on your Free Application for Federal Student Aid (FAFSA) or your FAFSA4caster *is used to calculate your EFC. Schools use the EFC to determine your federal student aid eligibility and financial aid award.*

***Note:** Your EFC is **not** the amount of money your family will have to pay for college **nor** is it the amount of federal student aid you will receive. It is a number used by your school to calculate the amount of federal student aid you are eligible to receive.*

For more information about the EFC, see Funding Your Education: The Guide to Federal Student Aid *at: http://studentaid.ed.gov/resources#information-on-getting. To request a free copy of* Funding Your Education: The Guide to Federal Student Aid, *call the Federal Student Aid Information Center at **1-800-4-FED-AID (1-800-433-3243)**.*

Direct quote provided through https://fafsa.ed.gov/help/fftoc01g.htm

FAFSADEPENDENT

*If you can answer **Yes** to **any** of the following questions, you are considered an independent student on the 2015-2016 Free Application for Federal Student Aid (FAFSA), and you generally will not need to provide your parents' information.*

*(**Note:** Health profession students may be required to provide parental information regardless of their dependency status.)*

*However, if you can answer **No** to **all** of the following questions, you are considered a dependent student and generally your parents must provide parental information on your FAFSA:*

- *Were you born before January 1, 1992?*
- *As of today are you married?*
- *At the beginning of the 2015-2016 school year, will you be working on a master's or doctorate program (such as an MA, MBA, MD, JD, PhD, EdD, or graduate certificate, etc.)?*
- *Are you currently serving on active duty in the U.S. Armed Forces for purposes other than training?*
- *Are you a veteran of the U.S. Armed Forces?*
- *Do you now have or will you have children who will receive more than half of their support from you between July 1, 2015 and June 30, 2016?*

- *Do you have dependents (other than your children or spouse) who live with you and who receive more than half of their support from you, now and through June 30, 2016?*
- *At any time since you turned age 13, were both your parents deceased, were you in foster care or were you a dependent or ward of the court?*
- *As determined by a court in your state of legal residence, are you or were you an emancipated minor?*
- *As determined by a court in your state of legal residence, are you or were you in legal guardianship?*
- *At any time on or after July 1, 2014, did your high school or school district homeless liaison determine that you were an unaccompanied youth who was homeless or were self-supporting and at risk of being homeless?*
- *At any time on or after July 1, 2014, did the director of an emergency shelter or transitional housing program funded by the U.S. Department of Housing and Urban Development determine that you were an unaccompanied youth who was homeless or were self-supporting and at risk of being homeless?*
- *At any time on or after July 1, 2014, did the director of a runaway or homeless youth basic center or transitional living program determine that you were an unaccompanied youth who was homeless or were self-supporting and at risk of being homeless?*

*If you have a special circumstance that prevents you from providing parental information, you **may** still be able to submit your FAFSA. However, your FAFSA will be considered incomplete. You must contact the financial office at your college and provide them with documentation to verify your situation. For more information, visit http://studentaid.ed.gov/fafsa/filling-out#are-your-parents-unwilling.*
Direct quote provided through https://fafsa.ed.gov/fotw1516/help/fftoc02k.htm

PELL_ELIGIBLE

Students eligible to receive Federal Pell Grants (grants for undergraduate students who have not earned a bachelor's or professional degree) are coded 1, otherwise 0.

Amount received is based on financial need, cost of attendance, status as full-time or part-time student, plans to attend school for full academic year or less.

See https://studentaid.ed.gov/types/grants-scholarships/pell for more information.

SUB_UNSUB_TOTAL

Number includes total dollar amount that each student has borrowed in Federal Direct Student Loans premised on information provided to our office from the National Student Loan Data System (NSLDS). This total does not include any dollar amounts borrowed by the student and/or parent under the Federal Direct Parent PLUS Loan, Federal Direct Graduate PLUS Loan, or Federal Perkins Loan programs.

The Federal Direct Loan Program is the largest federal student loan program. Under this program, the U.S. Department of Education is your lender.
Direct Subsidized Loans are loans made to eligible undergraduate students who demonstrate ***financial need*** to help cover the costs of higher education at a college or career school.
Direct Unsubsidized Loans are loans made to eligible undergraduate, graduate, and professional students, but in this case, the student does not have to demonstrate financial need to be eligible for the loan.

**********START OF DATA RECEIVED VIA OFFICE OF REGISTRAR**********

ACAD_PROG

1 = COLLEGE OF AGRICULTURE
2 = COLLEGE OF ARCHITECTURE, PLANNING AND DESIGN
3 = COLLEGE OF ARTS AND SCIENCES
4 = COLLEGE OF BUSINESS ADMINISTRATION
5 = COLLEGE OF EDUCATION
6 = COLLEGE OF ENGINEERING
7 = COLLEGE OF HUMAN ECOLOGY
8 = COLLEGE OF TECHNOLOGY AND AVIATION or INTERDISCIPLINARY

KSU_UNDERGRAD_A

Academic major sorted by college

COLLEGE OF AGRICULTURE
Agricultural Economics
Agronomy
Animal Sciences and Industry
Communications and Agricultural Education (AGCOM/AGED)
Entomology
Food Science Institute
Grain Science and Industry
Horticulture, Forestry, and Recreation Resources
Plant Pathology

BACJ	BASI	BHRT	RENTO
BAED	BATM	BMSM	UGENAG
BAGBUS	BBSM	BPMC	UPRVAG
BAGEC	BFDSCI	BWLOEM-	
BAGRON	BFSM	NAGRON	

COLLEGE OF ARCHITECTURE, PLANNING AND DESIGN
Architecture
Interior Architecture and Product Design
Landscape Architecture/Regional and Community Planning

NARCH	UENVD	ULA
UAR	UIAPD	URCP

COLLEGE OF ARTS AND SCIENCES
Aerospace Studies
American Ethnic Studies
Art
Biochemistry and Molecular Biophysics
Biology
Chemistry
Communication Studies
Economics
English
Geography

Geology
History
International and Area Studies
Journalism and Mass Communications
Mathematics
Military Science
Modern Languages
Music, Theatre, and Dance
Philosophy
Physics
Political Science
Psychological Sciences
Sociology, Anthropology, and Social Work
Statistics
Women's Studies

BAMEST-	BGEOG-B	BMUSIC	NART
BANTH-B	BHIST-B	BPHILO-	NBIOL
BART	BKIN-BS	BPHSCI-	NELP
BARTF	BLFSCI-	BPHYS-B	NOPEN
BBIOCH-	BMATH-	BPOLSC-	NPRMED
BBIOFW-	BMBIOL-	BPSYCH-	NPSYCH
BBIOL-B	BMC-BA	BSOCIO-	UOPEN
BCHM-	BMC-BS	BSOCWK	UPJMC
BCLSMT-	BMLANG	BSOSCI-	UPPSY
BCOMM-	BMUSAP	BSTAT-B	
BECON-B	BMUSAP	BTHTRE-	
BENGL	BMUSED	BWOMST	

COLLEGE OF BUSINESS ADMINISTRATION
Accounting
Finance
Management
Marketing

BACCTG	BFINAN	BMIS	UBAPP
BENTRP-	BMANGT	BMKTG	

COLLEGE OF EDUCATION
Curriculum and Instruction
Educational Leadership
Special Education, Counseling and Student Affairs

BEDART	BEDELE	BEDMLA	UEDPPE
BEDBSC	BEDENG	BEDMTH	UEDPPS
BEDBUS	BEDENJ	BEDSST	
BEDCHM	BEDJOR	NEDPPS	

COLLEGE OF ENGINEERING
Architectural Engineering and Construction Science
Biological and Agricultural Engineering
Chemical Engineering
Civil Engineering
Computing and Information Sciences
Electrical and Computer
Industrial and Manufacturing Systems Engineering
Mechanical and Nuclear Engineering

BARE	BCMPEN	BIE	NIS
BBSE	BCNSM	BIS	UENUN
BCE	BCS	BME	UPARE
BCHE	BEE	NCHE	UPCNSM

COLLEGE OF HUMAN ECOLOGY
Apparel, Textiles, and Interior Design
Family Studies and Human Services
Gerontology
Hospitality Management and Dietetics
Human Nutrition
Kinesiology
Programs in General Human Ecology

BAT	BFCSED	BINTDE	BPFP
BATHTR	BFSHS	BKINES	BPHN
BCSD	BHE	BNHLTH	UHEUN
BDT	BHMGMT	BNUKIN	
BECE	BHRM	BNUTSC	

COLLEGE OF TECHNOLOGY AND AVIATION
Arts, Sciences, and Business
Aviation Technology
Engineering Technology

BATN	BETB	BTCMG	UBIOEN

GRADE
1 = Freshman
2 = Sophomore
3 = Junior
4 = Senior
5 = High School, Non-degree, Special

SEX
1 = male
0 = female

AGE
Reported as of April 2014

MS

1 = Single
2 = Married
3 = Divorced
4 = Separated
5 = Unknown

KSU_FIRST_GEN

Student is the first generation of their family to attend a post-secondary institution; self-reported at time of admission.
1 = First generation college student
0 = Not first generation

CITIZEN_COUNTRY

This is the country in which an individual retains official citizenship and is based on the value of the visa permit type. If the visa permit type is blank or equal to "AR1" (permanent resident), the citizen country is USA. Otherwise, this is the value of the non-USA country.

Direct quote obtained from http://www.k-state.edu/registrar/internal/isis/master-extract-file-documentation.pdf

CITY

City of most recent permanent address.

STATE

State of most recent permanent address.

POSTAL

Postal code of most recent permanent address.

EMAIL

KSU email address

RACE

A code that represents the identity of a group of people classified according to common racial, national, tribal, religious, linguistic or cultural origin or background. The person's primary ethnic group code.

Direct quote obtained from http://www.k-state.edu/registrar/internal/isis/master-extract-file-documentation.pdf

1 = White
2 = Black
3 = Hispanic
4 = Asian
5 = American Indian
6 = Multiracial
7 = Not specified

Appendix B - SPSS Output

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2224	100.0
	Missing Cases	0	.0
	Total	2224	100.0
Unselected Cases		0	.0
Total		2224	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted		
			Loan_yesno		Percentage
	Observed		No	Yes	Correct
Step 0	Loan_yesno	No	0	901	.0

	Yes	0	1323	100.0
Overall Percentage				59.5

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.384	.043	79.096	1	.000	1.468

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	KSU_First_Gen	71.568	1	.000
		Filed_noteligible	188.027	1	.000
		DidnotFile	517.316	1	.000
		Business	2.655	1	.103
		STEM	7.479	1	.006
		Perc_Worseoff	168.164	1	.000
		Perc_Better	263.538	1	.000
		grade_fresh	6.766	1	.009
		grade_soph	4.415	1	.036
		grade_junior	1.639	1	.200
		Sex	2.363	1	.124
		Race_dummy	6.478	1	.011
		finrisk4l	.347	1	.556
		subfinknow_high	.169	1	.681
		Subfinknow_low	1.958	1	.162
		anxiety_submean	237.675	1	.000
		mastery_submean	23.551	1	.000
		Finrisk_new_1H	.554	1	.457
	Overall Statistics		820.814	18	.000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	964.158	18	.000
	Block	964.158	18	.000
	Model	964.158	18	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2038.399[a]	.352	.475

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			Loan_yesno		Percentage
	Observed		No	Yes	Correct
Step 1	Loan_yesno	No	610	291	67.7
		Yes	162	1161	87.8
	Overall Percentage				79.6

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)		
Step 1[a]	KSU_First_Gen	.351	.127	7.636	1	.006	1.420		
	Filed_noteligible	-.246	.174	1.997	1	.158	.782		

	DidnotFile	-2.825	.194	211.754	1	.000	.059		
	Business	-.073	.168	.187	1	.666	.930		
	STEM	-.219	.136	2.602	1	.107	.804		
	Perc_Worseoff	.709	.177	16.099	1	.000	2.033		
	Perc_Better	-.963	.137	49.188	1	.000	.382		
	grade_fresh	-1.852	.192	92.858	1	.000	.157		
	grade_soph	-1.661	.168	97.344	1	.000	.190		
	grade_junior	-1.313	.172	58.084	1	.000	.269		
	Sex	-.028	.123	.052	1	.819	.972		
	Race_dummy	.152	.155	.963	1	.327	1.164		
	finrisk4l	-.075	.147	.260	1	.610	.928		
	subfinknow_high	-.270	.144	3.515	1	.061	.763		
	Subfinknow_low	-.142	.129	1.206	1	.272	.868		
	anxiety_submean	.046	.007	48.843	1	.000	1.047		
	mastery_submean	.038	.014	7.790	1	.005	1.039		
	Finrisk_new_1H	.302	.135	4.968	1	.026	1.352		
	Constant	.727	.541	1.808	1	.179	2.069		

Casewise List[b]

Case	Selected Status[a]	Observed Loan_yesno	Predicted	Predicted Group	Temporary Variable Resid	ZResid	SResid
10	S	N**	.922	Y	-.922	-3.446	-2.268
18	S	N**	.952	Y	-.952	-4.474	-2.472
21	S	N**	.952	Y	-.952	-4.456	-2.470
24	S	N**	.958	Y	-.958	-4.791	-2.525
25	S	N**	.929	Y	-.929	-3.607	-2.305
50	S	N**	.955	Y	-.955	-4.599	-2.494
75	S	N**	.956	Y	-.956	-4.637	-2.500
116	S	N**	.953	Y	-.953	-4.483	-2.475
153	S	N**	.877	Y	-.877	-2.676	-2.056
155	S	N**	.909	Y	-.909	-3.160	-2.194
156	S	N**	.893	Y	-.893	-2.889	-2.121
157	S	N**	.899	Y	-.899	-2.991	-2.150
229	S	N**	.957	Y	-.957	-4.741	-2.518
231	S	N**	.869	Y	-.869	-2.573	-2.022

234	S	N**	.881	Y	-.881	-2.723	-2.072
299	S	N**	.973	Y	-.973	-5.953	-2.684
300	S	N**	.891	Y	-.891	-2.859	-2.113
365	S	N**	.888	Y	-.888	-2.818	-2.102
382	S	N**	.924	Y	-.924	-3.498	-2.280
405	S	N**	.876	Y	-.876	-2.656	-2.053
599	S	N**	.864	Y	-.864	-2.522	-2.005
601	S	N**	.947	Y	-.947	-4.245	-2.431
651	S	N**	.922	Y	-.922	-3.447	-2.267
659	S	N**	.964	Y	-.964	-5.160	-2.579
661	S	N**	.930	Y	-.930	-3.656	-2.315
662	S	N**	.934	Y	-.934	-3.766	-2.339
675	S	N**	.979	Y	-.979	-6.769	-2.776
678	S	N**	.959	Y	-.959	-4.848	-2.532
834	S	Y**	.099	N	.901	3.020	2.157
949	S	N**	.904	Y	-.904	-3.075	-2.173
1114	S	N**	.873	Y	-.873	-2.621	-2.036
1218	S	N**	.927	Y	-.927	-3.564	-2.291
1220	S	N**	.882	Y	-.882	-2.737	-2.074
1229	S	N**	.942	Y	-.942	-4.041	-2.394
1237	S	N**	.891	Y	-.891	-2.859	-2.109
1246	S	N**	.898	Y	-.898	-2.962	-2.140
1248	S	N**	.867	Y	-.867	-2.548	-2.012
1249	S	N**	.903	Y	-.903	-3.046	-2.167
1256	S	N**	.955	Y	-.955	-4.614	-2.495
1260	S	N**	.944	Y	-.944	-4.111	-2.405
1261	S	N**	.911	Y	-.911	-3.190	-2.204
1263	S	N**	.908	Y	-.908	-3.141	-2.189
1264	S	N**	.978	Y	-.978	-6.707	-2.769
1269	S	N**	.914	Y	-.914	-3.254	-2.220
1277	S	N**	.896	Y	-.896	-2.938	-2.133
1534	S	Y**	.105	N	.895	2.913	2.129
1547	S	Y**	.118	N	.882	2.737	2.076
1562	S	N**	.929	Y	-.929	-3.617	-2.306
1602	S	N**	.907	Y	-.907	-3.114	-2.185
1606	S	N**	.967	Y	-.967	-5.406	-2.614
1609	S	N**	.920	Y	-.920	-3.397	-2.253
1614	S	N**	.903	Y	-.903	-3.053	-2.165

1617	S	N**	.971	Y	-.971	-5.750	-2.660
1618	S	N**	.957	Y	-.957	-4.744	-2.516
1619	S	N**	.976	Y	-.976	-6.391	-2.736
1623	S	N**	.951	Y	-.951	-4.388	-2.458
1754	S	Y**	.105	N	.895	2.916	2.129
1787	S	N**	.881	Y	-.881	-2.724	-2.072
1898	S	Y**	.044	N	.956	4.641	2.499
1913	S	Y**	.043	N	.957	4.713	2.511
1915	S	Y**	.074	N	.926	3.529	2.286
1941	S	Y**	.068	N	.932	3.692	2.320
1975	S	Y**	.066	N	.934	3.772	2.337
2044	S	N**	.863	Y	-.863	-2.512	-2.003
2101	S	N**	.897	Y	-.897	-2.947	-2.137
2157	S	Y**	.034	N	.966	5.361	2.608

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	anxiety_submean, grade_junior, finrisk4l, Business, subfinknow_high, Race_dummy, Filed_noteligible, KSU_First_Gen, Sex, Perc_Better, grade_fresh, STEM, Finrisk_new_1H, Subfinknow_low, Perc_Worseoff, mastery_submean, grade_soph, DidnotFile[b]	.	Enter

a. Dependent Variable: Sub_Unsub_Total

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.616[a]	.379	.370	8631.873	1.365

a. Predictors: (Constant), anxiety_submean, grade_junior, finrisk4l, Business, subfinknow_high, Race_dummy, Filed_noteligible, KSU_First_Gen, Sex, Perc_Better, grade_fresh, STEM, Finrisk_new_1H, Subfinknow_low, Perc_Worseoff, mastery_submean, grade_soph, DidnotFile

b. Dependent Variable: Sub_Unsub_Total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59264907724.096	18	3292494873.561	44.189	.000[b]
	Residual	97160039272.396	1304	74509232.571		
	Total	156424946996.492	1322			

a. Dependent Variable: Sub_Unsub_Total

b. Predictors: (Constant), anxiety_submean, grade_junior, finrisk4l, Business, subfinknow_high, Race_dummy, Filed_noteligible, KSU_First_Gen, Sex, Perc_Better, grade_fresh, STEM, Finrisk_new_1H, Subfinknow_low, Perc_Worseoff, mastery_submean, grade_soph, DidnotFile

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients				
		B	Std. Error	Beta	t	Sig.		
1	(Constant)	23240.245	2200.994		10.559	.000		
	KSU_First_Gen	592.854	508.508	.027	1.166	.244		
	Filed_noteligible	-5790.499	588.295	-.265	-9.843	.000		
	DidnotFile	-4750.831	814.179	-.175	-5.835	.000		
	STEM	-299.178	614.692	-.011	-.487	.627		
	Business	-1213.573	755.297	-.037	-1.607	.108		
	Sex	-428.619	538.193	-.019	-.796	.426		
	Perc_Worseoff	2707.726	589.672	.113	4.592	.000		
	Perc_Better	-1208.947	756.731	-.037	-1.598	.110		
	Race_dummy	-2919.509	638.317	-.102	-4.574	.000		
	grade_fresh	-15101.070	816.750	-.481	-18.489	.000		
	grade_soph	-11318.431	686.140	-.449	-16.496	.000		
	grade_junior	-6335.025	691.526	-.246	-9.161	.000		
	Finrisk_new_1H	1149.886	581.900	.047	1.976	.048		
	finrisk4l	-908.320	641.914	-.033	-1.415	.157		
	Subfinknow_low	528.605	561.163	.023	.942	.346		

	subfinknow_high	195.220	611.279	.008	.319	.750		
	mastery_submean	64.415	57.215	.028	1.126	.260		
	anxiety_submean	124.977	25.890	.127	4.827	.000		

Casewise Diagnostics[a]

Case Number	Std. Residual	Sub_Unsub_Total	Predicted Value	Residual
5	-3.402	5500	34868.14	-29368.145
71	4.155	55000	19133.24	35866.760
94	3.039	57500	31266.30	26233.696
106	3.208	57500	29807.02	27692.985
283	3.529	49800	19335.65	30464.347
288	3.663	57500	25881.60	31618.404
356	3.696	57500	25593.26	31906.744
451	3.311	57500	28920.98	28579.016
753	3.210	48485	20780.49	27704.506
756	3.436	57500	27841.45	29658.552
1281	-3.029	3050	29194.56	-26144.558
1304	3.550	57500	26852.94	30647.060
1354	3.022	48500	22414.20	26085.796
1402	4.297	57500	20413.02	37086.979
1404	3.664	52562	20935.67	31626.329
1590	3.395	44125	14823.63	29301.374
2111	3.731	57500	25291.79	32208.212

a. Dependent Variable: Sub_Unsub_Total

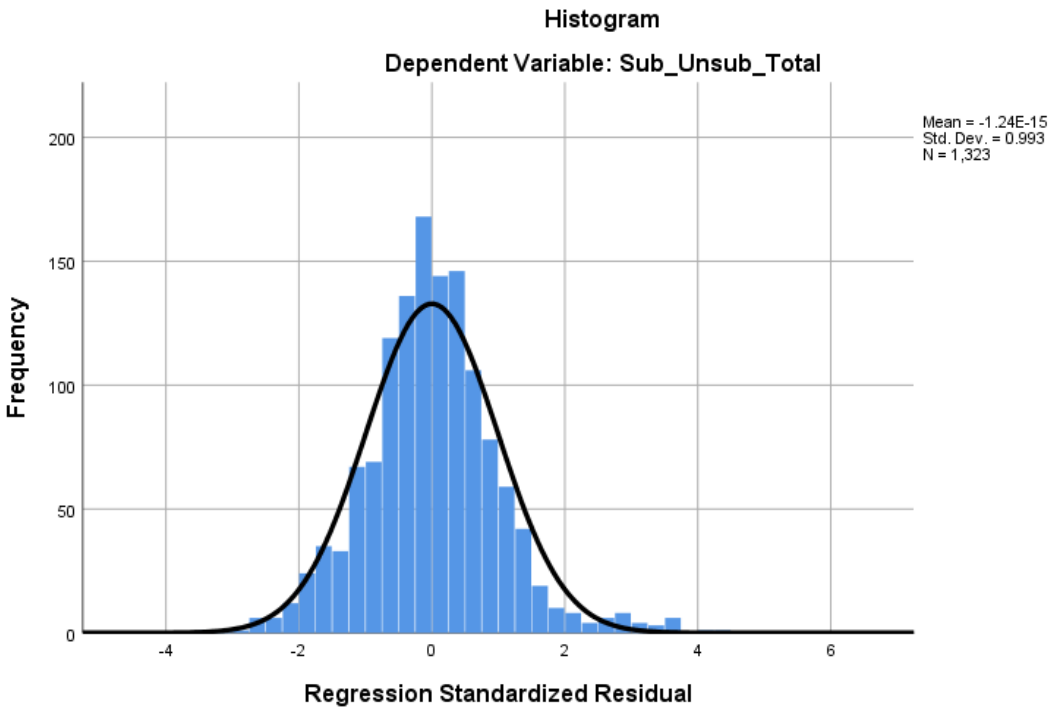
Residuals Statistics[a]

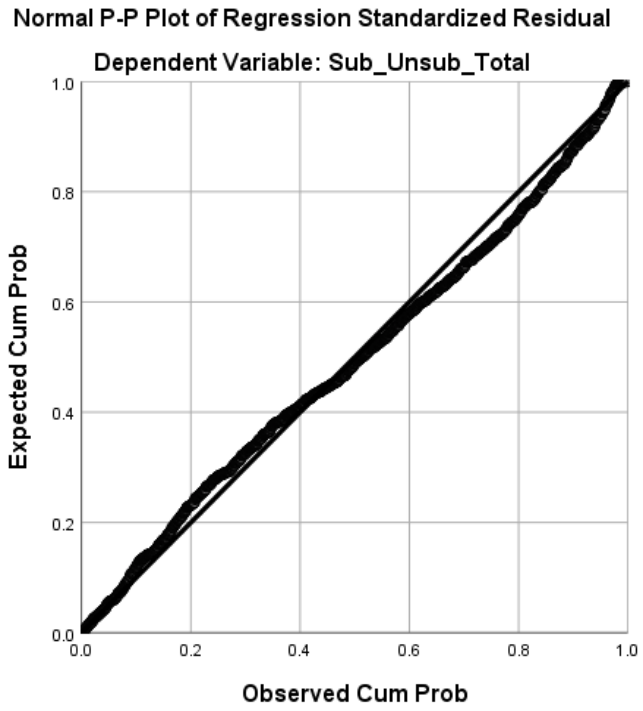
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	360.67	34868.14	16024.51	6695.501	1323
Residual	-29368.145	37086.980	.000	8572.907	1323
Std. Predicted Value	-2.339	2.814	.000	1.000	1323

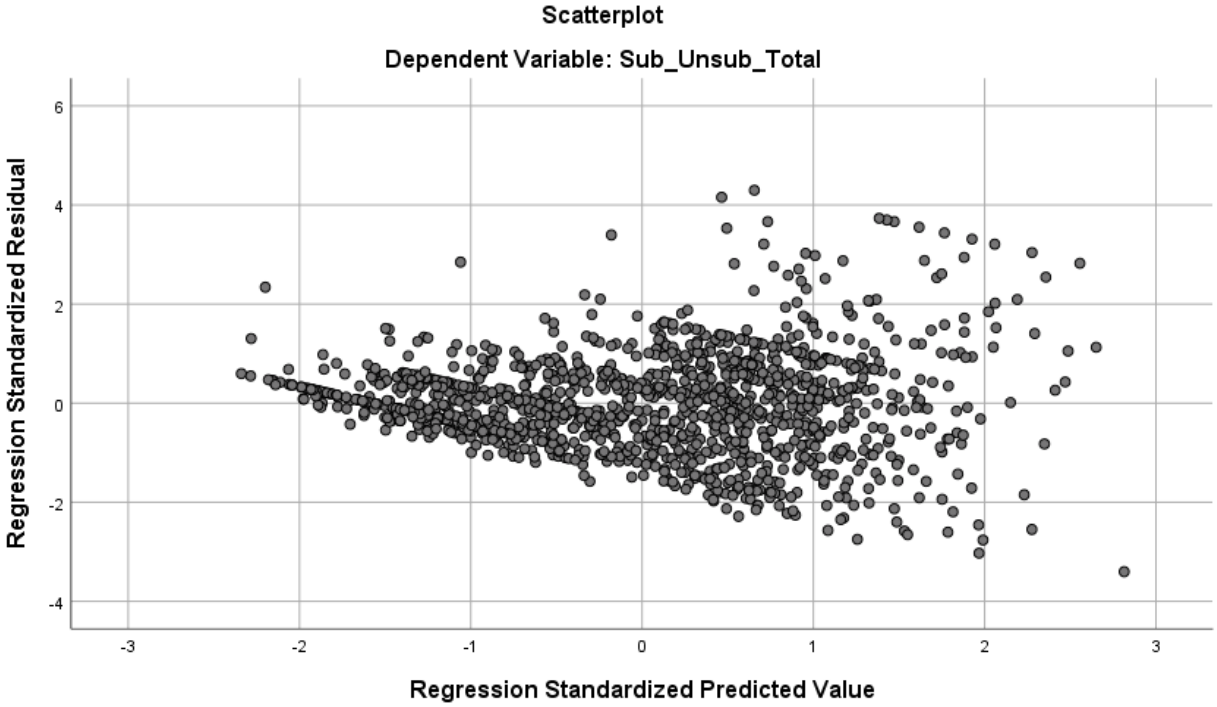
Std. Residual	-3.402	4.297	.000	.993	1323

a. Dependent Variable: Sub_Unsub_Total

Charts







Nominal Regression

Case Processing Summary

		N	Marginal Percentage
diff_sub_mult	1	332	14.9%
	2	296	13.3%
	3	1596	71.8%
Filed_noteligible	0	1284	57.7%
	1	940	42.3%
DidnotFile	0	1344	60.4%
	1	880	39.6%
Business	0	1925	86.6%
	1	299	13.4%
STEM	0	1698	76.3%
	1	526	23.7%
Sex	0	1422	63.9%
	1	802	36.1%
KSU_First_Gen	0	1523	68.5%
	1	701	31.5%
Race_dummy	0	357	16.1%
	1	1867	83.9%
Perc_Worseoff	0	1773	79.7%
	1	451	20.3%
Perc_Better	0	1664	74.8%
	1	560	25.2%
Finrisk_new_1H	0	1650	74.2%
	1	574	25.8%
finrisk4l	0	1793	80.6%
	1	431	19.4%
subfinknow_high	0	1664	74.8%
	1	560	25.2%
Subfinknow_low	0	1450	65.2%
	1	774	34.8%
grade_fresh	0	1878	84.4%

	1	346	15.6%
grade_soph	0	1640	73.7%
	1	584	26.3%
grade_junior	0	1727	77.7%
	1	497	22.3%
Valid		2224	100.0%
Missing		0	
Total		2224	
Subpopulation		2209[a]	

a. The dependent variable has only one value observed in 2206 (99.9%) subpopulations.

Model Fitting Information

Model	Model Fitting Criteria -2 Log Likelihood	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept Only	3511.737			
Final	2932.632	579.105	36	.000

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	4050.548	4380	1.000
Deviance	2928.473	4380	1.000

Pseudo R-Square

Cox and Snell	.229
Nagelkerke	.289
McFadden	.165

Likelihood Ratio Tests

Effect	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept	2932.632[a]	.000	0	.
mastery_submean	2934.633	2.001	2	.368
anxiety_submean	2960.258	27.626	2	.000
Filed_noteligible	3040.767	108.134	2	.000
DidnotFile	3157.122	224.489	2	.000
Business	2938.004	5.372	2	.068
STEM	2937.264	4.632	2	.099
Sex	2932.810	.178	2	.915
KSU_First_Gen	2934.382	1.750	2	.417
Race_dummy	2936.971	4.338	2	.114
Perc_Worseoff	2949.855	17.223	2	.000
Perc_Better	2942.888	10.256	2	.006
Finrisk_new_1H	2946.236	13.603	2	.001
finrisk4l	2933.192	.560	2	.756
subfinknow_high	2935.164	2.532	2	.282
Subfinknow_low	2937.402	4.770	2	.092
grade_fresh	2996.180	63.548	2	.000
grade_soph	2967.283	34.651	2	.000
grade_junior	2938.425	5.792	2	.055

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Parameter Estimates

diff_sub_mult[a]	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)

								Lower Bound	Upper Bound
2	Intercept	3.991	1.072	13.853	1	.000			
	mastery_submean	-.018	.020	.814	1	.367	.982	.944	1.021
	anxiety_submean	.021	.009	5.295	1	.021	1.021	1.003	1.040
	[Filed_noteligible=0]	-2.134	.235	82.700	1	.000	.118	.075	.187
	[Filed_noteligible=1]	0[b]	.	.	0	.	.	.	.
	[DidnotFile=0]	-2.884	.308	87.594	1	.000	.056	.031	.102
	[DidnotFile=1]	0[b]	.	.	0	.	.	.	.
	[Business=0]	.417	.285	2.139	1	.144	1.518	.868	2.656
	[Business=1]	0[b]	.	.	0	.	.	.	.
	[STEM=0]	.200	.221	.814	1	.367	1.221	.791	1.884
	[STEM=1]	0[b]	.	.	0	.	.	.	.
	[Sex=0]	.080	.191	.176	1	.675	1.084	.745	1.576
	[Sex=1]	0[b]	.	.	0	.	.	.	.
	[KSU_First_Gen=0]	-.098	.181	.292	1	.589	.907	.635	1.294
	[KSU_First_Gen=1]	0[b]	.	.	0	.	.	.	.
	[Race_dummy=0]	-.339	.220	2.371	1	.124	.712	.462	1.097
	[Race_dummy=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Worseoff=0]	-.279	.206	1.824	1	.177	.757	.505	1.134
	[Perc_Worseoff=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Better=0]	.091	.279	.106	1	.745	1.095	.634	1.893
	[Perc_Better=1]	0[b]	.	.	0	.	.	.	.
	[Finrisk_new_1H=0]	.285	.201	2.006	1	.157	1.329	.896	1.971
	[Finrisk_new_1H=1]	0[b]	.	.	0	.	.	.	.
	[finrisk4l=0]	.055	.234	.055	1	.815	1.056	.667	1.672
	[finrisk4l=1]	0[b]	.	.	0	.	.	.	.
	[subfinknow_high=0]	-.347	.219	2.501	1	.114	.707	.460	1.087

	[subfinknow_high=1]	0[b]	.	.	0	.	.	.	.
	[Subfinknow_low=0]	.314	.202	2.417	1	.120	1.369	.921	2.033
	[Subfinknow_low=1]	0[b]	.	.	0	.	.	.	.
	[grade_fresh=0]	-.732	.310	5.573	1	.018	.481	.262	.883
	[grade_fresh=1]	0[b]	.	.	0	.	.	.	.
	[grade_soph=0]	-.604	.229	6.930	1	.008	.547	.349	.857
	[grade_soph=1]	0[b]	.	.	0	.	.	.	.
	[grade_junior=0]	-.320	.222	2.083	1	.149	.726	.470	1.121
	[grade_junior=1]	0[b]	.	.	0	.	.	.	.
3	Intercept	7.748	.854	82.269	1	.000			
	mastery_submean	-.023	.016	1.980	1	.159	.977	.947	1.009
	anxiety_submean	-.016	.008	4.536	1	.033	.984	.970	.999
	[Filed_noteligible=0]	-1.164	.155	56.174	1	.000	.312	.230	.423
	[Filed_noteligible=1]	0[b]	.	.	0	.	.	.	.
	[DidnotFile=0]	-2.960	.226	171.405	1	.000	.052	.033	.081
	[DidnotFile=1]	0[b]	.	.	0	.	.	.	.
	[Business=0]	-.103	.210	.243	1	.622	.902	.598	1.361
	[Business=1]	0[b]	.	.	0	.	.	.	.
	[STEM=0]	-.158	.174	.829	1	.362	.854	.608	1.200
	[STEM=1]	0[b]	.	.	0	.	.	.	.
	[Sex=0]	.034	.150	.052	1	.819	1.035	.771	1.388
	[Sex=1]	0[b]	.	.	0	.	.	.	.
	[KSU_First_Gen=0]	.088	.145	.373	1	.542	1.093	.822	1.451
	[KSU_First_Gen=1]	0[b]	.	.	0	.	.	.	.
	[Race_dummy=0]	-.351	.170	4.272	1	.039	.704	.505	.982
	[Race_dummy=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Worseoff=0]	.377	.172	4.782	1	.029	1.458	1.040	2.043
	[Perc_Worseoff=1]	0[b]	.	.	0	.	.	.	.

	[Perc_Better=0]	-.446	.204	4.790	1	.029	.640	.430	.955
	[Perc_Better=1]	0[b]	.	.	0	.	.	.	.
	[Finrisk_new_1H=0]	.570	.160	12.722	1	.000	1.769	1.293	2.420
	[Finrisk_new_1H=1]	0[b]	.	.	0	.	.	.	.
	[finrisk4l=0]	-.073	.185	.154	1	.694	.930	.647	1.337
	[finrisk4l=1]	0[b]	.	.	0	.	.	.	.
	[subfinknow_high=0]	-.163	.179	.833	1	.361	.850	.599	1.206
	[subfinknow_high=1]	0[b]	.	.	0	.	.	.	.
	[Subfinknow_low=0]	.342	.158	4.679	1	.031	1.408	1.033	1.920
	[Subfinknow_low=1]	0[b]	.	.	0	.	.	.	.
	[grade_fresh=0]	-1.663	.242	47.409	1	.000	.190	.118	.304
	[grade_fresh=1]	0[b]	.	.	0	.	.	.	.
	[grade_soph=0]	-1.034	.184	31.759	1	.000	.356	.248	.509
	[grade_soph=1]	0[b]	.	.	0	.	.	.	.
	[grade_junior=0]	-.423	.177	5.720	1	.017	.655	.463	.927
	[grade_junior=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: 1.

b. This parameter is set to zero because it is redundant.

Classification

	Predicted			
Observed	1	2	3	Percent Correct
1	76	8	248	22.9%
2	16	23	257	7.8%
3	66	27	1503	94.2%
Overall Percentage	7.1%	2.6%	90.3%	72.0%

diff_sub_mult[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
1	Intercept	-7.748	.854	82.269	1	.000			
	mastery_submean	.023	.016	1.980	1	.159	1.023	.991	1.056
	anxiety_submean	.016	.008	4.536	1	.033	1.016	1.001	1.031
	[Filed_noteligible=0]	1.164	.155	56.174	1	.000	3.204	2.363	4.345
	[Filed_noteligible=1]	0[b]	.	.	0	.	.	.	.
	[DidnotFile=0]	2.960	.226	171.405	1	.000	19.303	12.393	30.067
	[DidnotFile=1]	0[b]	.	.	0	.	.	.	.
	[Business=0]	.103	.210	.243	1	.622	1.109	.735	1.673
	[Business=1]	0[b]	.	.	0	.	.	.	.
	[STEM=0]	.158	.174	.829	1	.362	1.171	.833	1.646
	[STEM=1]	0[b]	.	.	0	.	.	.	.
	[Sex=0]	-.034	.150	.052	1	.819	.966	.720	1.296
	[Sex=1]	0[b]	.	.	0	.	.	.	.
	[KSU_First_Gen=0]	-.088	.145	.373	1	.542	.915	.689	1.216
	[KSU_First_Gen=1]	0[b]	.	.	0	.	.	.	.
	[Race_dummy=0]	.351	.170	4.272	1	.039	1.421	1.018	1.982
	[Race_dummy=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Worseoff=0]	-.377	.172	4.782	1	.029	.686	.489	.962
	[Perc_Worseoff=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Better=0]	.446	.204	4.790	1	.029	1.561	1.048	2.327
	[Perc_Better=1]	0[b]	.	.	0	.	.	.	.
	[Finrisk_new_1H=0]	-.570	.160	12.722	1	.000	.565	.413	.773
	[Finrisk_new_1H=1]	0[b]	.	.	0	.	.	.	.
	[finrisk4l=0]	.073	.185	.154	1	.694	1.076	.748	1.546
	[finrisk4l=1]	0[b]	.	.	0	.	.	.	.

	[subfinknow_high=0]	.163	.179	.833	1	.361	1.177	.829	1.671
	[subfinknow_high=1]	0[b]	.	.	0	.	.	.	.
	[Subfinknow_low=0]	-.342	.158	4.679	1	.031	.710	.521	.968
	[Subfinknow_low=1]	0[b]	.	.	0	.	.	.	.
	[grade_fresh=0]	1.663	.242	47.409	1	.000	5.276	3.286	8.471
	[grade_fresh=1]	0[b]	.	.	0	.	.	.	.
	[grade_soph=0]	1.034	.184	31.759	1	.000	2.813	1.963	4.030
	[grade_soph=1]	0[b]	.	.	0	.	.	.	.
	[grade_junior=0]	.423	.177	5.720	1	.017	1.526	1.079	2.158
	[grade_junior=1]	0[b]	.	.	0	.	.	.	.
2	Intercept	-3.757	.842	19.923	1	.000			
	mastery_submean	.005	.016	.093	1	.761	1.005	.974	1.036
	anxiety_submean	.037	.007	26.681	1	.000	1.038	1.023	1.053
	[Filed_noteligible=0]	-.970	.218	19.865	1	.000	.379	.248	.581
	[Filed_noteligible=1]	0[b]	.	.	0	.	.	.	.
	[DidnotFile=0]	.076	.249	.094	1	.759	1.079	.663	1.758
	[DidnotFile=1]	0[b]	.	.	0	.	.	.	.
	[Business=0]	.521	.234	4.960	1	.026	1.683	1.064	2.662
	[Business=1]	0[b]	.	.	0	.	.	.	.
	[STEM=0]	.358	.174	4.229	1	.040	1.430	1.017	2.012
	[STEM=1]	0[b]	.	.	0	.	.	.	.
	[Sex=0]	.046	.153	.090	1	.764	1.047	.776	1.413
	[Sex=1]	0[b]	.	.	0	.	.	.	.
	[KSU_First_Gen=0]	-.186	.145	1.649	1	.199	.830	.624	1.103
	[KSU_First_Gen=1]	0[b]	.	.	0	.	.	.	.
	[Race_dummy=0]	.012	.185	.004	1	.950	1.012	.704	1.454
	[Race_dummy=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Worseoff=0]	-.655	.164	15.881	1	.000	.519	.376	.717

	[Perc_Worseoff=1]	0[b]	.	.	0	.	.	.	.
	[Perc_Better=0]	.537	.216	6.172	1	.013	1.710	1.120	2.611
	[Perc_Better=1]	0[b]	.	.	0	.	.	.	.
	[Finrisk_new_1H=0]	-.286	.163	3.086	1	.079	.752	.547	1.034
	[Finrisk_new_1H=1]	0[b]	.	.	0	.	.	.	.
	[finrisk4l=0]	.128	.183	.485	1	.486	1.136	.793	1.627
	[finrisk4l=1]	0[b]	.	.	0	.	.	.	.
	[subfinknow_high=0]	-.184	.169	1.181	1	.277	.832	.597	1.159
	[subfinknow_high=1]	0[b]	.	.	0	.	.	.	.
	[Subfinknow_low=0]	-.028	.162	.031	1	.860	.972	.708	1.334
	[Subfinknow_low=1]	0[b]	.	.	0	.	.	.	.
	[grade_fresh=0]	.931	.236	15.538	1	.000	2.537	1.597	4.030
	[grade_fresh=1]	0[b]	.	.	0	.	.	.	.
	[grade_soph=0]	.430	.182	5.559	1	.018	1.537	1.075	2.198
	[grade_soph=1]	0[b]	.	.	0	.	.	.	.
	[grade_junior=0]	.103	.184	.313	1	.576	1.108	.773	1.588
	[grade_junior=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: 3.

b. This parameter is set to zero because it is redundant.

Classification

	Predicted			
Observed	1	2	3	Percent Correct
1	76	8	248	22.9%
2	16	23	257	7.8%
3	66	27	1503	94.2%
Overall Percentage	7.1%	2.6%	90.3%	72.0%