Undergraduate Coping with Financial Stress: A Latent Class Analysis

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Undergraduates are increasingly caught between three financial realities. First, the sticker and net cost of attending college has outpaced the rate of inflation (Baum & Ma, 2012). These increases result from a factors ranging from declining state subsidies (Quintero, 2012), increased enrollments (Bound & Turner, 2007), and effects of the 2008 recession (Baum & Ma, 2012). Second, in the decade between 2001 and 2011, family incomes declined across the entire income distribution after accounting for inflation (Baum & Ma, 2012). Therefore, many parents of undergraduates experienced financial hardship and were less able to pay for college costs. Finally, due to their low incomes and assets and lack of financial knowledge, students constitute a financially vulnerable population (Avard, Manton, English, & Walker, 2005; Berkner & Wei, 2006; Chen & Volpe, 1998; Murphy, 2005). Consequently, undergraduates have had difficulty absorbing the additional college cost burden placed upon them over time. The rapidly rising amount of student loans debt incurred per borrower highlights this fact (Baum & Payea, 2012).

Due to these financial realities, a significant source of stress for undergraduates is their finances. In one recent national study, approximately a third of students recently described their finances as "traumatic" or "very difficult" to handle (American College Health Association, 2012). Another study, focusing specifically on financial stress, found even higher rates among a national sample of undergraduates and recent graduates (Trombitas, 2012). Approximately a third of the respondents in the latter study stated that financial stress negatively impacted their academic performance or progress. An impression supported by previous research associating financial stress with dropping out of college, lower academic performance, anxiety, and depression (Joo, Durband, & Grable, 2008; McPherson, 2012; Ross, Cleland, & Macleod, 2006).

The available evidence clearly indicates that undergraduates frequently experience financial stress; however, less is known about how first-year students react to financial stress and how it varies by demographic groups. To fill in this gap, this study investigated how undergraduates coped with financial stress and how coping strategies correlated with student characteristics.

Literature Review

Sources of Financial Stress

Undergraduates face a variety of stressors that may provoke financial stress. First, they typically are newly independent and managing their finances for the first time. Despite their emergence into financial adulthood, college students have little financial knowledge (Avard et al., 2005; Chen & Volpe, 1998; Murphy, 2005). The combination of inexperience and inadequate knowledge alone may lead some students to financial stress. However, students lead complex financial lives. The average baccalaureate recipient in 2010-11 academic year that took out a student loan accumulated approximately $23,800 in debt (Baum & Payea, 2012). Many students depend upon student loans as students can no longer work their way through college (Williams, 2006). With the increasing number of popular accounts detailing how student debt holds students back (Draut, 2005; Kamenetz, 2006) and rising amount of evidence that student debt impacts students in a variety of ways (Fosnacht & Santos, 2008; Joo et al., 2008; Ross et al., 2006; Rothstein & Rouse, 2011), students loans are clearly a prominent source of financial stress for students.

Another prominent source of financial stress for students is credit card debt. Many students use credit cards for the first time during college (Sallie Mae, 2009; Warwick & Mansfield, 2000). Credit card companies target students due to their high potential earnings and because they are in a transitional life period (Warwick & Mansfield, 2000). In 2008, 84 percent of undergraduates in 2008 possessed at least one credit card and the average student had at least four (Sallie Mae, 2009). Despite their frequent use of credit cards, college students know little about the terms of their credit cards (Adams & Moore, 2007; Robb, 2011; Warwick & Mansfield, 2000). This lack of knowledge leads many students to be surprised by the amount of their credit card balance (Sallie Mae, 2009), prompting financial stress in college students with few resources to pay a higher than expected bill. Furthermore, the high rates charged on credit card debt may lead students to take on additional student loans, due to their lower interest rates, leading to a cycle of debt.

Students can experience financial stress from a variety of other sources. These include the cost of tuition, fees, and supplies, which as detailed above have outpaced incomes. They may also face an unforeseen financial emergency, such as an unexpected illness and medical bill or a parent's loss of employment. Due to their lack of financial experience and knowledge and low level of financial resources, students clearly face a number of potential stressors related to their finances.

Theory

Stress and Coping

Stress is a bodily reaction to a demand placed upon it and may come from the absence of means or an external demand (Seyle, 1956, 1974). The interaction of a stressor, an external condition, and the condition of an individual produce stress (Smith, 1987). Stressors can have positive or negative effects and take various forms ranging from major life events, like a death in the family, to minor challenges, such as writing this paper. Individuals react to stress by coping, which is "the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them" (Folkman & Lazarus, 1980, p. 223). Coping strategies to the same stressor vary between and within individuals, thus stress does not have a direct causal relationship with the coping strategy used by an individual. Folkman and Lazarus (1980) classified coping styles into two broad categories: problem- and emotion-focused coping. In the former, individuals try to change the relationship with the stressor, such as by working more hours when financially stressed. In the later, individuals attempt to reduce the emotional responses produced by stress and may be the only possible coping strategy for stressors out of their control, like the death of a parent.

When viewing financial stress from this psychological perspective, students react to a feeling that they are unable to meet their financial demands. The demands include necessities, obligations, such as tuition or a car loan payment, and desires, like wanting to purchase new clothes. Students can cope with financial stress through problem- or emotion-focused coping. A problem-based coping strategy to financial stress requires a student to increase their money supply through working or borrowing more[1] or by reducing their expenses. Alternately, students could use an emotion-based coping strategy and ignore or distract themselves from the problem, focus on more positive aspects of life, or exercise self-control if a student overspends.

Student Engagement Theory

Student engagement theory is based on the work of Astin's (1984) student involvement principle, Pace's (1984) quality of student effort concept, and Kuh and colleague's work on the benefits of out-of-class activities (Kuh, Schuh, Whitt, & Associates, 1991). The theory simply postulates that student learning and development results from the time and quality of student effort in educationally beneficial activities. Financial stress poses multiple barriers to the engagement of students. If a student copes with financial stress by working more, this time cannot be devoted to educational activities. Alternately, worrying over their financial condition

[1] Borrowing more includes intergenerational transfers from parents and grandparents, in addition to more traditional loans such as credit cards and student loans.

can distract students from their academic studies. Consequently, financial stress is theorized to reduce the potential educational benefits that college may provide.

Research Questions

Guided by the aforementioned research and theory, this study investigated the following research questions:

1. How common is financial stress among first-year students at bachelor's granting institutions?
2. How do first-year students cope with financial stress?
3. How do the coping strategies differ by demographic characteristics?

Methodology

Sample

I investigated these questions using data from the 2012 administration of the National Survey of Student Engagement (NSSE). The study used data from the core survey instrument and from a set of experimental items appended to the survey for students taking the survey online. A total of 6,243 first-year students attending 43 institutions answered the financial stress items. I limited the sample to just first-year students as they typically just underwent a major life transition and started to manage their finances for the first time. Approximately, 66 percent of the students were female, 8 percent were enrolled part-time, 46 percent were first-generation, and 5 percent took all of their courses online. About 66 percent of the sample identified as White, 11 percent as Black, 9 percent as Latino or Hispanic, 4 percent as Asian or Pacific Islander, 1 percent as American Indian, and 9 percent identified as multi-racial, with another group, or preferred not to respond. Students in the sample attended a wide variety of institutions as demonstrated in Table 1.

---INSERT TABLE 1 ABOUT HERE---

Variables

The primary variables of interest were derived from the experimental questions that examined students' financial stress. The experimental items asked students to estimate how often they engaged in activities and the extent to which they agreed with statements related to financial stress. They represent whether a student experienced financial stress and various possible behavior- and emotion-based coping strategies. Appendix A contains the financial stress items examined in this study. Data on the students' characteristics, such as race, parental education, and Greek-life participation, was obtained from the core survey instrument supplemented the financial stress items. Additionally, data on the respondents' gender and enrollment status were provided by their institutions and parental income was asked as a part of the financial stress experimental set.

Analyses

The initial analyses examined the descriptive statistics of the financial stress items. Next, I used Latent Class Analysis (LCA) to analyze the financial stress items. LCA classifies individuals into homogeneous groups that had similar response patterns to a series of data points. The method is well suited to examining financial stress as previous research and theory on stress indicate that individuals cope with stress in a variety of nominal ways (Folkman & Lazarus, 1980). It also has various methodological advantages over similar techniques such as cluster analysis (Magidson & Vermunt, 2002).

By applying LCA to the financial stress data, it revels if students in the latent group experienced financial stress and how they coped with the financial stress. To identify the latent groups, I used an exploratory approach to discover the optimal number of classes by fitting a series of models that incrementally increased the number of latent classes identified. I determined the optimal number of latent classes by examining the Bayesian Information Criterion (BIC) for each model and selecting the model with the lowest BIC. Simulation studies have shown that the BIC outperforms other information criterions in determining the correct number of classes (Nylund, Asparouhov, & Muthén, 2007). Additionally, I followed the conventions of LCA by dichotomizing each variable. I recoded the “none” and “sometimes” response options to 0 and the “Often” and “Very Often” options to 1, so that the higher values represent that the student frequently engaged in the activity. However, one variable, on the extent to which financial concerns interfered with students’ academic performance, was on a six point scale ranging from “not at all” to “very much”. For this variable, I recoded the three lowest options to 0 and the three highest options to 1.

After identifying the number of classes, I examined variations in group membership by the respondents’ characteristics through crosstabulating the demographic characteristics by class membership. I used Pearson’s chi-squared test to examine if the distributions were significantly different. I weighted these analyses by each student’s posterior probability of their latent class membership.

Results

The initial analyses examined the descriptive statistics of the financial stress items (see Table 2). Approximately 60 percent of the first-year respondents said that they frequently worried about having enough money for regular expenses and paying for college. About four in ten students reported that they did not participate in an activity due to their lack of money. Over a quarter of the respondents indicated that they did not purchase *required* academic materials such as books, course packs, and academic supplies due to their cost or investigated taking out additional loans to pay for their expenses. Twelve percent of the students stated that they frequently investigated withdrawing from college due to the cost. About 40 percent of the respondents reported they frequently investigated working more hours to pay for their expenses. Finally, approximately one in three students said that financial concerns impacted their academic performance.

---INSERT TABLE 2 ABOUT HERE---

I then used LCA to classify the students into latent groups. The BIC indicated that the optimal number of latent classes was five. The entropy of the model was .68 and Figure 1 summarizes the item-response probabilities, the percentage of students in the class who endorsed the item. The first class, characterized as *not financially stressed*, contained approximately a third of the sample. These students generally did not endorse any of the items examined in the model. The second class, *financially stressed, no impact*, included the 22 percent of the sample and consisted of students who frequently worried about having enough money to pay for their regular expenses and for college, but these students typically did not endorse any other item. *Financially stressed, low impact*, the third class, contained 11 percent of the respondents and they generally responded to their financial stress by investigating working more hours and/or increasing their borrowing. The fourth class, *financially stressed, medium impact*, contained 20 percent of the sample. These students resemble the *financially stressed, low impact* group; however, they tended to also reduce their expenses by not participating in activities or purchase required academic materials and believed that financial concerns impacted their academic performance. The final group, entitled *financially stressed, high impact*, contained students who typically endorsed all of the items, including investigating whether to drop out and not purchasing required academic materials due to their costs. Approximately, 15 percent of the students belonged to this class and 80 percent of these students agreed that financial concerns interfered with their academic performance.

---INSERT FIGURE 1 ABOUT HERE---

---INSERT TABLE 3 ABOUT HERE ---

The cross tabulations of class membership by students' characteristics indicated that financial stress and the coping strategies correlated with their characteristics (see Table 3). Males were seven percentage points more likely to be in the *not financially stressed* group than females. However, females had a higher probability of belonging to the *financially stressed, no impact* group. Significant differences in students' classifications were also observed by race/ethnicity. White students were also the most likely to not experience financial stress (35%). In contrast, approximately 80 percent of Latino and Hispanics classified into one of the financially stressed groups. About 20 percent of Latino and Hispanics and African Americans belonged the *financially stressed, high impact* category, while Whites and Asian-Pacific Islanders were the least likely to be a member of this group.

The largest differences in class membership were by parental education and income. Among students with parents who did not complete a college degree, approximately 44 percent were in the *financially stressed, medium* or *high impact groups* while only 27 percent of students who had a parent who completed a graduate degree belonged to one of these groups. Additionally, 43 percent of students with a parent who completed a graduate degree did not evidence financial stress, while less than a quarter of students with parents who did not complete a bachelor's degree had the same classification. Over half of all students with a parental income greater than $100,000 were members of the *not financially stressed* group, compared to just 15 percent of students with a parental income less than $35,000. Additionally, one out of four students with a parental income under $35,000 belonged to the *financially stressed, high impact* group, compared to about 1 out of 10 and 20 students with a parental income between $65,000 and $99,999 and $100,000 or more, respectively.

Significant differences were also observed by major field. Undecided and physical sciences majors were the least likely to be a member of the financially stressed groups, while students in the professional (other) fields, which includes majors like architecture, pre-law, and pre-med, were the most likely to evidence financial stress. Engineering and undecided students were the least likely to be in the *high impact* category, while students majoring in the professional (other) fields and the catch-all "Other" category were the most likely to be in the *high impact* group. The chi-square statistics indicated that no significant differences were observed by enrollment status and Greek life participation.

Discussion

This study examined the prevalence of financial stress among first-year students and variations in coping with financial stress. It also investigated whether financial stress and the coping strategies correlated with various student characteristics. The results support prior research indicating the high prevalence of financial stress among undergraduates (American College Health Association, 2012; Trombitas, 2012), as approximately two-thirds of the respondents evidenced financial stress. The study also identified four distinct ways that first-year students cope with financial stress. This finding supports theory and previous research on stress and coping (Folkman & Lazarus, 1980). Finally, the results indicated that the coping strategy adopted by students correlated with various student characteristics, particularly parental education and income.

The results also have important implications for policy and practice. The finding that low-income and minority students have a considerably higher probability of membership in the *financially stressed, high impact* classification suggests that financial aid policy has failed to level the playing field by making it financially feasible for all students to complete college. Over 80 percent of students in this classification stated that financial concerns frequently impacted their academic performance and a majority investigated dropping out due to costs, behaviors strongly suggestive of their disengagement from college. Thus, these students are strong candidates for interventions as a small amount of additional financial assistance may dramatically improve their academic performance and odds of graduation.

Another intriguing group of students is the *financially stressed, no impact* class. These students claim to be financially stressed, but have not undertaken a problem-based coping strategy. Thus, this class may have adopted an emotion-based coping strategy and ignored their financial problems. The use of emotion-based coping strategies is generally associated with more negative outcomes than problem-based strategies (Folkman & Lazarus, 1980) and has been associated with depressive symptoms for college students experiencing financial stress (McPherson, 2012). This suggests that these students may experience more negative outcomes over the long-term than students belonging to other groups. Furthermore, these students may transition to the *financially-stressed, high impact* class as their financial pressures increase. Students in this class may be the most likely to benefit from personal finance education, as they may not know how to overcome their financial difficulties.

A surprising finding was that financial stress and coping strategy membership were correlated with students' major. Students who were undecided were the least likely to be stressed, while students with majors in a variety of professional fields, such as law and medicine, were the most at risk of experiencing financial stress. Students who experience financial stress may be more likely to pursue careers in these lucrative professional fields. Alternately, first-year students desiring a J.D. or M.D. might already be experiencing financial stress due to the likely reality that their educational aspirations require them to take on substantial amounts of student loan debt.

Limitations

This study also suffers from a handful of limitations. First, the analyses were limited to first-year students who responded to the survey during their second semester of study. It is unknown if this model of financial stress and its coping strategies holds for other groups of students, such as seniors. Additionally, even if this model holds for students of all maturations, class membership most likely varies over time as students encounter and overcome financial stressors. While the respondents were randomly invited within their institutions to take NSSE, the institutions included in this analysis were not a random sample therefore the generalizability of the findings is unknown. However, the mix of institutions included in the study generally conforms to the national higher education landscape as demonstrated in Table 1. Finally, LCA has difficulty detecting rare latent groups, particularly when analyzing a small sample or identifying a large number of latent classes. However, this study used a relatively robust sample and identified a solution that conforms to stress and coping theory.

Suggestions for future research

The apparent prevalence of financial stress among college students calls for further research into the topic, which is rather limited today. Future research should investigate whether students' coping strategies utilized by students vary as they progress through college. Many students in this study claimed that their academic performance was impacted by their financial concerns and additional studies should further test this proposition. Finally, future research should examine how various sources of stress (e.g., financial, academic, social) interact and combine to influence student outcomes.

Conclusion

Today's college students face a multitude of financial pressures; therefore, it is not surprising that most experience financial stress. However, we know little about how students' cope with financial stress and its impacts upon students. This study attempted to begin to fill in this void by examining how first-year students cope with financial stress. The findings are not heartening. It appears that many cope with financial stress by engaging in behaviors that distract themselves from educationally beneficial activities. Furthermore, it appears that financial aid fails to prevent many students from frequently experiencing financial stress. Postsecondary institutions clearly need to take steps to reduce or cope with the financial pressures undergraduates face on a daily basis.

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Table 1
Institutional characteristics of the sample (N = 6,242)

	Students (%)	Institutions (%)
Control		
Public	52	30
Private, non-profit	45	65
Private, for-profit	3	5
Undergraduate enrollment		
Small (fewer than 2,500)	39	58
Medium (2,500-4,999)	6	9
Large (5,000-9,999)	19	21
Very large (10,000 or more)	35	12
2010 Basic Carnegie Classification (aggregated)		
Doctorate-granting universities	30	14
Master's colleges and universities	45	47
Baccalaureate colleges	25	37
All others or unclassified	< 1	2

Note: Percentages may not add up to 100% due to rounding.

Table 2
Percentage of students who evidenced financial stress (N = 6,242)

	Percentage
Worried about having enough money for regular expenses[a]	60
Worried about paying for college[a]	59
Chose not to participate in an activity due to lack of money[a]	42
Chose not to purchase required academic materials[a]	27
Investigated withdrawing from college due to costs[a]	12
Investigated working more hours to pay for costs[a]	41
Investigated increasing your borrowing to pay for costs[a]	27
Financial concerns have interfered with my academic performance[b]	32

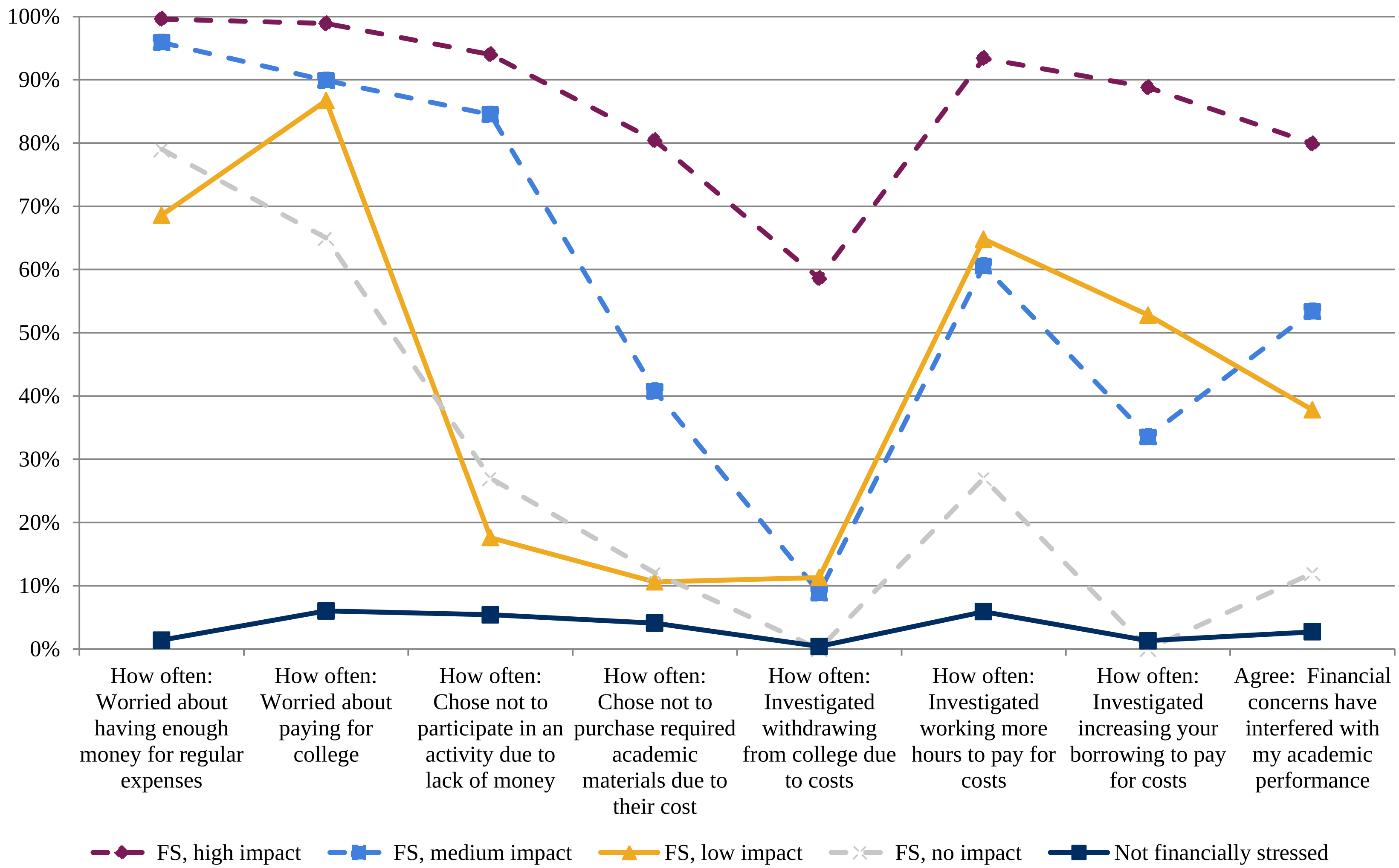
[a] Percentage responding “Very Often” or “Often”
[b] Percentage selecting 4, 5, or 6 on a 6-point scale ranging from “Not at all” to “Very much”

Table 3
Financial stress latent class membership by student characteristics (N = 6,242)

		Financially stressed					
	Not financially stressed	No impact	Low impact	Medium impact	High impact	χ^2	Sig.
All students	31%	22%	11%	20%	15%		
Enrollment status						5.1	
Part-time	36%	20%	10%	20%	15%		
Full-time	31%	23%	11%	20%	15%		
Gender						38.4	***
Female	29%	23%	11%	21%	15%		
Male	36%	21%	9%	18%	15%		
Greek life						9.3	
Non-participant	31%	22%	11%	21%	15%		
Participant	36%	23%	10%	18%	13%		
Major field						52.2	*
Arts and humanities	34%	21%	10%	21%	14%		
Biological sciences	34%	22%	11%	19%	13%		
Business	35%	22%	10%	18%	15%		
Education	30%	23%	12%	22%	13%		
Engineering	34%	22%	10%	21%	12%		
Physical sciences	36%	20%	9%	20%	14%		
Professional (other)	25%	24%	12%	22%	17%		
Social sciences	29%	23%	11%	21%	16%		
Other	30%	23%	11%	20%	17%		
Undecided	37%	25%	9%	16%	12%		
Parental education						247.3	***
High school or less	24%	21%	12%	24%	20%		
AA or some college	23%	23%	11%	24%	19%		
Bachelor's	34%	25%	10%	18%	13%		
Graduate degree	43%	21%	9%	16%	11%		
Parental income						417.3	***
Less than $35,000	15%	22%	11%	27%	24%		
$35,000-$64,999	23%	23%	14%	25%	16%		
$65,000-$99,999	36%	25%	11%	17%	11%		
$100,000 or more	56%	20%	8%	10%	6%		
Race/ethnicity						86.3	***
Asian/Pac. Islander.	29%	24%	12%	20%	14%		
Black/African Amer.	27%	21%	10%	22%	20%		
Latino/Hispanic	20%	24%	12%	23%	20%		
White	35%	22%	11%	19%	13%		
Other	29%	22%	11%	21%	18%		

Note: Percentages may not add up to 100% due to rounding.
* p < .05, ** p < .01, *** p < .001

Figure 1
Mean item-response probabilities of the financial stress items by latent class



Note: FS = Financially stressed

Appendix A

Financial stress survey items used in the data analysis

In your experience at your institution during the current school year, about how often have you done each of the following?

Response options: Never, Sometimes, Often, Very Often

Worried about having enough money for regular expenses

Worried about paying for college

Chose not to participate in an activity due to lack of money

Chose not to purchase required academic materials (books, coursepacks, supplies, etc.) due to their cost

Investigated withdrawing from college due to costs

Investigated working more hours to pay for costs

Investigated increasing your borrowing to pay for costs

Please indicate the extent to which you agree with the following statements:

Response options: 6 point scale, 1 = Not at all, 6 = Very Much

Financial concerns have interfered with my academic performance

What is your parental income?

Response options: Less than $35,000, $35,000-$64,999, $65,000-$99,999, $100,000 or more