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Undergraduate Financial Stress, Financial Self-Efficacy, and Major Choice: A Multi-Institutional Study

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Over time, undergraduates students been increasingly forced to assume a greater portion of college costs. For most students, this means borrowing larger sums and cutting back on expenses to fulfill their college dreams, which often leads to financial stress. Using financial self-efficacy theory, we sought to better understand how a lack of financial confidence and a diminished sense of financial well-being may serve to undermine students' intended short and long-term goals. To this end, we examined the predictors of financial stress based upon a multi-institutional sample of senior undergraduates and focus on the role of the earnings potential of different majors.

Keywords: financial stress; college students; major choice; self-efficacy

INTRODUCTION

Experiencing financial stress is now a rite of passage for most college undergraduates. While previous generations were able to “work their way through school,” the high cost of tuition today forces a vast number of students to finance their college expenses through loans, resulting in a substantial accumulation of debt over time (Baum & Ma, 2012). Uncertain career prospects and the responsibility for paying back loans has resulted in elevated levels of financial stress among undergraduates. While emerging research has linked financial stress to negative short-term outcomes, like failing to buy course materials and delaying healthcare (Goldrick-Rab, 2016; National Survey of Student Engagement [NSSE], 2012, 2015; Wisconsin Hope Lab, 2016), less is known about the long-term effects of financial stress among college students.

For today's students, financial stress is nearly synonymous with college-going. Heckman, Lim, and Montalto (2014) reported that 71% of those responding to the Ohio Student Financial Wellness survey experienced some degree of stress due to concerns over their personal finances. It is also known that financial stress, sometimes expressed as financial anxiety (Archuleta, Dale, & Spann, 2013), impacts first-year college success (Fosnacht, 2017), and ultimately, retention (Britt, Ammerman, Barrett, & Jones, 2017; Heckman et al., 2014). Therefore, it is critical to identify the salient factors that exacerbate financial stress for college students.

This study examines the potential influence of financial self-efficacy, understood as the "missing link between knowledge and effective action" (Lapp, 2010, p. 1), on school academic measures, and by extension, how these academic outcomes may impact financial stress levels in college students. By looking at the relationship between academic major, debt load, and financial stress, a more nuanced understanding as to how practitioners may better support the most vulnerable students is expected.

LITERATURE REVIEW

While researchers may argue that college is worth the investment (Autor, 2014; Avery & Turner, 2012), this popular messaging frequently ignores the financial vulnerability that many college students experience given the extraordinary costs they are expected to assume. Financial literacy research suggests that the typical college student has limited financial knowledge (Akers & Chingos, 2014; Avard, Manton, English, & Walker, 2005; Berkner & Wei, 2006; Chen & Volpe, 1998; lendEDU, 2016; Murphy, 2005). The average student also has little to no assets or earning potential, as traditional college students have not had the opportunity to work full-time and accumulate wealth in any demonstrable way. Furthermore, federal financial aid policy penalizes both student income and wealth, which may have the effect of dis-incentivizing students need for work or savings (U.S. Department of Education, n.d.). Consequently, college students typically have little financial security and are therefore particularly vulnerable when financial mishap occurs (Gutter & Copur, 2011; Leach, Hayhoe, & Turner, 1999). These realities make finances a leading stressor among undergraduates (American College Health Association, 2013; Trombitas, 2012).

Much of this financial stress can be attributed to changes in which the college cost burden, particularly for public institutions, has shifted from the state to students and families (Kane, Orszag, & Gunter, 2003; State Higher Education Executive Officers, 2014). This shift is, in part, fueled by the reconceiving of college as an individual or private good as compared to a social one (Newfield, 2016). By embracing the notion of college as a lever of social mobility, the nation has simultaneously abandoned college's democratic purposes (Holmwood, 2016). In recent years, the primary rationale for students to attend college is to "make more money," suggesting that the pecuniary rewards of higher education serves as a main driver of increasing college enrollment (Eagan et al., 2016). Prior to the ascension of neoliberalism in America, the vast majority of students majored in the liberal arts with its focus on the holistic development of the student (Geiger, 2005). By comparison, the most popular major today is business, and with half of students majoring in the more lucrative applied fields of study (Carnevale, Strohl, & Melton, 2011; NSSE, 2016). While the increasing

emphasis on the private returns to education has altered the composition of students' major choices, it is not clear how the increased financial pressures of college have altered students' choices in other ways. Are concerns over repaying student loans driving students to applied fields with better job prospects at graduation?

A growing body of research has examined the relationship between financial stress and students' financial decision-making and related behaviors (Goldrick-Rab, 2016; NSSE, 2012, 2015; Wisconsin Hope Lab, 2016). Researchers using data from Ohio State University's National Student Financial Wellness Study reported that 60% of students expressed some concern over their ability to pay for their schooling (Office of Student Life, 2013). The Wisconsin HOPE Lab (2016) found that financially stressed students cut back on their school supplies and socializing, put off medical expenses, and worked more than non-financially stressed students, and NSSE (2012, 2015) noted an overall increase in levels of reported financial stress among college students over time. Furthermore, a substantial number of those students who expressed concern about paying for college strategically avoided specific activities due to money concerns and investigated working more hours as a response to their financial challenges. Interestingly, NSSE (2015) found that these financial worries amplified as students moved ever closer to graduation.

While the literature increasingly indicates that financial stress impacts financial decision-making behaviors, it is less understood how decisions with long-term effects, like persistence to graduation and academic major choice, are associated with financial stress. Consequently, this study examines the relationship between financial stress, student background characteristics, student debt, and the differential level of compensation associated with various majors among a sample of college seniors.

CONCEPTUAL FRAMEWORK

A critical objective of this study is to determine how financial stress contributes to short- and long-term decision-making among college students. While financial stress is most commonly understood as an inability to meet existing financial demands and obligations (Heckman et al., 2014), the current study focuses on the impact of financial shortcoming on individual planning (i.e., the absence of means for required or desired activities). Financial self-efficacy presents a useful construct for examining the psychological dispositions that may contribute to perceived financial distress, especially given that self-efficacy is known to encourage behavioral habits leading to greater individual well-being.

Financial self-efficacy derives from Bandura's (1977, 1982) initial self-efficacy construct. He suggests that self-efficacy is best understood as "self-referent" thought that operates at the intersection between knowledge and action (Bandura, 1982). Determinations over one's abilities, as well as highly personal assessments over what is possible, serve as either a conduit or roadblock to action. Those who believe they have the ability to regulate their lives and surroundings are, by definition, exhibiting self-efficacious behavior. By comparison, those who find themselves at the mercy of their circumstances exhibit themselves as inefficacious. Efficacious assessments of individual circumstance tend to drive behavior (action) in positive, productive ways leading to greater potential for

personal success and overall well-being. Individual-level misgiving, by contrast, results in elevated stress and impairment at moments of perceived challenge. The presence of self-efficacy ensures that an individual engages in behavior (help-seeking, self-advocacy among them) that enhances their ability to handle diverse, complex situations. Self-efficacy should therefore be understood as a complex process in which “component cognitive, social, and behavioral skills must be organized into integrated courses of action” (Bandura, 1982, p. 122). A high level of perceived self-efficacy reflects demonstrated individual confidence and capacity for success (Bandura, 1977, 1982).

Prior research has shown that self-efficacy is associated with a reduced likelihood of stress among college students (Zajacova, Lynch, & Espenshade, 2005) and is positively related to academic performance (Chemers, Hu, & Garcia, 2001; Zajacova et al., 2005). From this point of view, it is expected that individuals with demonstrated self-efficacy may feel more prepared to deal with challenging financial situations and may possess far greater optimism for their future endeavors. The primary goal is to uncover the impact of decision-making in the absence of individual level financial self-efficacy. In other words, an objective is to understand how a lack of individual confidence and a diminished sense of financial well-being undermine students’ intended academic goals and future prospects.

RESEARCH QUESTIONS

Guided by the aforementioned conceptual framework, the following research questions were investigated:

1. Which student characteristics are associated with higher levels of financial stress?
2. How does the potential income associated with different majors influence financial stress?
3. Is the relationship between potential income and financial stress moderated by student debt?

METHODS

Data

Data were obtained from the 2015 administration of the National Survey of Student Engagement (NSSE). The analyses are focused on student responses from a subsample of schools that were administered a set of specific financial stress items appended to the core NSSE survey. In total, 24 institutions were selected to receive the financial stress supplement and 4,947 senior students responded to the items. Table 1 contains the characteristics of the sample. Roughly two-thirds of the sample self-identified as white, while blacks and Latina/os comprised 7% and 11% of the sample. Slightly less than two out of three students were female. Over half of the students were aged 23 or less. About half of the respondents had at least one parent who earned a bachelor’s degree. Three out four students were enrolled full-time. A third of the sample had no student debt, but 45% of the sample had at least \$5,000 in student loans. Two-thirds of the respondents attended a public institution. A plurality of the

students attended institutions that awarded doctoral degrees. Most of the sample attended institutions with a “Competitive” Barron’s rating¹.

Table 1

Sample characteristics

	N	%
Race/ethnicity		
White	3,240	66
Black	341	7
Latina/o	552	11
Multi-racial	359	7
Other	425	9
Sex		
Female	3,140	63
Male	1,807	37
Age		
≤23	2,865	59
24-29	866	18
30-39	589	12
≥40-55	583	12
Parental education		
< High school	342	7
High school	1,037	21
Some college	643	13
Associate's	551	11
Bachelor's	1,316	27
Master's	1,044	21
Enrollment status		
Part-time	1,221	25
Full-time	3,726	75
Student loan debt		
\$0	1,618	33
\$1-\$3,499	494	10
\$3,500-\$4,999	611	12
\$5,000-\$9,999	1,143	23
≥\$10,000	1,029	21
Institutional control		
Public	3,319	67
Private	1,628	33
Basic 2010 Carnegie Classification (aggregated)		
Doctoral	2,128	43
Master's	1,779	36
Bachelor's	1,040	21

¹ Competitive is the largest classification and includes institutions where admitted applicants have average grades and standardized test scores.

From the financial stress supplemental item set, a financial stress index created by NSSE (2015) was used as the dependent variable. The operationalized definition of financial stress extends beyond the one proposed by Heckman and colleagues (2014) which focuses on whether students perceive they cannot participate in college activities due to a lack of money. The broader definition included their ideas on participatory constraint, but also extended the definition to include students' financial worries, interest in reducing their expenses or increasing their income, and perceptions over how their financial concerns influenced their academic performance. The index was originally developed via an exploratory factor analysis using the items contained in the supplemental item set. An analysis of the scree plot indicated that only one factor should be retained. The index components focus on topics such as how often the student worried about money, if they ever avoided purchasing academic materials, entertained the possibility of dropping out, and the extent to which financial concerns interfered with their academic performance. The rotated factor loadings of the items in the index are displayed in Table 2. The Cronbach's α of the index was .90. The index was computed by standardizing and then averaging the items. The overall index was then standardized to have a mean of 0 and standard deviation (SD) of 1. While not included in the financial stress index, the supplemental data set also captured the total amount of student loans incurred by students which was used as a control variable. This debt variable was captured on the original instrument in the following ranges: \$0; \$1-\$3,499; \$3,500-\$4,999; \$5,000-\$9,999; and \$10,000 or more.

Table 2.

Rotated factor loadings for the financial stress index

Item	Loading
Worried about having enough money for regular expenses ¹	0.79
Worried about paying for college ¹	0.76
Carried a balance on a credit card ¹	0.41
Chosen not to participate in an activity due to lack of money ¹	0.76
Chosen not to purchase required academic materials due to their cost ¹	0.60
Investigated transferring to a less expensive college ¹	0.48
Investigated withdrawing from college due to costs ¹	0.48
Investigated working more hours to pay for costs ¹	0.73
Investigated borrowing more to pay for costs ¹	0.73
Financial concerns interfered with my academic performance ²	0.77
Working for pay interfered with my academic performance ²	0.61
I worry about making enough money after college to repay my student loans ²	0.57

¹ During the current school year, about how often have you done the following? (Response options: Very Often, Often, Sometimes, Never)

² Please indicate the extent to which you agree with the following statements: (Response options: Not at all [1] to Very Much [6])

Note. Factors rotated using a quartimax rotation

Another key variable was the earning potential associated with the student's major. This variable was derived from a report that analyzed Census data to estimate the earnings of graduates holding a bachelor's degree by college major (Carnevale et al., 2011). The potential earning values were then matched with the 138 potential major choices represented in the NSSE instrument. The per-capita income from students' permanent home zip code was used as a proxy for parental income. This information was merged into the dataset using publicly available Internal Revenue Service (n.d.) data from the 2013 tax year. Finally, data on a variety of student characteristics reported on the NSSE instrument served as control variables, including race/ethnicity, sex, parental education, educational aspirations, grades, and transfer status.

Analyses

To answer the research questions, a series of ordinary least squares regression models predicting senior students' level of financial stress were conducted. The first model regressed the financial stress index on the predictor variables described above. Institution-specific fixed effects were also included. The fixed effects represent dummy variables indicating which institution the student attended as well as accounting for institutional differences such as control (public vs. private), cost of attendance, geographical region, and other observable and unobservable differences. Mathematically, this equation is represented as follows:

$$Y_{ij} = \beta X_{ij} + \alpha_j + \mu_{ij} \quad (1)$$

where, Y_{ij} is the financial stress level for student i in school j , β is a vector of regression weights, X_{ij} is a $1 \times k$ vector of predictor variables for student i in school j , α_j is the school variant effect for school j , and μ_{ij} is the error term for student i in school j .

The second model added an interaction term between accumulated student loan debt and the potential earnings associated with the student's major to investigate if the relationship between student debt and financial stress is moderated by students' potential earnings (Baron & Kenny, 1986). The second model is mathematically represented by:

$$Y_{ij} = \beta X_{ij} + d(\text{debt}_{ij} \times \text{earnings}_{ij}) + \alpha_j + \mu_{ij} \quad (2)$$

The contents of the second model are identical to the first, except for the inclusion of the $d(\text{debt}_{ij} \times \text{earnings}_{ij})$ term. The added term represents the cross product between students' debt level and the earnings associated with their major for student i in school j . The d term represents the regression weight associated with the interaction term. Additionally, robust standard errors were utilized that accounted for the nesting of students within institutions. Binary, ordinal, and nominal variables were transformed into dummy variables and the largest group for these types of variables was used as the reference group. Also, as mentioned previously, the dependent variable, financial stress, was standardized with a mean of 0 and a standard deviation of 1. Therefore, the coefficient estimates describe the expected change

in standard deviation units of the dependent variable for a one unit change in the independent variable, holding other factors constant.

RESULTS

Table 3 presents the results from the fixed effects regression models predicting senior students' level of financial stress. The first model includes student characteristics and potential income associated with students' majors in response to the first two research questions. The second model also includes an interaction term between student debt and potential income to test if the relationship between potential income and financial stress is moderated by student loan debt. Unless otherwise indicated, the results presented refer to the first regression model, which contained the main effects.

The first model accounted for 26% of the total variance in students' level of financial stress. When looking at the predictive relationship of student loan debt on financial stress levels, a substantial relationship between student loan debt and financial stress was noted. Loan debt between \$1 and \$3,499 was associated with a half standard deviation increase in financial stress compared to students with no debt, when holding other factors constant. The effect sizes for debt between \$3,500-\$4,999 and \$5,000-\$9,999 were .70 and .85, respectively. Additionally, having \$10,000 or more in student loan debt, which is *less than half* of the average debt accumulated per graduate with a loan (Baum, Ma, Pender & Bell, 2015), was associated with a standard deviation increase in financial stress compared to students with no debt, holding other factors constant.

The potential income associated with a student's major was negatively associated with financial stress. A \$10,000 increase in the median earnings potential with a major was estimated to reduce the amount of financial stress by .07 SDs, after controlling for other variables. Consequently, the expected reduction in stress as a result of changing from one of the lowest paid paying fields (psychology and social work) to the highest (engineering) is nearly a quarter SD. The per capita income in the student's home zip code was a significant predictor of financial stress. A thousand dollar increase in the per-capita income of the students' home community was estimated to reduce students' level of financial stress by .21 standard deviations, controlling for other factors. Parental education was also related to financial stress, net of other variables. Students with parents who did not earn a bachelor's degree were more likely to experience a higher level of financial stress than their peers with a parent who earned a bachelor's degree.

Aspiring to earn a doctoral or professional degree was positively correlated with financial stress as compared to peers who aspired to only earn a bachelor's degree, holding other factors constant. Latina/os and multiracial students had higher levels of financial stress than white students. Males on average had lower levels of financial stress than females. Students aged over 40 had lower financial stress levels than students 23 or younger. However, 24-29 year olds reported higher levels of financial stress than their younger peers. Part-time and transfer student status were positively correlated with higher levels of financial stress. Greek-life participants on average reported higher financial stress levels. Finally, students who earned mostly A's reported lower levels of financial stress than

students who earned mostly B grades, while students who earned mostly C's or lower had higher levels of financial stress.

Table 3

Fixed Effect Estimates Predicting Financial Stress (N=4,185)

	Model 1		Model 2	
	Coef.	Sig.	Coef.	Sig.
Potential income (\$10,000s)	-0.07	***	-0.04	
Student loan debt (Ref: \$0)				
\$1-3,499	0.53	***	0.98	***
\$3,500-4,999	0.70	***	1.05	***
\$5,000-9,999	0.85	***	1.12	***
\$10,000 or more	1.04	***	1.05	***
Educational aspirations (Ref: Bachelor's)				
Master's	0.03		0.03	
Doctoral or professional	0.09	**	0.09	*
Race/ethnicity (Ref: White)				
Black	-0.02		-0.02	
Latina/o	0.15	**	0.15	**
Multiracial	0.13	*	0.13	*
Other	0.13	*	0.12	*
Male	-0.08	**	-0.08	**
Per capita income (\$1,000s; home zip code)	-0.21	*	-0.22	**
Student Athlete	-0.03		-0.03	
Age (Ref: 23 or younger)				
24-29	0.11	**	0.11	**
30-39	-0.03		-0.03	
40 or older	-0.30	***	-0.30	***
Parental education (Ref: Bachelor's)				
Did not finish high school	0.27	***	0.27	***
High school diploma/G.E.D.	0.11	**	0.12	**
Some college	0.09	*	0.09	*
Associate's	0.15	**	0.15	**
Graduate degree	-0.07		-0.07	
Part-time enrollment	0.10	**	0.10	**
Greek-life member	0.09	*	0.09	*
Transfer student	0.11	**	0.11	**
STEM major	0.06		0.06	
Grades (Ref: Mostly B's)				
Mostly A's	-0.20	***	-0.20	***
Mostly C's or lower	0.19	**	0.19	**
Potential income*Student loan debt				
\$1-3,499			-0.09	
\$3,500-4,999			-0.06	
\$5,000-9,999			-0.05	
\$10,000 or more			0.00	
Constant	-0.24		-0.39	**
R ²	0.26		0.26	

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

Note. Financial stress (dependent variable) is standardized with a mean of 0 and standard deviation of 1. Reference groups in parentheses. Robust standard errors. Model 1 contains the main effects. Model 2 adds an interaction effect between potential income and student loan debt

The second model contained an interaction term that allowed us to examine if the relationship between potential income and financial stress is moderated by student loan debt. The interaction terms were all non-significant. Consequently, it was determined that the relationship between potential income and financial stress does not vary by student loan debt. This indicates that students with substantial student loan debt do not receive an outsized reduction in financial stress by changing to a more lucrative major.

DISCUSSION

Understanding how college-specific stress factors influence individual-level financial stress is useful to informing potential interventions for finance practitioners seeking to support greater financial wellness among college students. This is critical given the tremendous importance of loans and subsequent debt to college financing within today's complex and challenging tuition environment. As public funding of higher education has decreased over time, so has the ability for students and families to pay for their college education outright. No longer can aspiring college students look to part-time and summer employment as a realistic means of paying for their college costs. Today, a primary marker of the college experience is the accumulation of debt (Baum & Ma, 2012). This change has increased the risks of attending college as students must repay their debt whether or not they receive their degree. These factors have all contributed to increased levels of financial stress among college students. While much research has indicated that financial stress can alter the short-term decision making of college students (Goldrick-Rab, 2016; NSSE, 2012, 2015; Wisconsin Hope Lab, 2016), less is known about the longer-term impacts of financial stress on future prospects.

Through this study, the relationship between financial stress and the value of different majors in the marketplace for a multi-institutional sample of college seniors was investigated. Findings suggest that the monetary rewards of a major are negatively associated with financial stress, after controlling for other characteristics. Therefore, results suggest that choosing a higher paying major is one possible strategy for students to reduce financial stress, although the current study is unable to establish causality as cross sectional data were utilized. Comparing the lowest paid majors (psychology and social work) to the highest paid major (engineering) can reduce students' level of financial stress by roughly a quarter standard deviation, holding other factors constant. The relationship between the expected value of a major and financial stress is not moderated by accumulated student debt so that the reduction in financial stress associated with choosing a high paying major does not vary by students' indebtedness. Consequently, students' employment prospects appear to exert a unique influence on their level of financial stress and one that does not vary by student loan debt. One can surmise that the relationship between academic major and financial stress levels may be a product of the associated prestige that comes with high-income yielding academic majors. Such prestige (and the promise of future earnings) may result in higher individual level self-confidence and self-efficacy that serves to elevate beliefs in the potential for future financial wellness. The trend towards majoring in applied fields could be construed as self-efficacious behavior that intentionally or otherwise serves to reduce financial stress for those college students represented in this study.

The role of student debt on financial stress was also investigated. Not surprisingly, the amount of student loan debt was strongly associated with financial stress. Having between \$1 and \$3,499 in debt was estimated to increase financial stress by a half standard deviation compared to peers with no student loan debt. The increase in financial stress associated with \$10,000 or more of debt was over one standard deviation. Therefore, just having *any* student loans appears to be a primary predictor of students' level of financial stress.

The rationale as to the role of academic major prestige may also apply when placed in the context of accruing debt. Internalized satisfaction associated with high prestige majors may reduce less efficacious beliefs related to financial wellness. In this way the perceived opportunity cost of college going exceeds the increasing debt loads assumed by students. Alternatively, those in lower prestige majors may find that the internal calculus between future earnings and cost does not weigh in their favor over the long-term. This becomes particularly problematic if students are making major choices in direct response to anticipated student debt loads.

Interestingly, the relationship between academic major, debt loads, and stress does not hold for students aspiring to earn a doctoral or professional degree. Expecting to earn an advanced degree was positively correlated to financial stress compared to students aspiring to only earn a bachelor's degree, after controlling for other factors. This suggests that perceived time horizons associated with income earning may, in fact, complicate the efficacy benefits rendered through high-yield income majors. Understandably, the potential compounding of debt load in pursuit of additional degrees in combination with deferred income-earning may result in greater internalized doubt, and by consequence, elevated financial stress levels.

Latina/o and multiracial students reported higher levels of financial stress than white students, holding constant other variables. Males indicated that they experienced less financial stress than females. The per capita income of a student's home zip code, the proxy for parental income, was negatively related to financial stress. Finally, students who earned mostly A's reported less financial stress than students who earned mostly B's, while students receiving mostly C's or lower grades had higher levels of financial stress than those with mostly B's, holding constant other variables. These findings are particularly important as the sample reflects far greater diversity in terms of students, institutions, and other variables in comparison with previous research examining the correlates of financial stress (e.g., Archuleta et al., 2013; Gutter & Copur, 2011; Montalto, Heckman, & Letkiewicz, 2016; Britt, Mendiola, Schink, Tibbetts, & Jones, 2016; Shinae, Gudmunson, Griesdorn, & Gong-Soog, 2016; Wisconsin Hope Lab, 2016). Together, these findings indicate that there is a relationship between key student characteristics like race, gender, income, and academic performance and degree of financial stress experienced by these key populations of students. Future studies on undergraduate financial stress should include these key variables in their analyses.

Implications for Financial Therapists and Related Practitioners

The findings have a variety of implications for financial therapists as well as college-based practitioners who work with college students on a regular basis. For one, experiencing financial stress appears to be meaningfully tied to academic major. If financial self-efficacy, as outlined by Bandura, is a product of an individual success and/or belief in their potential for success, it could be argued that the promise of future earnings via a high-yield income major offers the potential for more muted financial stress. While this is a notable finding, it also fuels further concern about the pressures associated with individual career choices, particularly for those who are most vulnerable to greater debt—namely, low-income, first-generation, students of color. The combination of financial stress, major choice, and student loan debt may actually encourage, either directly or indirectly, students to pick majors with higher levels of future compensation in lieu of majors and careers associated with lower incomes. This is, of course, highly problematic given that many of these careers focus on public service. And given the impending wave of baby boomer retirements, there will be a greater need to replace a generation's worth of labor with qualified replacements. Consequently, these financial burdens may deprive Americans of a generation of qualified educators, mental health professionals, and nurses. Such a vacuum has the potential to dampen the nation's prospects for future prosperity and economic vitality (Goldin & Katz, 2008). Additionally, back-end federal debt forgiveness and reduced repayment programs such as the Teacher and Public Service Loan Forgiveness programs and Pay As You Earn Repayment Plan may come too late for some students².

While not particularly surprising, students from lower income communities and households with lower levels of educational attainment have higher levels of financial stress than their high-income peers and with a parent who completed a bachelor's degree. Additionally, Latina/o and multiracial students reported higher levels of financial stress than whites. Consequently, students from these populations may disproportionately benefit from financial education initiatives like money management training, which may reduce their level of financial stress. Students aspiring to earn a doctoral or professional degree had higher levels of stress most likely due to their belief that they will have to accumulate more debt to accomplish their goals. Financial education professionals can assist these students by providing information on fellowships for graduate school or by directing students to resources like UCLA's GRAPES fellowship database (UCLA Graduate Education, n.d.), as fellowship support offices are commonly located within graduate schools and not explicitly targeted towards undergraduates. Part-time students also had higher levels of stress than full-time students, most likely due to the difficulty in balancing work and school demands. Part-time students may benefit from training on how to better balance the competing demands for their time. Finally, students who earned mostly A's reported less financial stress than students who earned mostly B's, while students receiving mostly C's or lower grades had higher levels of financial stress than those with mostly B's, holding constant other variables. Consequently, students who are struggling academically may be more likely to

² Current budget proposals by the Trump administration cast doubt on the future of public service forgiveness programs. As of the writing of this study, these programs remain in place, but do appear to be at peril in the proposed budget that is currently being considered by Congress.

struggle with financial stress.

LIMITATIONS

The sample is limited to senior students attending four-year colleges and universities, so the results may not be generalizable to other institutional types and students in different phases of their educational career. The data was primarily self-reported, and by consequence, may be subject to error, especially given the fact that many students are unaware of their level of student debt (Akers & Chingos, 2014). The student debt data was collected in discrete ranges due to previous research indicating a lack of knowledge in this area and the categories were somewhat artificial and selected to maintain consistency with a set of previous questions that utilized the same ranges. Also, the proxy for post-college expected earnings is subject to error as it is a national average, not the students' personal expected earnings. Put simply, a high achieving student at a highly selective school could expect to earn much more than an average student at a regional college when holding their major constant. Likewise, the data is not a random sample of all senior students. Rather, students were randomly sampled among institutions that chose to participate in NSSE. Therefore, the results are partially subject to self-selection bias, although the bias occurs at the institution, not student, level. As a secondary analysis of preexisting data, the covariates chosen were limited to the available data. Due to the limited research on the topical focus, variables that contribute to financial stress among college students may have been omitted and endogenous variables may not have been included in the analyses. Additionally, as noted above, the dataset utilized cross-sectional data, so the relationships presented are correlational, not causal. A corollary is that it is not possible to detect the direction of the causal relationship between major choice and financial stress.

CONCLUSIONS

Perceptions of financial well-being often serve as a powerful filter for how individuals come to know the world (Diener, Sandvik, Seidlitz, & Diener, 1993; Henry, 2005; Sennett & Cobb, 1972). Money creates and restricts freedoms of choice in powerful ways (Bourdieu, 1977) and in doing so, influences how people relate to others and make day-to-day decisions, and specific to this study, how people make critical human capital investments. Expressions of financial stress may be more accurately understood as a recognition of the current or future limits on choice that come with associated debt and, in this case, student borrowing. It also follows that such perceived limitations have a clear and significant impact upon an individual's self-efficacy.

To this point, findings indicate that there are at least two key factors that appear related to financial stress: (a) the borrowing behavior of students and (b) their perception of their earning power following graduation. The first factor is not necessarily surprising. As students borrow at elevated levels, they are increasingly burdened by the impact that such borrowing may have on their financial well-being over the long-term. As students move ever closer to graduation, these borrowing decisions move from an abstract or hypothetical internal calculus to a deepening concern for their financial future. While the findings do not allow us to detail how this burden is experienced at the individual level, they do indicate that

elevated debt has a distinct dampening effect on students' sense of well-being and perceptions of self-efficacy.

Findings reveal that factors like course of study/major, academic performance, as well as race, gender, and class serve as cognitive buffers to the financial stress that comes with elevated borrowing. Those who feel they will be rewarded through their future earnings will logically feel as though they can overcome the burdens of their student debt with relative ease. Simultaneously, those who fall outside these categories (low-earning potential, poorer academic performance, etc.) express greater vulnerability in light of what appears possible. This is clearly demonstrated through the financial stress patterns identified earlier. It is possible that individual self-efficacy is a feature of these so-called cognitive barriers to stress and serves to mute the potential stress that results from borrowing and growing debt.

There are still unanswered questions. For example, how can financial stress be minimized for those who pursue careers that hold limited earnings promise? To what extent can the inherent risks that pre-service teachers and future public servants run in taking on significant school debt be minimized? And to what extent do the host of federal public servant loan forgiveness programs help to lessen the financial stress already observed? Some of these questions are better answered through current and future policy decisions, most certainly, but there is much that financial therapy and related practitioners can do to minimize these perceived vulnerabilities. Certainly, there is continued evidence that interventions do have an impact, not only on financial stress levels for students, but on their overall financial outlook (Britt et al., 2017). Likewise, this study brings up a series of questions over the anatomy of financial stress. What other *a priori* factors and/or characteristics moderate or mediate financial stress levels in students? How does a student's financial literacy play into their internal stress calculus? To what extent do family money practices also contribute to stress? More empirical work is needed to further inform our understanding of the factors that play into the portfolio of potential financial stressors.

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