What Factors Affect the Academic Performance and Financial Anxiety of Accounting Students?

Donald L. Ariail
School of Accountancy
Coles College of Business
Kennesaw State University
560 Parliament Garden Way NW
Kennesaw, GA 30144
dariail1@kennesaw.edu
+1-404-285-0278

Amine Khayati*
Coles College of Business
Kennesaw State University
560 Parliament Garden Way NW
Kennesaw, GA 30144
akhayati@kennesaw.edu
+1-470-578-7430

Steve Smalt
Coles College of Business
Kennesaw State University
560 Parliament Garden Way NW
Kennesaw, GA 30144
ssmalt@kennesaw.edu
+1-470-578-6084

Benedikt Quosigk
Coles College of Business
Kennesaw State University
560 Parliament Garden Way NW
Kennesaw, GA 30144
bquosigk@kennesaw.edu
+1-470-578-2003

*Corresponding author
August 4, 2024

Running head: Academic Performance and Financial Anxiety
Funding: The authors did not receive any funding support for this study.
Compliance with Ethical Standards: In compliance.
Conflict of interest: All authors declare they have no conflict of interest.
Research Involved in Human or Animal Rights: All procedures performed in this study involving human participants received the required approvals from the University's Institutional Research Board review committee. Informed consent was obtained from all individual participants included in this study.

What Factors Affect the Academic Performance and Financial Anxiety of Accounting Students?

Abstract

This study examines the interactive effects of student loans, financial anxiety, and employment on academic performance. The results indicate that student loans and financial anxiety adversely affect academic performance. Further, student loans are consistently associated with higher financial anxiety. Of note, higher academically performing students and those employed and with family commitments, such as caring for family members, have lower financial anxiety. Accounting majors, compared to non-accounting majors, have higher financial anxiety, higher academic performance, and carry higher course loads. Notably, female students compared to male students, have higher levels of financial anxiety. Suggested explanations for the findings are offered, and future research recommendations are made. The results will be of interest to accounting faculty, accounting student advisors, accounting administrators and to others who are interested in promoting the academic success of students and in decreasing their financial stress. The results have international applicability.

Keywords: Academic performance; Student success; Grade point average; GPA; Student loans; Student indebtedness; Financial stress; Employment; Employment hours; Gender.

1. Introduction

Extant literature has examined various determinants of academic performance in higher education. This research has been approached through various academic lenses such as admission metrics (e.g., Buckless & Krawczyk, 2016; Mattern et al., 2017), curriculum redesign (e.g., Spiceland et al., 2015; Tsay et al., 2023), effective pedagogies (e.g., Ariail et al., 2021; Ariail & Crumbley, 2023; Chiang et al., 2021), and desirable instructor attributes (e.g., Ariail et al., 2009; Khayati & Ariail, 2020; Ramsarghey, 2020). However, few studies have examined academic performance from the perspective of exogenous and personal factors. The present study fills this gap by exploring this construct with variables related to financial stress, such as methods students use to finance their education (employment, loans, scholarships); external factors such as the balancing of education with caring for children and relatives and the number of hours spent on homework; and multiple demographic variables. This approach recognizes the complexity of academic performance, including the role played by factors related to personal responsibility.

1.1. *Motivation*

The present study was motivated by the authors' anecdotal observations regarding a linkage between student workloads and course loads and students having difficulty with accounting course content. When students indicated they were not making the grade they desired, the authors asked them if they were employed, how many courses they were taking, and the size of their student loan. Often, underperforming students indicated that they were both working many hours each week while taking at least a full load (five courses) of classes and having a sizable student loan balance. Therefore, it was posited that accounting student GPAs would be related to workloads, class loads, and financial stress.

1.2. Findings

This study examines students' individual factors affecting academic performance and financial anxiety. There is strong and consistent evidence supporting the adverse effects of student loans and financial anxiety on student performance. Therefore, the main takeaway from the study is that these two seemingly related factors impede learning experiences and students' success. Contrary to common beliefs, employment and employment hours have no effect on academic performance. Accounting compared to non-accounting majors experience higher financial anxiety, enroll in more credit hours but still manage to achieve higher academic performance. The analysis also reveals a gender difference with female students consistently reporting higher financial anxiety than male students.

1.3. *Contribution*s

This study makes several contributions to accounting education literature. First, it is the only known study that has investigated the relationship between academic performance and financial anxiety with a sample of accounting students. Second, this study includes a number of variables, most of which have not previously been investigated together, and some that are exploratory. Third, no known prior research has investigated how accounting majors and non-accounting business majors may be differently impacted by these variables. And fourth, the results of the present study provide faculty, student advisors, and administrators with potential actionable information on how student performance can be improved and how financial anxiety may be reduced. The results offer some surprising findings.

2. Literature Review

2.1. *Academic Performance*

The academic performance of students has been widely studied. However, this outcome has been variously delineated. A selected review of 24 academic performance studies found student performance measured based on professional competencies (Al-Nimar & Mustafa, 2022), pass/fail rates (Gracia & Jenkins, 2002), test and exam grades (Bartlett et al., 1993; Doran et al., 1991), course letter grade (Beatson et al., 2021; Fallan & Opstad, 2014; Masky, 2014; Masky & Yoon, 2020), and, most commonly, student grade point averages (GPA). GPA measures included semester GPA (Nonis & Hudson, 2010, first year GPA, Bachelor of Accounting degree GPA at graduation (Seow et al., 2014), Master of Accounting Degree GPA, GPA in accounting major (Almunais et al., 2014) and overall GPA (Ackerman & Gross, 2003; Davenport et al., 2024; Dull et al., 2015; Dundes & Marx, 2006; Maksy & Zaima, 2020; Sari & Suryani, 2020).

Eight of these 24 selected studies were conducted with non-accounting students (Ackerman & Gross, 2003; Dull et al., 2015; Dundes & Marx, 2006; Faulk et al., 2012; Nonis & Hudson, 2010; Mattern et al., 2017; Stoddard et al., 2018; Wladis et al., 2024). The subjects in the remaining 17 studies included seven that investigated the academic performance of accounting majors (Almunais et al., 2014; Al-Nimar & Mustafa, 2022; Buckless & Krawczyk, 2016; Gracia & Jenkins, 2002; Gammie et al., 2003; Sari & Suryani, 2020; Seow et al., 2014), and ten that investigated the academic performance of students taking various accounting courses: principles of accounting one (Doran et al., 1991), principles of accounting two (Maksy & Zaima, 2020), intermediate accounting one (Davenport et al., 2024), intermediate accounting two (Maksy, 2014), intermediate financial accounting in the second and third year of a three-year degree program (Beatson et al., 2021), managerial accounting (Fallan & Ostad, 2014), graduate

level managerial accounting (Maksy & Yoon, 2020), and finance and managerial accounting (Bartlett et al., 1993). Of these academic performance studies, 15 were conducted with students in the United States (U.S.), and nine were conducted with non-U.S. students: Jordan (Al-Nimar & Mustafa, 2022), Scotland (Gammie et al., 2003), Norway (Fallan & Optad, 2014), Singapore (Seow et al., 2014), Kuwait (Almunais et al., 2014), Wales (Bartlett et al., 1993; Gracia & Jenkins, 2002), Indonesia (Sari & Suryani, 2020), and Australia (Beatson et al., 2021).

These selected studies have found student academic performance related to gender, age, workload, class load, study hours, sources of tuition funding, and other variables. Nevertheless, academic performance is multifaceted and so not limited to these variables.

2.1.1. *Gender*

Gender differences in student academic performance have not consistently been found. Females compared to males performed better in the studies by Dundes and Marx (2006), Dull et al. (2015), and Sari and Suryani (2020). Mattern et al. (2017) suggested that higher performance by female students might be attributed to them being more academically disciplined. Conversely, males performed better in the studies by Doran et al. (1991) and Seow et al. (2014). Wladis et al. (2024) found that females had less discretionary time than their male colleagues. A lack of time, which the authors categorized as "time poverty," ". . .explained a significant proportion of differential outcomes (retention and credit accumulation) by gender and race/ethnicity" (Wladis et al., 2024, p. 1). No gender differences were found in the studies by Gammie et al. (2003), Faulk et al. (2012), Fallan and Opstad (2014), and Masky and Zaima (2020).

2.1.2. *Age*

Inconsistent results for academic performance and the age variable have also been reported. Almunais et al. (2014), Buckless and Krawczyk (2016), and Al-Nimar and Mustafa

(2022) found age positively associated with performance. And in Wales, Bartlett et al. (1993) reported that older financial and managerial accounting students performed better on first year exams, but not on third year exams. No age differences in performance were found in the studies by Nonis and Hudson (2010), Faulk et al. (2012), Maksy and Yoon (2020).

2.1.3. *Workload*

The results for the student employment variable have been mixed. Ackerman and Gross (2003) found less free time related to higher GPAs, which was also true for students who worked more than 20 hours per week. These authors suggested that busy schedules that included employment perhaps forced students to develop good time-management skills. Dundes and Marx (2006) found higher GPAs for students who worked 10-19 hours per week, while working 20 hours or more had no negative impact. Davenport et al.'s (2024) results indicated that academic performance was higher for students who worked 20 hours or less per week, while, in agreement with Dundes and Marx's (2006) results, working more than 20 hours per week was not associated with less success. Faulk et al. (2012) found that working more than 25 hours per week did not negatively impact performance. Conversely, student workload did not impact academic performance in the studies by Nonis and Hudson (2010), Maksy (2014), Maksy and Zaima (2020), Maksy and Yoon (2020). And Beatson et al.'s (2021) findings related academic performance to student perceptions of employment interfering with their studies rather than to the number of work hours.

2.1.4. *Course load*

The variable of course load (the number of credit hours taken) did not negatively impact academic performance in the studies by Faulk et al. (2012), Maksy (2012, 2014), Maksy and

Yoon (2020), and Maksy and Zaima (2020). That is, larger course loads—more credit hours taken—were not indicative of lower student performance.

2.1.5. *Homework hours*

The time students spent on homework—study hours—was found inconsistently related to academic performance. Almunais et al. (2014) found that students who more often worked on homework performed better than their less diligent classmates. Mattern et al.'s (2017) results indicated that individual academic discipline was predictive of performance. As operationalized by these authors, "academic discipline assesses the amount of effort a student puts into schoolwork and the degree to which a student sees himself or herself as hardworking and conscientious" (Mattern et al., 2017, p. 50). Thus, homework hours spent by students were addressed from the perspective of individual effort. Conversely, in the studies conducted by Nonis and Hudson (2010) and Faulk et al. (2012), the number of study hours and the number of hours spent on homework respectively did not affect academic performance.

2.1.6. *Funding sources*

Quadlin (2017) found that debt as a funding source was related to the selection of non-STEM majors such as nursing and business. Tuition support from family contributions and grants were indicative of students not making an early choice of major—e.g., not declaring a major in the first term.

Little known prior research has investigated the effects of different tuition sources on the academic performance of business students. Some pertinent studies include those conducted by Faulk et al. (2012), Stoddard et al. (2018), and Sari and Suryani (2020).

Faulk et al.'s (2012) study was conducted with business students taking a macroeconomics course. Performance was measured as the course grade and the independent

variables were employer funding, self-financing, loans, scholarships, federal aid, and other funding sources. Only employer funding influenced performance. Students who had employer funding had higher course grades. The authors suggested that employer funding in the form of tuition reimbursements, which are often linked to course grades (e.g., grades of A or B required), rather than scholarships, which are often linked to GPAs, better incentivize academic performance. They concluded ". . .that the source of funding for higher education has measurable incentive effects and specifically that the type of aid and ultimately the structure of a funding package influence academic outcomes" (Faulk et al., 2012, p. 177).

As previously indicated, Stoddard et al.'s (2018) longitudinal study of college financing sources among University of Missouri System students found that student loans adversely affected performance. Nevertheless, "the effect of other kinds of financial aid, such as merit aid, scholarships, athletic support, work study, and grants [were] starkly different: increasing the amount of non-loan aid by $1,000 increase[d] GPA by 0.05 points" (Stoddard et al., 2018, p. 550). And in an Indonesian context, Sari and Suryani (2020) found that female accounting majors who lived at home and received a scholarship for the economically disadvantaged had higher GPAs than their male counterparts.

2.1.7. *Other variables*

In addition to the above variables, others were also found related to student academic performance. These variables included student engagement (Buckless & Krawczyk, 2016; Gracia & Jenkins, 2002), professional competencies (Al-Nimar & Mustafa, 2022), personality type (Fallan & Opstad, 2014), high school major (Almunais et al., 2014), motivation (Nonis & Hudson, 2010), and discretionary time (Ackerman & Gross, 2003; Wladis et al., 2024).

In the present study, data was obtained from both students taking accounting classes who were not accounting majors (mainly those taking principles of accounting as a required course for all business students), and accounting majors (mainly students taking upper-level accounting courses—courses past the principles courses). Thus, informed by prior research, the following Research Question 1 (RQ1) was posed:

RQ1: What are the variables affecting the academic performance of accounting students?

2.2. Financial Anxiety

Stress related to debt and student loans have been investigated as financial stress (Grable & Joo, 2006; Tay et al., 2017), depression anxiety (Norvilitis et al., 2006), debt stress (Tran et al., 2018; Velez et al., 2019), and financial anxiety (Ackert et al., 2022; Archuleta et al., 2013; Ferreira et al., 2021). Measures of financial stress have included a single statement (Grable & Joo ,2006), two statements (Tay et al. (2017), four statements (Dunn & Mirzaie,2016), and multi-statement instruments that included the seven-item Financial Anxiety Scale (Archuleta et al., 2013; Ferreira et al., 2021).

The accumulation of student debt and debt-related stress are international problems. The present selected research regarding debt-related stress included subjects located in the U.S. (Archuleta et al., 2013; Chen et al., 2021; Dunn & Mirzaie, 2016; Grable & Joo, 2006; Long, 2022; Tay et al., 2017; Tran et al., 2018), Portugal (Ferreira et al., 2021), the United Kingdom (U.K.: Bachan, 2014), and India (Mani et al., 2013).

Ferreira et al. (2021) found that consumers in Portugal who were over-indebted had less emotional wellbeing, reported lower health, had less sleep quality, and had higher financial anxiety. Tran et al. (2018) investigated debt stress with a large sample of students in California. They found concerns about debt stress were associated with poorer general health and symptoms

of depression. These debt stress outcomes were found for Black, White, and Hispanic students but not for Asian students.

With a large sample of employed adults, Tay et al. (2017) reported that ten years after graduation, those who had earned a bachelor's degree, and had college loans had greater financial stress and less life satisfaction: ". . .Loans have both a direct, negative impact with life satisfaction as well as an indirect influence on life satisfaction through financial worry" (Tay et al., 2017, p. 918). In addition, ten years after graduation student loan amount predicted financial worry (Tay et al., 2017).

Prior research has found student financial anxiety/debt stress related to the variables of academic performance, gender, age, workload, and debt load. Other student financial stress factors included ethnicity, having a business major versus a non-business major, and having student debt for a non-completed bachelor's degree.

2.2.1. *Academic performance*

Mani et al. (2013) investigated debt-related cognition in the lab with a U.S. sample of adult shoppers, and in the field with an Indian sample of sugarcane farmers. The lab experiment results indicated that, based on median incomes, the poor performed worse than the rich on two cognitive tests. This finding of cognition being related to debt was supported with the sugarcane farmers who had both "poor" and "rich" conditions—rich after harvest and poor before harvest when they often had to resort to pawning valuables. Before the harvest subjects had significantly lower cognitive functions than they did after harvest. In this regard, the authors stated the following:

> Being poor means coping not just with a shortfall of money, but also with a concurrent shortfall of cognitive resources. The poor, in this view, are less capable not because of inherent traits, but because the very context of poverty imposes load and impedes cognitive capacity. (Mani et al., 2013, p. 980).

Thus, having debt can, in and of itself, decrease cognitive capacity, which from a student perspective might result in lower academic performance.

Destin and Svoboda (2018) found that any student debt and greater student debt were negatively associated with academic performance and graduation rates. They ". . .provided direct experimental evidence that thinking about the financial burden of college reduces students' abilities to perform difficult cognitive tasks" (Destin & Svoboda, 2018, p. 319). Conversely, Norvilitis et al.'s (2006) results indicated that the academic performance of students as measured with GPAs did not predict stress (depression anxiety).

2.2.2. *Gender*

Women compared to men had greater debt stress during the Great Recession of 2008-2011 (Dunn & Mirzaie, 2016). For adults in general, Chen et al. (2021) also reported that females compared to males had greater debt stress and that "given the financial situation of the household women are more likely to report that debt has [adversely] impacted their health" (Chen et al., 2021, p. 436).

From a student debt perspective, Long's (2022) results indicated that female and black students, compared to male and white students, were less willing to borrow. Norvilitis et al. (2006) reported that college men and women did not differ in debt amount. On a positive note, Velez et al.'s (2019) findings indicated that four years after earning a bachelor's degree, female students compared to male students earned more. With a sample of full-time business and finance students in the U.K., Bachan (2014) found that females compared to males were more risk adverse and expected to have less debt at the end of their studies.

Nevertheless, the results for gender differences in debt related to student stress have been mixed. Archuleta et al. (2013) found that female students, compared to male students, had

greater financial anxiety. However, the opposite results were reported by Ackert et al. (2022) with a sample of students taking an introductory course in economics. Males had higher financial anxiety than females.

2.2.3. *Age*

Age has been related to both more debt and less debt-related stress. Norvilitis et al. (2006) found that older students had more debt. On the other hand, age was not related to the debt expectations after graduation of U.K. business and finance students (Bachan, 2014). Regarding debt-related stress, Chen et al. (2021) found that, for U.S. adult consumers, ". . .stress increase[d] with age up to a certain point but decrease[d] thereafter" (Chen et al., 2021, p. 433). Ackert et al.'s (2022) findings with U.S. students taking an economics course also supported less stress for older compared to younger students.

2.2.4. *Workload*

The number of hours worked by students did not, according to Norvilitis et al. (2006), increase stress (depression anxiety). Bachan (2014) and Ackert et al. (2022) results were indirectly related to student workload. Bachan (2014) found that students who had a part-time job had reduced debt expectations. And Ackert et al. (2022) indicated that the students' financial anxiety decreased with work experience.

2.2.5. *Debt load*

Overall, Archuleta et al. (2013) did not find student debt loads associated with financial anxiety. Ackert et al. (2022) reported that students with higher student loans did not significantly differ in financial anxiety from students with lower student loans. Norvilitis et al. (2006) found students with higher levels of stress (depression anxiety) related to higher levels of debt load (amount of overall debt, credit card debt).

Long's (2022) findings indicated that female and Black students, compared to male and White students, were less willing to borrow. In a large sample, longitudinal study of debt burden four years after earning a bachelor's degree, Velez et al. (2019) found that students who borrowed more earned more, had college major related jobs, and had jobs that required a bachelor's degree. The amount borrowed was not related to employment, hours worked, or unemployment.

2.2.6. *Other variables*

Other student debt-related stress findings included differences due to ethnicity, due to being a business student compared to being a non-business student and having borrowed funds for a not-completed degree. Grable and Joo (2006) reported that Black students had higher levels of financial stress. Ackert et al. (2022) found that business students compared to non-business students had greater financial anxiety. And Jabbari et al. (2020) findings suggested that adults with student loans, who had not graduated, compared to adults who had a high school diploma, were more likely to experience health and material hardships, and have higher levels of financial anxiety. Thus, the authors suggested that it is better for students to not have attended college at all than to have attended college without having earned a degree while burdened with student loan debt.

Based on this prior research, the following Research Question (RQ) was posed regarding the financial anxiety of accounting students and accounting majors.

RQ2: What are the variables affecting the financial anxiety of accounting students?

As previously indicated, academic performance and financial stress/anxiety were found linked in the study by Destin and Svoboda (2018), while academic performance was not found linked in the study by Norvilitis et al. (2006). However, no known prior research has investigated

the relationship between academic performance and the financial anxiety of accounting students and accounting majors. In this regard, the following Research Question 3 was posed:

RQ3: Do accounting majors differ from other accounting students in factors affecting academic performance and financial anxiety?

3. Methodology

3.1. *Survey*

This research was conducted at a single large, public university located in a major metropolitan area of the southeastern United States (U.S.).[1] To improve student academic performance in accounting courses, the director of the School of Accountancy sought information on relevant factors and requested accounting faculty to solicit by email the participation of their students in the online Qualtrics survey.

The survey (Appendix A) was composed of two parts. The first part asked students to supply data regarding their age, student status, major, current GPA, credit hours taken in the current semester, employment status, employment hours worked, whether the student planned to remain with their current employer after graduation, type of tuition assistance received, the amount of student loans, weekly hours spent on homework, and household commitments such as to children or other relatives.

The second part asked students to report on their financial anxiety by responding to a single financial anxiety statement (e.g., Grable & Joo, 2006) and by responding to the seven statements of the Financial Anxiety Scale (FAS) developed by Archuleta et al. (2013). The FAS adapts the Generalized Anxiety Disorder diagnostic criteria set forth by the American Psychiatric Association (2000) to an individual's personal financial situation. Excessive anxiety about one's

[1] The study received the required approvals from the University's Institutional Research Board review committee. Informed consent was obtained from all participants in the survey.

financial situation is associated with symptoms of restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbances. This anxiety instrument asks students to rate the frequency of such feelings and symptoms on a seven-point Likert-like scale with one indicating always and seven indicating never.

3.2. Data description

The study variables were derived from the above discussed research, except for the two exploratory variables of employment upon graduation, and household commitments. The present authors posited that students who plan to remain with their current employer upon graduation have higher academic performance and lower financial stress than those who will be entering the job market upon graduation; and that those with household commitments will have time limitations resulting in lower academic performance and greater financial anxiety.

Academic performance was proxy measured with the students self-reported grade point average. This measure of academic performance has been widely used in prior research (e.g., Ackerman & Gross, 2003; Almunais et al., 2014; Davenport et al., 2024; Dull et al., 2015; Dundes & Marx, 2006; Maksy & Zaima, 2020; Nonis & Hudson, 2010; Sari & Suryani, 2020; Seow et al., 2014).

The study variables are here described along with their transformation for analysis. *GPA* was the current grade point average. *Ln Student Loans* was the natural logarithm of the student loan dollar amounts and was zero in the absence of student loans. The analyses included two measures of financial anxiety. The first was the *Financial Anxiety Scale* (FAS) which was the sum of the seven FAS statements (Appendix A). The responses to the financial anxiety statements on the seven-point Likert scale were reverse coded with higher values indicating higher financial anxiety. The second was *Financial Anxiety* which is the seven-point Likert scale

response to the following statement: I feel anxious about my financial situation. This statement is the only Financial Anxiety Scale (FAS) statement that directly asked about financial anxiety. *Employment* was a dummy variable equal to one for employed students and zero otherwise. *Employment Hours* were the average hours worked per week. *Employment upon graduation* was a dummy variable equal to one if a currently employed student would remain with the same employer upon graduation, zero otherwise. *Credit Hours* were the number of course credit hours taken in the current semester. *Tuition Assistance Type* was a categorical variable taking a value of one for family support; two for a scholarship; three for more than one source of support; and zero otherwise. Thus, higher values reflected higher sources of financial support. *Age* was a continuous variable in years. *Student Status*[2] was a categorical variable with higher values indicating higher student status—greater progress towards earning a degree. *Gender* was a dummy variable taking zero for male and one for female. *Homework Hours* were the approximate hours spent weekly working on course homework. *Household Commitment* was a dummy variable equal to one if there were children or other relatives in the household who required considerable care from the student and zero otherwise.

4. Results

4.1. Respondent demographics

There were 1,123 respondents to the survey. After adjusting for repeat submissions (the survey was sometimes completed in more than one class) and for incomplete surveys, there were 899 usable submissions. All the respondents were students enrolled in both lower-level (n = 703) and upper-level (n = 196) accounting courses. The lower-level courses were the first and second principles of accounting courses, which are mandatory ("gateway" courses) for all business

[2] Coded as follow: Freshman = 1, Sophomore = 2, Junior = 3, and Senior = 4.

students. Upper-level courses included intermediate accounting one and two, auditing, internal auditing, international accounting, government/not-for-profit accounting, and forensic and investigative accounting.

Table 1, Panel 1, presents the distribution of student demographics for the discrete variables. Respondents were primarily under the age of 25 (87.8%), males (53.3%), freshmen and sophomores (62.3%), and either accounting (27.3%) or non-specified business majors (25.1%). In addition, most students were employed (66.9%), would not remain in their current employment after graduation (79.1%), were receiving tuition assistance in the form of scholarships (55.4%), did not have student loans (66.1%), and did not have household commitments such as caring for small children (84.0%). Overall, the demographics of the accounting majors (n = 245) were similar to those of the entire sample. However, as expected, accounting majors were primarily (69.4%) at the junior or senior levels of their education.

And Panel 2 presents the demographics for the continuous variables of employment hours and homework hours. The means and medians of employment hours for the full sample were 17.59 and 20.00, respectively. And for homework hours the means and medians were 13.05 and 10.00 respectively. Accounting majors compared to non-accounting majors had higher means for both employment hours and homework hours, however, the medians were the same for both majors.

[Table 1]

4.2. Correlations

Table 2 presents Pearson's correlations for the study variables. As previously indicated, student GPA was a proxy measure of academic performance; and financial anxiety was measured twice: with a single financial anxiety statement and with the FAS. The results

indicated that GPA was significantly ($p \leq 0.01$) negatively correlated with both measures of financial anxiety, which were also significantly ($p \leq 0.01$) correlated with each other. That is, higher financial anxiety resulted in lower academic performance. These results answered RQ 3: How is financial anxiety related to academic performance?

GPA was also significantly ($p \leq 0.01$) negatively correlated with the variables of student loans, employment, and employment hours; and was significantly ($p \leq 0.05$) negatively correlated with student status. GPA was significantly positively ($p \leq 0.01$) correlated with credit hours, tuition assistance type, and homework hours. Therefore, academic performance was higher for those with less financial anxiety, lower student loan amounts, fewer employment hours, and lower levels of program completion (student status). Academic performance was also higher for those who had heavier course loads (higher number of credit hours), for those who had more sources of financial support, and for those who spent more hours on homework. These results answer RQ1: What are the factors affecting academic performance?

Financial anxiety, as variously measured, was significantly ($p \leq 0.01$) positively correlated with student loans, employment, employment hours, student status, gender, and household commitment; and was significantly ($p \leq 0.01$) negatively correlated with credit hours. Financial anxiety measured with the FAS was also significantly ($p \leq 0.05$) positively correlated with age and negatively correlated with tuition assistance type. Thus, financial anxiety was greater for students with loans, who were employed and who worked more hours, who were further along in completing their degree, who were female, and who had family commitments. However, financial anxiety was lower for students who had larger course loads (undertook more credit hours). In addition, financial anxiety was higher for students who utilized more tuition

assistance sources. These results answer RQ2: What are the factors affecting student financial anxiety?

[Table 2]

4.3. Determinants of academic performance

To better delineate drivers of academic performance, multivariate regressions were run. The resulting four models are presented in Table 3. With the possibility that some majors might be academically more demanding, the regressions included a separated dummy variable for each major except accounting. In each regression model, GPA was the dependent variable and the remaining study variables were the independent variables. To minimize the risk of multicollinearity, the two measures of financial anxiety (financial anxiety statement, FAS) and the two measures of employment (employment, employment hours) were alternately included.

Across all model specifications, the results were consistent. First, financial anxiety and student loans both negatively and significantly ($p \leq 0.01$) affected GPA. That is, lower financial anxiety and smaller amounts of student loans were determinants of higher GPAs. Second, more credit hours taken positively and significantly ($p \leq 0.01$) affected GPA. Heavier courseloads did not result in lower GPAs. Third, the tuition assistance type positively and significantly ($p \leq 0.01$) affected higher GPAs. That is, higher utilization of tuition assistance sources was related to higher GPAs. And fourth, homework hours were positively and significantly ($p \leq 0.05$) to GPA. Thus, the more hours devoted to homework, the higher the GPA. The variables of employment, age, student status, gender, and household commitment were not found to be significant determinants of GPA. For the variables of financial anxiety, credit hours, and homework hours, this evidence supports the correlation results. These regression results expand on the correlation findings in delineating drivers of student performance addressed in RQ1.

[Table 3]

4.4. Determinants of financial anxiety

As presented in Table 4, regressions were run regarding determinants of financial anxiety. The dependent variables were the two measures of financial anxiety: a single statement and the multi-statement FAS. And the independent variables were the same as those used in Table 3 with the inclusion of the variable of GPA. The two measures of employment (employment, number of employment hours) were alternately included in the four models.

For both measures of financial anxiety, student loans ($p \leq 0.01$), employment ($p \leq 0.05$), employment hours ($p \leq 0.01$), gender ($p \leq 0.01$), and household commitment ($p \leq 0.01$) significantly and positively affected financial anxiety; and GPA and credit hours both significantly ($p \leq 0.01$) and negatively affected financial anxiety. Thus, higher student loans, being employed and working more hours, being female, and having household commitments (e.g., caring for children or relatives) increased financial anxiety. Financial anxiety was lower for students with higher GPAs, and for students taking more credit courses—larger courseloads. Financial anxiety, as single statement measured, was significantly ($p \leq 0.05$) and negatively affected by age and employment upon graduation. Older students and those who, after graduation, would remain employed at their current job had less financial anxiety. These regression results expand the correlation findings in delineating drivers of student financial anxiety addressed in RQ2.

[Table 4]

4.5. Accounting versus non-accounting students

Differences between accounting (n = 245) and non-accounting (n = 654) majors were next analyzed. Table 5 presents tests of equality of means for the selected variables of GPA, student loans, the two measures of financial anxiety, the two measures of employment, and the number of credit hours.

Levene's tests of equality of variances for most of the variables were violated. Therefore, to be consistent, Table 5 reports the p-values for mean differences using the Welch and Brown-Forsythe test.

The results indicated that accounting majors differed from non-accounting majors in four of the seven study variables: GPA, financial anxiety, student loans, and credit hours. Accounting majors had significantly ($p \leq 0.01$) higher GPAs and student loan amounts. Additionally, both financial anxiety (as measured with the FAS) and credit hours (courseload) were significantly ($p \leq 0.05$) higher for accounting majors.

[Table 5]

Differences between students who were accounting majors and those majoring in other business disciplines—accounting students who were not accounting majors—were further explored for the variables of student loans and employment. That is, how did accounting majors and non-accounting majors differ in student performance and financial anxiety based on the two factors of employment and student loans? Table 6 presents the differences in means between the full sample, accounting majors, and non-accounting majors for the variables of GPA and the two measures of financial anxiety (financial anxiety statement and FAS). For this analysis, student loans were analyzed for students with (yes) and without (no) employment; and student employment was analyzed for students with (yes) and without (no) student loans.

For the full sample, the subsample of students with loans who were employed (n = 305) had significantly ($p \leq 0.01$) lower GPAs than the subsample of students (n = 594) who were not employed and without loans. This finding provides additional evidence of student loans being associated with lower academic performance. This finding was consistent for both the accounting major ($p \leq 0.05$) and non-accounting major ($p \leq 0.01$) subsamples. Consistent results were also found for the two measures of financial anxiety. Overall and for the subsamples of accounting and non-accounting majors, those who had loans and were employed had significantly ($p \leq 0.01$) higher financial anxiety than did those who were not employed and had no loans. These results provide additional insights into the two variables consistently found to affect both student performance and financial anxiety: being employed and having student loans. Thus, these results provide granular data regarding all three research questions.

[Table 6]

4.6. Determinants of accounting student academic performance

To further explore determinants of accounting student performance, regressions were run for the subsample of accounting majors. GPA was the dependent variable, and the remaining study variables were the independent variables. The two financial anxiety variables and the two employment variables were alternately included in four regression models.

The results are presented in Table 7. Interestingly, the regression coefficients for student loans, financial anxiety, and credit hours were not significant. Unlike the findings for the full sample, the academic performance of accounting majors was not significantly impacted by their level of financial anxiety or by them having student loans. The latter finding is robust given that the student debt for accounting majors averaged over twice that of non-accounting majors. In these regressions, only the variable of tuition assistance type was significant ($p \leq 0.01$). Higher

GPAs were related to students using more tuition assistance sources. These results expand on the answer to RQ3 regarding how accounting majors and other business majors differ in factors affecting academic performance.

[Table 7]

4.7. Determinants of accounting student financial anxiety

Similarly, to further explore the determinants of accounting students' financial anxiety, regressions like those in Table 4 were run for the subsample of accounting majors. The two measures of financial anxiety were the dependent variables, and the remaining study variables were the independent variables. The two employment variables were alternately included in four regression models.

The results reported in Table 8, indicated that two independent variables were consistently important across all models. Student loans and gender were significantly ($p \leq 0.01$ and $p \leq 0.05$, respectively) and positively related to both measures of financial anxiety. Financial anxiety was higher for students with loans and for female compared to male students. Thus, consistent with the full sample, higher student loans did result in higher financial anxiety measures. However, for accounting majors, employment, employment hours, GPA, and credit hours had no impact on anxiety levels. These findings are contrary to the significant correlations found in the full sample. However, the gender results are consistent with those found for the full sample. Female compared to male accounting students had significantly higher financial anxiety.

[Table 8]

5. Discussion and Future Research

In answer to RQ1, the positive determinants of academic performance were course load (credit hours taken), tuition sources, and homework hours. The result for the course load variable

was consistent with prior research (Faulk et al., 2012; Maksy, 2012; Maksy & Yoon, 2020; Maksy & Zaima, 2020). Nevertheless, the present authors had, based on anecdotal evidence, expected that academic performance would be negatively impacted by heavier course loads. Possible explanations for the present study's counterintuitive finding are that students who take more credit hours may also be those who are highly motivated (Maksy, 2012), and may also be students who are more hardworking and have better time management skills (Maksy & Yoon, 2020). Thus, as suggested by Maksy (2012), perhaps faculty do not need to counsel students to improve their grades by taking fewer courses, but rather focus on other personal aspects like effective time management. Future research may benefit from focusing on the personal responsibility variables of hardworking, motivation, and time management.

Higher utilization of tuition funding sources was related to higher performance. This result expands on the research by Stoddard et al. (2018) and Faulk et al. (2012). Stoddard et al. (2018) found that tuition funding other than with student loans was positively related to performance. And Faulk et al. (2012) indicated that employer funding, but not scholarships or federal aid, was indicative of higher performance. Therefore, students should be advised that incurring student loans may not only result in long term financial difficulties but may also negatively impact academic performance. Whenever possible, students should utilize non-debt tuition funding sources such as family assistance, employment, employer tuition assistance, work study employment, and scholarships.

Similarly, student loans and financial anxiety were found negatively associated with performance. This result is in accord with results reported by Mani et al. (2013) and Destin and Svoboda (2018). Debt was positively associated with lower cognition in two studies by Mani et al. (2013). And student loans were found to be negatively associated with performance in the

study by Destin and Svoboda (2018). Perhaps as suggested by Mani et al. (2013) the stress caused by having debt may impinge on cognitive functioning which, in an academic context, may result in lower performance. Thus, academic performance evidence advises against the accumulation of student loan debt.

The adverse effects of student debt, and its magnitude, may outweigh the benefits derived from earning a degree, especially for a degree that is not completed (Jabbari et al., 2020), or a degree that is less economically viable—a degree that will not produce the income needed to timely pay down the principle, and, thus, result in debt that continues to grow and become a long-term financial burden (cf. Cook et al., 2019; Dunn & Hooks, 2009). In the U.S. banks have long been encouraged to make government guaranteed student loans without considering students' current financial worthiness and their future ability to pay. To incentivize banks to make these loans, the usual consumer protection of bankruptcy was not readily afforded to students who borrowed for their higher education. The unintended consequences of the U.S. government's efforts to make the financing of higher education available to all, are that generations of former students are 'drowning' in debt (cf. Aldrovandi et al., 2015; Best & Best, 2014; Shermer, 2021). Some improvements have recently been made in bankruptcy protection (e.g., Cameron, 2022; DOJ, 2023). Nevertheless, what to do about mounting student debt, which in total currently exceed the amounts owed in the U.S. for both auto loans and consumer loans, is a much-debated political and legal issue (e.g., Binkley, 2023; Council on Foreign Relations, 2024; Glaser & Kozakowski, 2023).

The homework variable results indicated that academic performance was positively impacted by students spending more hours studying. This result expands on the prior research that has positively related performance to students more frequently working on homework

(Almunais et al., 2014), and to students being hardworking and conscientious (Mattern et al., 2017). The present finding is encouraging in that faculty and advisors need to continue counseling students to improve their grades by working harder, being diligent, and avoid procrastinating.

In answer to RQ2, financial anxiety was found positively related (greater financial anxiety) to the variables of employment, employment hours, gender, and household commitment That is, students who had larger student loans, who were female, who were employed, and who had household commitments had greater financial anxiety. And financial anxiety was found to be negatively related (less financial anxiety) to the variables of academic performance, courseloads, age, and employment upon graduation. In other words, students who had higher academic performance, who took more courses, who were older, and who planned to remain with their current employer after graduation had lower financial anxiety.

While prior evidence on differences in gender academic performance remains conflicting (e.g., Doran et al., 1991; Gammie et al., 2003; Fallan & Opstad, 2014), the present results failed to report a gender difference in academic performance. However, there was a consistent and strong evidence of female students, irrespective of major, reporting higher financial anxiety levels. This result is in accord with the findings by Archuleta et al. (2013). The gender differences in coping with financial woes and its negative implications for mental health are rather alarming

The variable of household commitments was exploratory. The present authors posited that greater household commitments such as those related to caring for children and other family members would increase financial stress/anxiety. This posited relationship was supported by the present results. Perhaps, household commitments may cause students to have stress related to

"time poverty" (Wladis et al., 2024). Future research is needed to further delineate the financial anxiety impact of various forms of household commitments.

The course load variable was not found related to financial anxiety. That is, the present study did not find that students taking more courses during a semester experienced greater financial anxiety. The present authors posited that more courses taken would cause greater financial anxiety since there would be a greater need for tuition financing coupled with less time available to work. This is the first known financial anxiety study to investigate this variable. Therefore, more research is needed.

Older students were found to have less financial anxiety than their younger counterparts. This finding is congruent with Chen et al.'s (2020) results with U.S. adult consumers, and with Ackert et al.'s (2022) results with students taking an introductory course in economics. The present authors suggest that older accounting students having less financial anxiety may be related to them having more economic resources with which to meet financial obligations, to them being more experienced and disciplined in the management of personal finances, and to them being more apt to be employed and receiving employer tuition assistance.

The effect of student employment on financial anxiety was investigated with three variables: employment, employment hours, and employment upon graduation. Both employment (students having part-time or full-time employment), and employment hours are positively associated with financial anxiety. Employed students and those who worked more hours had more financial anxiety. Conversely, Norvilitis et al. (2006) found the number of hours worked by students did not increase stress operationalized as depression anxiety. The present authors call for the effects of work on financial anxiety to be further investigated.

The employment after graduation variable was exploratory. The present authors posited that students who after graduation planned to continue working with their current employer would experience less financial anxiety. The present results provided support for this posited relationship. A possible explanation for this relationship is that students who will be employed after graduation, and thus are aware of their immediate income opportunities, experience less financial stress than those who will be searching for a job upon graduation—perhaps with uncertain income opportunities. In addition, students who plan to remain with their current employers may be receiving employer provided tuition assistance which may work to decrease financial anxiety (Faulk et al., 2012). More research is called for.

Limited prior research has investigated the effect of work and workload on the financial anxiety of students. And no prior research has investigated these variables with samples of accounting students. Interestingly, in the present study, the academic performance of accounting students was not negatively impacted by work and workload. Nevertheless, financial anxiety was increased by work and workload, and financial anxiety negatively impacted academic performance. Therefore, work/workload indirectly decreased academic performance through its effects on increasing financial anxiety. More research is needed to identify this potential mediation/moderating relationship.

Ancillary to the present research was the use of two variables to measure financial anxiety—the one statement measure taken from the FAS and the full seven-item FAS. Interestingly, the one statement measure produced results similar to those obtained with the FAS. Thus, this parsimonious one-item measure may adequately capture financial anxiety.

Finally, in answer to RQ3, accounting majors and non-accounting business majors differed in four variables: student loans, financial anxiety, academic performance, and credit

hours. Accounting majors, compared to non-accounting majors, had higher student loan debt, higher financial anxiety, higher academic performance, and higher course loads. All these differences can perhaps be explained by the academic level differences of these two subgroups. The accounting major sample was mainly composed of upper-level accounting students, while the non-accounting major sample was mainly composed of lower-level students who were taking one of two introductory accounting courses.

Upper-level students had more time to accumulate student loan debt, and their higher student loan debt perhaps caused them to have higher financial anxiety. And the introductory accounting courses, which are "gateway/hurdle" courses for all business students, are often considered by students to be demanding, especially for those who are not quantitatively oriented. Much research (e.g. Spiceland et al., 2015; Tsay et al., 2023) has focused on how to improve the academic performance of introductory accounting students. In addition, the higher course loads of the upper-level accounting majors were perhaps also related to them not wanting to delay their graduation. Therefore, it is recommended that future research will benefit from comparing the academic performance and financial anxiety (and related variables) of students who differ by academic major (accounting and non-accounting) but who are at the same academic levels.

Around two thirds of the sampled students were employed. Despite the common presumption that employment competes with study time, our findings were at odds with most of the prior studies (e.g., Broadbridge & Swanson, 2005; Wenz & Yu, 2010; Arano & Parker, 2008). The regression analysis revealed no significant impact of employment status or employment hours on student performance measured by GPA. And this was true for all majors. This is in line with Bradley (2006) evidence from Australia suggesting that students working more than twenty hours per week achieve a significantly higher academic performance. This

result suggests that high achievers excel in managing their time—that they effectively manage their work and study time.

Regression analyses suggested subtle differences between accounting and non-accounting majors. Accounting students displayed higher financial anxiety and tended to take significantly more credit hours and maintained higher academic performance than other majors. Furthermore, accounting students significantly differed by having their academic performance unaffected by the level of student debt or the measures of financial anxiety. Unlike other majors, the financial anxiety of accounting majors was not associated with employment choices (employment, employment hours) or credit hours, suggesting an effective time management across work and study. Taken together, these variations among accounting students are relevant to accounting education design and worthy of further research.

The present findings have policy implications, beyond the impairment of academic performance and financial anxiety. For example, indebted college graduates have been found to accumulate lower net worth and job earnings potential (e.g., Elliott & Lewis, 2015; Velez et al., 2019). These unintended consequences of student loans may reinforce and exacerbate inequalities and perpetuate a cycle of debt dependance. Furthermore, the study results shed light on the less observable issue of financial anxiety and thus mental health.

6. Limitations

The present study has at least four limitations. First, the data might have suffered from response bias prevalent in self-reported surveys. To limit such bias, the survey design stressed the anonymity aspect of the study in the recruitment process and in the survey cover letter. Second, the student sample was obtained from a single large university located in a major metropolitan area of the southeastern region of the United States. Thus, the results cannot be

generalized to accounting students in the U.S. Third, accounting major and non-accounting major subgroups were not at similar academic levels. This demographic result may have impacted the subgroup comparisons. And fourth, other relevant factors, beyond our study variables, may explain the interaction between academic performance and financial anxiety.

References

Ackerman, D. S., & Gross, B. L. (2003). Is time pressure all bad? Measuring the relationship between free time availability and student performance and perceptions. *Marketing Education Review, 13*(2), 21-32.

Ackert, L. F., Kelani, Z., & Khayati, A. (2022). The Importance of Economics Education: An Examination of College Students' Financial Anxiety. *Journal of Financial Education*, *48*(1).

Aldrovandi, S., Wood, A. M., Maltby, J., & Brown, G. D. (2015). Students' concern about indebtedness: A rank based social norms account. *Studies in Higher Education*, *40*(7), 1307-1327.

Almunais, T. A., Alfraih, M. M., & Alharbi, F. M. (2014). Determinants of Accounting Students Performance. *Business Education & Accreditation*, *6*(2), 1-9.

Al-Nimer, M. & Mustafa, F. M. (2022). Accounting students' demographics and competencies: the mediating role of student engagement, *Accounting Education*, *31*(2), 213-241. DOI: 10.1080/09639284.2021.1999278.

American Psychiatric Association (2000). *Diagnostic statistical manual-IV-TR, 4th ed*., Washington DC.

Arano, K., & Parker, C. (2008). How does employment affect academic performance among college students? *Journal of Economics (0361-6576)*, *34*(2).

Archuleta, K. L., Dale, A., & Spann, S. M. (2013). College students and financial distress: exploring debt, financial satisfaction, and financial anxiety. *Journal of Financial Counseling and Planning*, *24*(2), 50-62.

Ariail, D. L. & Crumbley, D. L. (2023). An innovative pedagogy for teaching accounting ethics using videos of landmark studies in psychology. *Accounting Educators' Journal*, *33*.

Ariail, D., Smith, K.T., & Smith, L.M. (2021). A pedagogy for inculcating professional values in accounting students: Results from an experimental intervention. *Issues in Accounting Education*, *36*(4), 5-40.

Ariail, D. L., Sosa-Fey, J. & Dastoor, B. R. (2009). Professor attributes: An exploratory study of business student perceptions. *International Journal of Education Research 4*(1), winter 2009.

Bachan, R. (2014). Students' expectations of debt in UK higher education. *Studies in Higher Education*, *39*(5), 848-873.

Bartlett, S., Peel, M. J., & Pendlebury, M. (1993). From fresher to finalist: A three-year study of student performance in the first college course. *Accounting Education*, *2*(2), 111-122.

Beatson, N. J., De Lange, P., & Oosthuizen, H. (2021). A question of balance: Study–work–life, perspectives from accounting students. *Pacific Accounting Review*, *33*(3), 257-273.

Best, J. & Best, E. (2014). The student loan mess: How good intentions created a trillion-dollar problem. *University of California Press*, Berkley, CA.

Binkley, C. (2023, March 1). As court debates student loans, borrowers see disconnect. AP News. https://apnews.com/article/student-loan-forgiveness-supreme-court-payments-51ef087355f045260c37ae6fc698b38d

Bradley, G. (2006). Work participation and academic performance: A test of alternative propositions. *Journal of Education and Work*, *19*(5), 481-501.

Broadbridge, A., & Swanson, V. (2005). Earning and learning: how term-time employment impacts on students' adjustment to university life. *Journal of Education and Work*, *18*(2), 235-249.

Buckless, F., & Krawczyk, K. (2016). The relation of student engagement and other admission metrics to Master of Accounting student performance. *Accounting Education*, *25*(6), 519-533.

Cameron, R. G. (2022, April 12). Busting myths about bankruptcy and private student loans. https://www.consumerfinance.gov/about-us/blog/busting-myths-about-bankruptcy-and-private-student-loans/

Chen, G., Jia, Q., Maskara, P. K., & Williams, A. (2021). Impact of financial debt on borrower's health based on gender. *International Journal of Consumer Studies*, *45*(3), 423-440.

Chiang, C., Wells, P. K., & Xu, G. (2021). How does experiential learning encourage active learning in auditing education? *Journal of Accounting Education*, *54*, 100713.

Cook, S., Watson, D., & Webb, R. (2019). 'It's just not worth a damn!' Investigating perceptions of the value in attending university. *Studies in Higher Education*, *44*(7), 1256-1267.

Council on Foreign Relations (2024, April 16). Is rising student debt harming the U.S. economy? https://www.cfr.org/backgrounder/us-student-loan-debt-trends-economic-impact

Davenport, S., Lee, C. C., Riley, M., & Shortridge, R. T. (2024). Student employment and intermediate accounting performance. *Working paper: The University of Tennessee at Chattanooga.* Available at SSRN 4711557.

Destin, M., & Svoboda, R. C. (2018). Costs on the mind: The influence of the financial burden of college on academic performance and cognitive functioning. *Research in Higher Education*, *59*, 302-324.

Doran, B. M., Bouillon, M. L., & Smith, C. G. (1991). Determinants of student performance in accounting principles I and II. *Issues in Accounting Education*, *6*(1), 74-84.

DOJ (2023, Nov. 16). Office of Public Affairs, U.S. Department of Justice, Press Release. *Justice Department and Department of Education Announce Successful First Year of New Student-Loan Bankruptcy Discharge Process*. *https://www.justice.gov/opa/pr/justice-department-and-department-education-announce-successful-first-year-new-student-loan*

Dull, R. B., Schleifer, L. L., & McMillan, J. J. (2015). Achievement goal theory: The relationship of accounting students' goal orientations with self-efficacy, anxiety, and achievement. *Accounting Education*, *24*(2), 152-174.

Dundes, L., & Marx, J. (2006). Balancing work and academics in college: Why do students working 10 to 19 hours per week excel? *Journal of College Student Retention: Research, Theory & Practice*, *8*(1), 107-120.

Dunn, K. A., & Hooks, K. L. (2009). Cost of an accounting education, economic returns, and preparation to enter the profession. *Issues in Accounting Education*, *24*(4), 433-464.

Dunn, L. F., & Mirzaie, I. A. (2016). Consumer debt stress, changes in household debt, and the great recession. *Economic Inquiry*, *54*(1), 201-214.

Elliott III, W., & Lewis, M. K. (2015). *The real college debt crisis: How student borrowing threatens financial well-being and erodes the American dream*. Bloomsbury Publishing USA.

Fallan, L., & Opstad, L. (2014). Beyond gender performance in accounting: Does personality distinction matter? *Accounting Education*, *23*(4), 343-361.

Faulk, D., Srinivasan, A. K., & Bingham, J. (2012). Sources of funding and academic performance in economics principles courses. *The Journal of Economic Education*, *43*(2), 165-181.

Ferreira, M. B., de Almeida, F., Soro, J. C., Herter, M. M., Pinto, D. C., & Silva, C. S. (2021). On the relation between over-indebtedness and well-being: An analysis of the mechanisms influencing health, sleep, life satisfaction, and emotional well-being. *Frontiers in Psychology*, *12*, 591875.

Gammie, E., Paver, B., Gammie, B., & Duncan, F. (2003). Gender differences in accounting education: An undergraduate exploration. *Accounting Education*, *12*(2), 177-196.

Glaser, L. & Kozakowski, W. (2023, June 1). In the debate over loan forgiveness, let's not forget the underlying problem. *Mathematica*. https://www.mathematica.org/blogs/in-the-debate-over-loan-forgiveness

Grable, J. E., & Joo, S. H. N. (2006). Student racial differences in credit card debt and financial behaviors and stress. *College Student Journal, 40*(2), June 2006.

Gracia, L., & Jenkins, E. (2002). An exploration of student failure on an undergraduate accounting programme of study. *Accounting Education*, *11*(1), 93-107.

Jabbari, J., Despard, M., Kondratjeva, O., Gupta, B., & Grinstein-Weiss, M. (2020). Nothing to show for it: Non-degreed debt and the financial circumstances associated with it. *Social Policy Working Paper*, Washington University in St. Louis. https://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1021&context=spi_research

Khayati, A., & Ariail, D. L. (2020). Business students' perceptions of faculty attributes: A two-country cross-cultural comparison. *Accounting Education*, *29*(2), 153-176.

Long, M. G. (2022). The relationship between debt aversion and college enrollment by gender, race, and ethnicity: A propensity scoring approach. *Studies in Higher Education*, *47*(9), 1808-1826.

Maksy, M. M. (2012). Motivation and distraction factors associated with student performance in intermediate accounting: An empirical investigation. *Journal of Accounting and Finance*, *12*(3), 188-208.

Maksy, M. M. (2014). Factors associated with student performance in intermediate accounting: A comparative study at commuter and residential schools. *The Journal of Applied Business and Economics*, *16*(5), 86.

Maksy, M., & Yoon, M. H. (2020). Factors associated with student performance in graduate managerial accounting: An empirical study at a US commuter public university. *The Journal of Applied Business and Economics*, *22*(7), 11-37.

Maksy, M. M., & Zaima, J. K. (2020). Student Performance in Managerial Accounting: An Empirical Study at a US Small Private College. *Journal of Accounting and Finance*, *20*(8).

Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. *Science*, *341*(6149), 976-980.

Mattern, K., Sanchez, E., & Ndum, E. (2017). Why do achievement measures underpredict female academic performance? *Educational Measurement: Issues and Practice*, *36*(1), 47-57.

Nonis, S. A., & Hudson, G. I. (2010). Performance of college students: Impact of study time and study habits. *Journal of Education for Business*, *85*(4), 229-238.

Norvilitis, J. M., Merwin, M. M., Osberg, T. M., Roehling, P. V., Young, P., & Kamas, M. M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology*, *36*(6), 1395-1413.

Quadlin, N. (2017). Funding sources, family income, and fields of study in college. *Social Forces*, *96*(1), 91-120.

Ramsarghey, K. (2020). What educator capabilities are necessary for reflective learning in accounting students? *South African Journal of Higher Education*, *34*(2), 230-247.

Sari, S., & Suryani, A. (2020). Accounting students' academic performance by their background information. *Jurnal Ilmu Pendidikan*, *26*(2), 54-61.

Seow, P. S., Pan, G., & Tay, J. (2014). Revisiting the determinants of students' performance in an undergraduate accountancy degree programme in Singapore. *Global Perspectives on Accounting Education*, *11*, 1-23.

Shermer, E. T. (2021). Indentured students: How government-guaranteed loans left generations drowning in college debt. *The Belknap Press of Harvard University Press*, Cambridge, MA.

Spiceland, C. P., Spiceland, J. D., & Schaeffer III, S. J. (2015). Using a course redesign to address retention and performance issues in introductory accounting. *Journal of Accounting Education* 33: 50-68.

Stoddard, C., Urban, C., & Schmeiser, M. D. (2018). College financing choices and academic performance. *Journal of Consumer Affairs*, *52*(3), 540-561.

Tay, L., Batz, C., Parrigon, S., & Kuykendall, L. (2017). Debt and subjective well-being: The other side of the income-happiness coin. *Journal of Happiness Studies*, *18*, 903-937.

Tran, A. G., Mintert, J. S., Llamas, J. D., & Lam, C. K. (2018). At what costs? Student loan debt, debt stress, and racially/ethnically diverse college students' perceived health. *Cultural Diversity and Ethnic Minority Psychology*, *24*(4), 459.

Tsay, B., Campbell, J. E., Ariail, D. L., Miller, S. K., & Shumate, L. S. (2023). Improving introductory financial accounting learning and retention through course redesign. *Journal of Accounting Education*, *62*.

Velez, E., Cominole, M., & Bentz, A. (2019). Debt burden after college: The effect of student loan debt on graduates' employment, additional schooling, family formation, and home ownership. *Education Economics*, *27*(2), 186-206.

Wenz, M., & Yu, W. C. (2010). Term-time employment and the academic performance of undergraduates. *Journal of Education Finance*, 358-373.

Wladis, C., Hachey, A. C., & Conway, K. M. (2024). It's about time, part II: Does time poverty contribute to inequitable college outcomes by gender and race/ethnicity? *AERA Open, 10*. https://doi.org/10.1177/23328584241237971

Table 1
Respondent Demographics

Panel 1: Discrete Variables						
	Full sample		Accounting		Non-accounting	
Variable	(n = 899)		(n = 245)		(n = 654)	
	No.	%	No.	%	No.	%
Age						
Under 20	318	35.4	51	20.8	267	40.8
20-24	471	52.4	135	55.1	336	51.4
25-29	57	6.3	32	13.1	25	3.8
30-39	31	3.4	14	5.7	17	2.6
40-49	14	1.6	7	2.9	7	1.1
50 ≤	8	0.9	6	2.4	2	0.3
Gender						
Male	479	53.3	129	52.7	350	53.5
Female	420	46.7	116	47.3	304	46.5
Student Status						
Freshman	193	21.5	29	11.8	164	25.1
Sophomore	367	40.8	46	18.8	321	49.1
Junior	185	20.6	59	24.1	126	19.2
Senior	154	17.1	111	45.3	43	6.6
Major						
Accounting	245	27.3	245	100	-	-
Marketing	149	16.6	-	-	149	22.8
Management	156	17.3	-	-	156	23.8
Economics	17	1.9	-	-	17	2.6
Finance	106	11.8	-	-	106	16.2
Others	226	25.1	-	-	226	34.6
Employed						
Yes	601	66.9	171	69.8	430	65.7
No	298	33.1	74	30.2	224	34.3
Employment upon graduation						
Yes	188	20.9	57	23.3	131	20.0
No	711	79.1	188	76.7	523	80.0
Tuition assistance type						
None	157	17.5	52	21.2	105	16.1
Family	70	7.8	14	5.7	56	8.6
Scholarship	498	55.4	134	54.7	364	55.6
More than one source	174	19.3	45	18.4	129	19.7
Student loans						
Yes	305	33.9	96	39.2	209	32.0
No	594	66.1	149	60.8	445	68.0
Household commitment						
Yes	144	16.0	46	18.8	98	15.0
No	755	84.0	199	81.2	556	85.0

Panel 2: Continuous Variables						
	Full sample		Accounting		Non-accounting	
Variable	Mean	Median	Mean	Median	Mean	Median
Employment hours	17.59	20.00	18.71	20.00	17.17	20.00
Homework hours	13.05	10.00	13.86	10.00	12.75	10.00

Table 2
Pearson's Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. GPA													
2. Financial Anxiety	**-0.140****												
3. Financial Anxiety Scale	**-0.145****	0.820**											
4. Ln Student Loans	**-0.130****	0.289**	0.230**										
5. Employment	**-0.078***	0.093**	0.129**	0.119**									
6. Employment Hours	**-0.147****	0.132**	0.167**	0.186**	0.798**								
7. Employment Upon Graduation	-0.055	-0.006	0.050	0.117**	0.356**	0.382**							
8. Credit Hours	**0.226****	-0.132**	-0.127**	-0.028	-0.095**	-0.202**	-0.119**						
9. Age	-0.050	0.063	0.068*	0.183**	0.009	0.164**	0.119**	-0.197**					
10. Student Status	**-0.076***	0.129**	0.124**	0.211**	0.115**	0.204**	0.156**	-0.093**	0.487**				
11. Gender	0.050	0.166**	0.126**	0.110**	-0.037	-0.014	-0.005	0.025	0.054	0.028			
12. Tuition Assistance Type	**0.279****	-0.037	-0.076*	-0.080*	-0.078*	-0.198**	-0.129**	0.207**	-0.252**	-0.176**	0.082*		
13. Homework Hours	**0.128****	0.024	0.027	-0.002	-0.083*	-0.106**	-0.074*	0.148**	0.041	0.055	0.138**	0.053	
14. Household Commitment	-0.018	0.127**	0.126**	0.123**	0.037	0.106**	0.081*	-0.002	0.296**	0.157**	0.053	-0.068*	0.046

*p ≤ 0.05; **p ≤ 0.01 (2-tailed)

Table 3
Determinants of Academic Performance

	Dependent variable: GPA			
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**
Financial Anxiety Statement	**-0.026****	**-0.025****	-	-
	(0.006)	**(0.007)**		
Financial Anxiety Scale	-	-	**-0.004****	**-0.004****
			(0.005)	**(0.006)**
Ln Student Loans	**-0.011****	**-0.011****	**-0.012****	**-0.011****
	(0.007)	**(0.009)**	**(0.004)**	**(0.005)**
Employment	-0.021	-	-0.018	-
	(0.588)		(0.637)	
Employment Hours	-	-0.002	-	-0.001
		(0.222)		(0.248)
Employment Upon Graduation	0.022	0.032	0.029	0.039
	(0.625)	(0.472)	(0.526)	(0.388)
Credit Hours	**0.027****	**0.027****	**0.028****	**0.027****
	(< .001)	**(< .001)**	**(< .001)**	**(< .001)**
Age	0.006	0.007	0.006	0.007
	(0.105)	(0.091)	(0.099)	(0.087)
Student Status	-0.041	-0.039	-0.042*	-0.040
	(0.053)	(0.064)	(0.047)	(0.057)
Gender	0.045	0.045	0.042	0.042
	(0.199)	(0.198)	(0.231)	(0.231)
Tuition Assistance Type	**0.134****	**0.132****	**0.132****	**0.130****
	(< .001)	**(< .001)**	**(< .001)**	**(< .001)**
Homework Hours	**0.005****	**0.005***	**0.005****	**0.005****
	(0.008)	**(0.010)**	**(0.007)**	**(0.009)**
Household Commitment	0.002	0.004	0.002	0.004
	(0.973)	(0.935)	(0.967)	(0.932)
Majors Dummies	Yes	Yes	Yes	Yes
Intercept	2.831**	2.841**	2.820**	2.831**
	(< .001)	(< .001)	(< .001)	(< .001)
Adjusted R^2	0.136	0.137	0.136	0.137
F-Statistic	9.832**	9.920**	9.865**	9.947**
	(< .001)	(< .001)	(< .001)	(< .001)
Observations	899	899	899	899

*$p \leq 0.05$; **$p \leq 0.01$ (2-tailed)

Table 4
Determinants of Financial Anxiety

	Dependent variables			
	Financial Anxiety Statement		**Financial Anxiety Scale**	
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**
GPA	**-0.333****	**-0.326****	**-2.175****	**-2.121****
	(0.006)	**(0.007)**	**(0.005)**	**(0.006)**
Ln Student Loans	**0.107****	**0.105****	**0.484****	**0.473****
	(< .001)	**(< .001)**	**(< .001)**	**(< .001)**
Employment	**0.295***	-	**2.457****	-
	(0.033)		**(0.005)**	
Employment Hours	-	**0.010***	-	**0.081****
		(0.023)		**(0.004)**
Employment Upon Graduation	**-0.408***	**-0.416***	-0.963	-1.007
	(0.011)	**(0.010)**	(0.347)	(0.325)
Credit Hours	**-0.085****	**-0.082****	**-0.456****	**-0.427****
	(< .001)	**(< .001)**	**(0.001)**	**(0.003)**
Age	**-0.028***	**-0.031***	-0.148	-0.172
	(0.049)	**(0.029)**	(0.097)	(0.053)
Student Status	**0.150***	0.145	0.664	0.629
	(0.049)	(0.057)	(0.169)	(0.194)
Gender	**0.558****	**0.551****	**2.673****	**2.612****
	(< .001)	**(< .001)**	**(<.001)**	**(<.001)**
Tuition Assistance Type	0.036	0.047	-0.225	-0.133
	(0.602)	(0.492)	(0.605)	(0.761)
Homework Hours	0.006	0.006	0.054	0.057
	(0.389)	(0.391)	(0.219)	(0.196)
Household Commitment	**0.529****	**0.517****	**3.348****	**3.247****
	(0.002)	**(0.003)**	**(0.002)**	**(0.003)**
Majors Dummies	Yes	Yes	Yes	Yes
Intercept	5.395**	5.415**	31.039**	31.259**
	(< .001)	(< .001)	(< .001)	(< .001)
Adjusted R^2	0.135	0.136	0.098	0.099
F-Statistic	9.770**	9.819**	7.096**	7.146**
	(< .001)	(< .001)	(< .001)	(< .001)
Observations	899	899	899	899

*p ≤ 0.05; **p ≤ 0.01 (2-tailed)

Table 5
Accounting Majors Versus Non-Accounting Majors
Tests of Equality of Means

	Major	N	Mean	Difference	p-value
GPA	Non-accounting	654	3.27	-0.11	0.003**
	Accounting	245	3.38		
Financial Anxiety Statement	Non-accounting	654	3.81	-0.18	0.119
	Accounting	245	3.99		
Financial Anxiety Scale	Non-accounting	654	20.33	-1.56	0.046*
	Accounting	245	21.89		
Student Loans	Non-accounting	654	3,890.55	-5,077.72	< .001**
	Accounting	245	8,968.27		
Employment	Non-accounting	654	0.66	-0.04	0.123
	Accounting	245	0.70		
Employment Hours	Non-accounting	654	17.17	-1.54	0.096
	Accounting	245	18.71		
Credit Hours	Non-accounting	654	12.57	-0.39	0.047*
	Accounting	245	12.96		

Levene's test for equality of variances was rejected for most of the variables. For consistency, the table reports the p-values with equal variances not assumed (Welch/Brown-Forsythe)
*$p \leq 0.05$; **$p \leq 0.01$ (2-tailed)

Table 6
Student Loans and Student Employment
Accounting Versus Non-Accounting Majors
Mean Differences

	GPA			Financial anxiety			Financial anxiety index		
	Yes (number)	No (number)	Differences	Yes (number)	No (number)	Differences	Yes (number)	No (number)	Differences
Student Loans									
Full sample	3.21 (n = 305)	3.35 (n = 594)	-0.14**	4.62 (n = 305)	3.47 (n = 594)	1.15**	24.52 (n = 305)	18.82 (n = 594)	5.70**
Accounting majors	3.30 (n = 96)	3.43 (n =149)	-0.13*	4.50 (n = 96)	3.66 (n = 149)	0.84**	25.41 (n = 96)	19.62 (n = 149)	5.79**
Non-accounting majors	3.17 (n = 209)	3.32 (n = 445)	-0.15**	4.68 (n = 209)	3.41 (n = 445)	1.27**	24.11 (n = 209)	18.56 (n = 445)	5.55**
Employment									
Full sample	3.27 (n = 601)	3.36 (n = 298)	-0.09*	3.99 (n = 601)	3.61 (n = 298)	0.38**	21.85 (n = 601)	18.55 (n = 298)	3.30**
Accounting majors	3.35 (n = 171)	3.44 (n = 74)	-0.09	4.10 (n = 171)	3.73 (n = 74)	0.37	22.91 (n = 171)	19.51 (n = 74)	3.40*
Non-accounting majors	3.24 (n = 430)	3.33 (n = 224)	-0.09*	3.94 (n = 430)	3.57 (n = 224)	0.37*	21.43 (n = 430)	18.23 (n = 224)	3.20**

The 'Yes' and 'No' columns represent the student categories with and without student loans or employment, respectively.
*$p \leq 0.05$; **$p \leq 0.01$ (2-tailed)

Table 7
Determinants of Academic Performance for Accounting Majors

	Dependent variable: GPA			
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**
Financial Anxiety Statement	-0.025	-0.024	-	-
	(0.117)	(0.140)		
Financial Anxiety Scale	-	-	-0.005	-0.004
			(0.076)	(0.086)
Ln Student Loans	-0.010	-0.010	-0.10	-0.010
	(0.138)	(0.143)	(0.153)	(0.163)
Employment	-0.022	-	-0.017	-
	(0.762)		(0.810)	
Employment Hours	-	-0.001	-	-0.001
		(0.509)		(0.494)
Employment Upon Graduation	0.015	0.023	0.021	0.031
	(0.844)	(0.764)	(0.787)	(0.691)
Credit Hours	0.015	0.015	0.015	0.014
	(0.113)	(0.116)	(0.129)	(0.133)
Age	0.003	0.003	0.003	0.003
	(0.584)	(0.573)	(0.533)	(0.530)
Student Status	-0.018	-0.016	-0.020	-0.018
	(0.591)	(0.634)	(0.536)	(0.580)
Gender	0.078	0.079	0.081	0.082
	(0.215)	(0.208)	(0.198)	(0.190)
Tuition Assistance Type	**0.110****	**0.106****	**0.108****	**0.104****
	(< .001)	**(0.001)**	**(< .001)**	**(0.002)**
Homework Hours	0.006	0.006	0.006	0.006
	(0.077)	(0.088)	(0.065)	(0.075)
Household Commitment	-0.064	-0.061	-0.064	-0.061
	(0.444)	(0.463)	(0.446)	(0.468)
Intercept	3.019**	3.025**	3.018**	3.031**
	(< .001)	(< .001)	(< .001)	(< .001)
Adjusted R^2	0.082	0.083	0.085	0.086
F-Statistic	2.984**	3.020**	3.057**	3.100**
	(< .001)	(< .001)	(< .001)	(< .001)
Observations	245	245	245	245

* = $p \leq 0.05$; ** = $p \leq 0.01$; (2-tailed)

Table 8
Determinants of Financial Anxiety for Accounting Majors

	Dependent variables			
	Financial Anxiety Statement		**Financial Anxiety Scale**	
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**
GPA	-0.415	-0.389	-2.926	-2.826
	(0.117)	(0.140)	(0.076)	(0.086)
Ln Student Loans	**0.084****	**0.081****	**0.535****	**0.533****
	(0.002)	**(0.003)**	**(0.002)**	**(0.002)**
Employment	0.353	-	2.891	-
	(0.221)		(0.107)	
Employment Hours	-	**0.020***	-	0.097
		(0.021)		(0.071)
Employment Upon Graduation	-0.377	-0.465	-0.812	-0.812
	(0.237)	(0.137)	(0.681)	(0.677)
Credit Hours	-0.038	-0.036	-0.341	-0.333
	(0.326)	(0.348)	(0.159)	(0.168)
Age	-0.017	-0.018	-0.007	-0.021
	(0.428)	(0.394)	(0.958)	(0.874)
Student Status	-0.155	-0.179	-1.449	-1.553
	(0.239)	(0.172)	(0.078)	(0.059)
Gender	**0.586***	**0.558***	**3.910***	**3.760***
	(0.020)	**(0.026)**	**(0.013)**	**(0.017)**
Tuition Assistance Type	-0.080	-0.030	-0.827	-0.624
	(0.545)	(0.821)	(0.315)	(0.456)
Homework Hours	0.016	0.018	0.155	0.162
	(0.239)	(0.181)	(0.073)	(0.062)
Household Commitment	0.367	0.324	2.070	1.873
	(0.278)	(0.334)	(0.325)	(0.373)
Intercept	5.842**	5.633**	33.901**	33.983**
	(< .001)	(< .001)	(< .001)	(< .001)
Adjusted R^2	0.068	0.083	0.099	0.102
F-Statistic	2.606**	3.004**	3.447**	3.517**
	(0.004)	(< .001)	(< .001)	(< .001)
Observations	245	245	245	245

*p ≤ 0.05; **p ≤ 0.01(2-tailed)

Appendix A
Survey Questions

1. What is your Age in years?
2. What is your student status?
3. What is your major?
4. What is your current Grade Point Average (GPA)?
5. How many credit hours are you taking this semester?
6. Are you employed this semester?
7. If employed, will you remain with your current employer after graduation?
8. If employed, what is the average number of hours you work each week?
9. Are you receiving some form of tuition assistance?
10. If yes, what type of tuition assistance are you receiving?
11. If you are borrowing funds (student loans) to attend college, about how much do you currently owe? (please enter "0" if you have no student loans)
12. About how many hours do you spend each week completing homework?
13. In your household, do you have children or other relatives (e.g., elderly, sick, disabled) who require a substantial expenditure of your time?
14. I feel anxious about my financial situation.
15. I have difficulty sleeping because of my financial situation.
16. I have difficulty concentrating on my school or work because of my financial situation.
17. I am irritable because of my financial situation.
18. I have difficulty controlling worrying about my financial situation.
19. My muscles feel tense because of worries about my financial situation.
20. I feel fatigued because I worry about my financial situation.