

Original Research Paper

# Financing College Through Student Loans: An Incentive for Academic Performance?

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**Abstract:** Student debt in the United States has reached unprecedented levels. Whereas student loans have paved the way to a college degree for millions of young Americans, it is not clear if student debt acts an incentive for academic performance or not. Using the results from a survey conducted with 877 undergraduate business students in a large public university in the United States, we evaluate the association between student debt and academic performance, measured by cumulative GPA. Students with debt have a significantly higher probability of obtaining a GPA below 3.0 than those without debt. For students with a debt balance below \$10,000, the probability of achieving a GPA above 3.5 is 7.8 percentage points lower than for students without debt. This difference increases to 13.7 percentage points when the debt balance is between \$10,001-20,000. Our findings indicate that the burden of student debt is exacerbated by poorer academic performance.

**Keywords:** Academic Performance, GPA, Student Debt, College Students, Probit Regression

## Introduction

College students in the United States are increasingly pursuing education under financial constraints. While student loans from private and public sources have made college education a reality for millions of American students, the potentially negative consequences of student debt have gained increased attention. In the United States, GPA is used as an outcome proxy for subject matter mastery (Waldman and Korbar, 2004), while reflecting aspects of general cognitive ability and motivation (Bartels *et al.*, 2000). The cumulative GPA is calculated by dividing a student's total grade points by the total number of credit hours. Thus, academic performance is a quantitative assessment of the efficacy of educational experiences. GPA is one of the best predictors of college persistence and degree completion (Cabrera *et al.*, 2005; Pascarella and Terenzini, 2005) and is positively correlated with the starting salaries of college graduates (Sandvig *et al.*, 2005; Waldman and Korbar, 2004). In addition, GPA accumulated upon college graduation is an important evaluation criterion for employers and graduate school admissions (Allen *et al.*, 2008; Carini *et al.*, 2006; Pascarella and Terenzini, 2005). In the context of debt, higher GPA levels are negatively correlated with debt

default (Christman, 2000; Podgursky *et al.*, 2002). Overall, GPA has risen over the past two decades due to "grade inflation" caused by varied factors, including easier accessibility of professor reviews, parents' expectations of student grades, and grad school competition (Lindsay, 2022). However, this grade inflation coincides with rising student debts.

Despite unprecedented levels of student loan balance, research on the relationship between student debt and academic performance is sparse (Stoddard *et al.*, 2018).

Our study complements emerging literature by answering whether student loans represent a burden or a liberating force for achieving academic success (Barr *et al.*, 2021; Velez, 2013; Ma *et al.*, 2019; Robb, 2017). This study explores the presence and magnitude of the relationship between student debt and the academic performance of 877 undergraduate business students enrolled in a public university in the Southeastern United States. Our results indicate that higher levels of student debt are significantly associated with lower academic performance. The negative relationship between GPA and student debt found in this study is robust to a wide set of control variables.

## Background

According to The Federal Reserve (2021), by the end of 2020, student debt in the United States had reached an

all-time high of \$1.7 trillion. The total outstanding higher education debt is growing rapidly and is expected to increase in the future (Harris, 2019; Perry, 2019). According to the Institute for College Access & Success, 56% of seniors graduating from public and non-profit colleges in 2019 had student loan debt, ranging from an average of \$28,500 to more than \$292,000 for bachelor's degrees and dental school programs, respectively (Schak *et al.*, 2020). According to data from the United States Department of Education (n.d.), nearly one in every five borrowers defaulted before the COVID-19 pandemic. As the student debt crisis intensifies, public discourse in the United States is becoming more urgent.

Higher college enrollment rates and rising tuition costs, combined with slow loan repayment rates, are key drivers of increasing student debt (Kaur, 2020). This trend is magnified by employers who increasingly require college degrees for jobs that previously had no such requirement. This phenomenon, referred to as "degree inflation," would cause more people to return to college later in life (Fuller and Raman, 2017). From an economic perspective, student loans can improve the efficiency of the economy by raising the supply of college-educated workers in the labor market (Avery and Turner, 2012). Historically, borrowing money to fund a college degree has been perceived as a good investment, with long-term rates of return, generally exceeding the cost of borrowing (Walker and Zhu, 2011). The monetary investment value for obtaining a college degree is conditioned by several factors, including the type of degree obtained and the educational attainment level.

Numerous demographic, socio-economic, and behavioral characteristics associated with academic performance have been identified. This includes gender, age, working status, and socio-economic status of college students. For example, female students have been found to obtain higher grades than their male counterparts (Chee *et al.*, 2005; Conger and Long, 2010; Ebebuwa-Okoh, 2010; Sax and Harper, 2007; Sheard, 2009), while older students often perform worse academically than their younger peers (Spitzer, 2000). Moreover, students from weaker socio-economic backgrounds (Sirin, 2005) or those working to support their education (Hawkins *et al.*, 2005; Pascarella *et al.*, 1998; Pike *et al.*, 2008; Rochford *et al.*, 2009) have been found to perform worse academically. Research by Xu and Zia (2012); Lusardi *et al.* (2010) suggest that students with higher levels of financial literacy perform better in college. Previous studies (Chemers *et al.*, 2001; Richardson *et al.*, 2012; Segerstrom and Nes, 2006; Tetzner and Becker, 2018) suggest that students with higher levels of optimism tend to do better in college, similar to those with high

levels of conscientiousness (Chamorro-Premuzic and Furnham, 2008).

Research exploring the potential consequences of student debt has established that student debt may lead to higher levels of anxiety and stress, which may negatively impact academic performance (Baker and Montalto, 2019; Heckman *et al.*, 2014; Nora *et al.*, 2006; Northern *et al.*, 2010; Mani *et al.*, 2013). Thus, student debt may act as a distraction from studies (Northern *et al.*, 2010) or impose an emotional burden, resulting in lower academic performance. Furthermore, studies by Boatman and Long (2016); Cabrera *et al.* (2005); Nora *et al.* (2006) suggest that student debt is associated with negative outcomes, such as lower goal commitment, engagement and persistence and even dropping out of college. However, students' ability to accumulate debt to finance higher education could act as a liberating force as student loans help overcome financial barriers. For example, higher levels of student loans may have a positive impact on academic outcomes by allowing students to dedicate more time and effort to their studies (Stinebrickner and Stinebrickner, 2003).

Studies regarding the relationship between debt and academic performance have produced mixed results. While in several studies, student debt is found to be negatively correlated with academic performance (Robb, 2017; Stoddard *et al.*, 2018; Ross *et al.*, 2006), supporting the hypothesis that debt is a liability; others support the notion that student loans represented a liberating force to enable students to perform better (Velez, 2013; Marx and Turner, 2019; Wiederspan, 2016). However, a recent study by Denning and Jones (2021), investigating the effect of federal student loan amounts available to US college students, finds no evidence that eligibility for additional loans affected student GPA, persistence, or graduation. Thus, the answer to whether student loans and the accumulation of student debt act as an incentive for academic performance or as a deterrent remains elusive.

## Materials and Methods

The research was conducted in a large public university in the Southeastern United States. Two large upper-division business courses offered during the Spring and Summer 2019 semesters were selected on a convenience basis to generate a representative sample of undergraduate university students. Of the 1202 students enrolled in these courses, 877 participated in an online survey. Participation was voluntary; however, the students were offered extra credit points. The survey data were subsequently analyzed using Stata.

**Table 1:** Frequency of students for the different ranges of GPA and total student debt (in \$1,000s)

Student debt (\$1,000s)	GPA					Total
	<2	2.0-2.5	2.5-3.0	3.1-3.5	>3.5	
0	6	20	136	198	139	499
<0–10]	1	16	52	56	26	151
<10–20]	1	16	36	38	10	101
>20	1	7	30	34	14	86
Total	9	59	254	326	189	837

In addition to demographic information, class status, selected majors, and work status, students were asked to indicate their debt level independent of the source. Academic performance was measured using self-reported cumulative GPA. Study participants answered four commonly asked questions designed to determine levels of financial literacy. In addition, we included questions designed to obtain a better understanding of students' confidence in their money management skills and expectations related to future salaries. In these questions, the participants were asked to evaluate their money management skills, compare these skills to their peers, and indicate their expected salaries upon graduation. Although these variables were not directly based on prior research in the context of academic performance, they allowed for a better characterization of the students. Finally, they were asked to answer questions related to their investment activities and parental guidance on financial matters, which served as proxies for their socioeconomic status. Each question provided "prefer not to answer" or "do not know" answer choices. These choices were excluded from subsequent analyses.

In Table 1, we present the frequency of students with different debt levels conditional on the cumulative GPA level. In the sample, 40.4% of the students had accumulated debts to pay for college education. Of these, approximately 55% owed more than \$10,000 in debt. The most common interval for self-reported cumulative GPA was 3.1-3.5. Table 2 presents the distribution of all variables according to different levels of self-reported GPA ranges.

The sample consists of 54% male and 46% female students. A total of 86% of the respondents were 25 years or younger. Most students were juniors (67%) and approximately 41% were working full- or part-time at the time of the survey. Seven undergraduate business majors were included in the sample. Across majors, there was cross-sectional variation related to minimum GPA requirements and average starting salaries. Of all the respondents, 61% indicated not having any investment, whereas more than 75% indicated that they received financial guidance from their parents.

Table 3 reports the frequencies of answers related to confidence in money management skills, financial literacy, and salary expectations. The students expressed high levels of confidence in their money management skills on a scale of 0 (very low) to 10 (perfect). Moreover, students assessed their money management skills compared to their peers on a scale of 1 (much lower) to 5 (much higher); whereby, most students viewed their skills as superior to their peers. Approximately 69% of the respondents viewed their skills as higher or much higher. Conversely, only 8.5% evaluated their skills as being lower or much lower. To measure financial literacy levels, students answered four questions aimed at measuring their understanding of interest rates, compounding, and the time value of money (Lusardi and Mitchell, 2007; 2011). Only 181 students (around 21%) answered three or all the questions correctly. To construct a financial literacy measure, we first calculated the score for each student based on the number of questions answered correctly. Each correct answer added one point to the financial literacy score, with a maximum of four points achievable. The average score was 1.7. We classified the students with a score below the average as having "below average financial literacy" and those with a score above the average as having "above average financial literacy."

To establish a measure of expectations regarding future salaries, students were asked to indicate their expected salaries upon graduation. A range of possible starting salaries was provided. For the subsequent analysis, the value 1 ("Low" in Table 3) was assigned to a student expecting a starting salary in an interval below the actual average starting salary of the university's graduates in the same major. Similarly, we assigned the values 2 ("Medium") and 3 ("High") if the expected starting salary fell within or exceeded the historical interval, respectively. Actual starting salaries for different academic majors reflect the real average salaries of university graduates, as provided by the office of professional development. Table 2 reports the salaries for each major and the major itself. Almost half of the students had overly optimistic salary expectations, which is a common characteristic of college students (Dunaway-Seale, 2022).

**Table 2:** Descriptive statistics for student characteristics. The average starting salary (in thousands of dollars) for each major is reported in parentheses

GPA	<2.0	2.0-2.5	2.5-3.0	3.1-3.5	>3.5	Total
<b>Gender</b>						
Male	3	32	146	198	95	474
Female	6	32	121	140	98	397
<b>Age group</b>						
8-20	1	6	44	99	64	214
21-25	8	50	187	190	99	534
26-30	0	4	23	25	12	64
Over 30	0	4	11	24	17	56
<b>Class standing</b>						
Sophomore	2	4	6	22	17	51
Junior	5	43	177	231	121	577
Senior	2	16	80	82	53	233
<b>Major</b>						
Accounting (47.3)	0	5	22	54	60	141
Economics (45.1)	1	3	13	8	4	29
Finance (45.5)	2	3	44	79	69	197
Integrated business (43.7)	1	37	106	56	7	207
Management (43.2)	2	2	35	52	21	112
Marketing (41)	2	7	37	73	27	146
Real estate (47)	0	6	10	6	4	26
Undecided/other	1	1	0	10	1	13
<b>Currently employed</b>						
No	6	37	161	204	107	515
Yes	3	27	105	134	86	355
<b>Investments</b>						
No	5	41	154	201	122	523
Yes	4	22	110	134	70	340
<b>Parental guidance</b>						
No	0	13	63	77	42	195
Yes	9	49	202	259	150	669

**Table 3:** Summary statistics

GPA	<2.0	2.0-2.5	2.5-3.0	3.1-3.5	>3.5	Total
<b>Self-assessment</b>						
<b>Money management</b>						
Low (0-3)	2	12	19	17	9	59
Moderate (4-6)	3	24	96	113	51	287
High (7-10)	4	28	150	202	118	515
<b>Rel. money management</b>						
Low (1-2)	1	5	22	23	7	58
Moderate (3)	4	21	76	68	32	201
High (4-5)	4	37	165	237	150	592
<b>Financial literacy</b>						
Below average score	8	38	115	121	59	341
Above average score	1	25	152	216	133	527
<b>Salary expectations</b>						
Low	1	14	38	56	33	142
Moderate	5	17	77	97	62	258
High	2	27	125	153	82	389

## Results

Table 4 present the estimation results for four ordered probit specifications (1) to (4) with cumulative GPA as the dependent variable. Our results indicate a consistent and negative relationship between cumulative GPA and student debts. The results remain robust even when controlling for a range of demographic and other variables. Across all four model specifications, regression coefficient estimates for student debt on the GPA range from -0.171 to -0.133 and are at least significant at the 5% level.

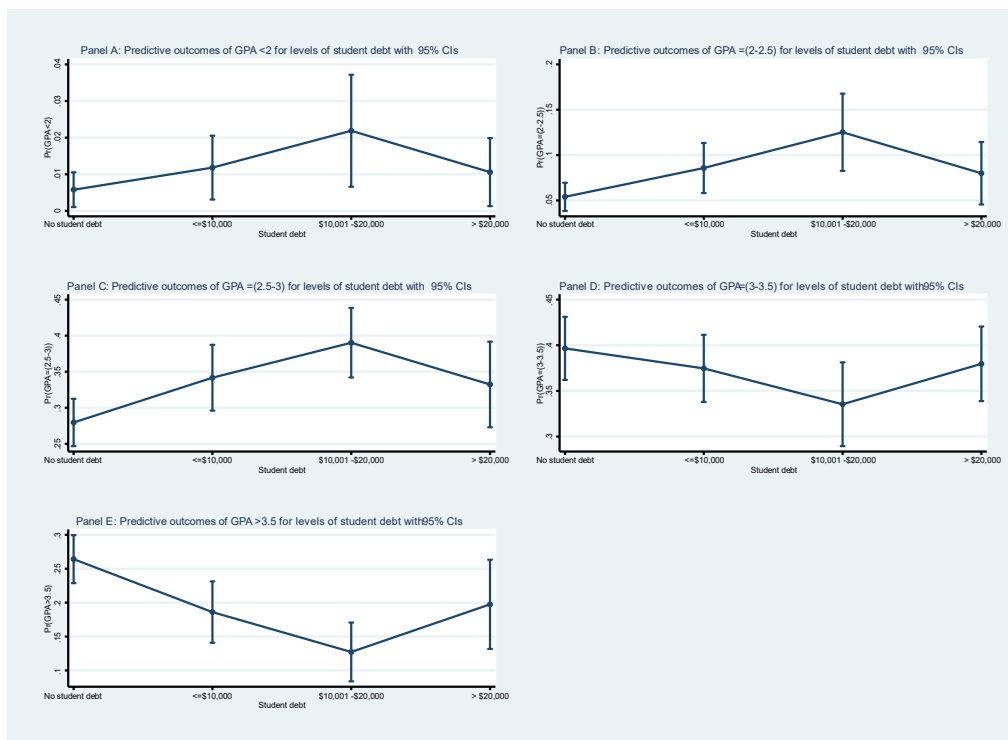
In general, more rigorous academic majors, requiring higher GPA levels, are associated with higher starting salaries. In models (2) - (4), a business major (represented by the starting salary) is positively correlated with GPA. Conversely, age was negatively correlated with academic performance, with older students generally achieving lower GPAs than their younger peers. Models (3) - (4) show that self-assessed money-management skills and high financial literacy are positively related to academic performance. The remaining variables in Model (2) are not significant in this context.

While the sign of the coefficient estimates in Table 4 predicts the direction in which the different variables affect the probability of observing higher GPAs, the size of the estimates is more complex to interpret.

Figure 1 reports the predicted average marginal effects of Model (4) of debt on the GPA. The five plots depict

different probabilities of observing specific ranges of cumulative GPA for different student debt levels. For instance, the final plot (Panel E) shows that subject to not having student debt, the probability of a student achieving a GPA above 3.5 is about 26%. Similarly, subject to having student debt in the \$10,001-20,000 interval, the upper left plot (Panel A) shows that the probability of a student achieving a GPA below 2.0 is approximately 2%. Panels A, B, and C, which relate to the three lower GPA intervals, show higher conditional probabilities of lower GPA levels if the debt is present. We observe from the plots in Panels D and E that higher GPA levels are more prevalent when students do not have debt.

Table 5 reports the percentage point changes in the probabilities of observing different GPA levels when moving from no debt to the indicated debt interval. These changes are related to Model (4) in Table 4. For instance, the intersection of row 2 (\$10,001-20,000 vs. no student debt) and column 2 (2.0-2.5) indicates the change in the predicted probability of a GPA in the 2.0-2.5 interval when the debt increases from 0 to the \$10,001-20,000 interval. An estimate of 0.069 signifies that a student with debt in the suggested interval has a 6.9 percentage points higher probability of obtaining a GPA in the above-mentioned interval than a non-indebted student. Our empirical model consistently predicted that indebted students have higher probabilities of obtaining GPAs below 3.0 and lower probabilities of obtaining GPAs above 3.0.



**Fig. 1:** Probabilities, with 95% confidence intervals, of GPA outcomes for levels of debt

**Table 4:** Estimates of the ordered probit specifications for GPA. Robust standard errors are reported in parentheses

GPA	(1)	(2)	(3)	(4)
Student debt	-0.171*** (0.036)	-0.156*** (0.038)	-0.147*** (0.042)	-0.133*** (0.038)
Gender		-0.004 (0.080)	0.094 (0.086)	
Age		-0.116** (0.052)	-0.098* (0.057)	-0.119** (0.050)
Class standing		-0.053 (0.076)	-0.011 (0.081)	
Starting salary (major)		0.100*** (0.020)	0.102*** (0.022)	0.090*** (0.020)
Work Status		0.079 (0.081)	0.022 (0.087)	
Investments		-0.043 (0.080)	-0.115 (0.089)	
Parental guidance		-0.068 (0.095)	-0.055 (0.102)	
Money management			0.064** (0.029)	0.071*** (0.022)
Rel. money management			0.018 (0.055)	
Financial Literacy			0.281*** (0.084)	0.300*** (0.079)
Salary expectations			0.058 (0.056)	
Cut1	-2.454 (0.137)	1.364 (0.919)	2.344 (1.030)	1.862 (0.860)
Cut2	-1.545 (0.071)	2.291 (0.909)	3.353 (1.022)	2.851 (0.848)
Cut3	-0.423 (0.052)	3.435 (0.912)	4.509 (1.026)	4.028 (0.853)
Cut4	0.640 (0.054)	4.518 (0.915)	5.593 (1.030)	5.112 (0.858)
McFadden's adjusted $R^2$	0.01	0.01	0.02	0.03
Count adjusted $R^2$	-0.01	-0.02	0.03	0.03
AIC	2164.95	2044.67	1823.46	2044.80
BIC	2188.59	2100.87	1896.59	2087.07

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table 5:** Percentage point changes in the predicted probability of a student with a GPA in the given interval for the four intervals of student debt compared to a student without student debt. Standard errors are given in parentheses

GPA	<2.0	2.0-2.5	2.5-3.0	3.1-3.5	>3.5
Student debt					
( $\leq$ \$10,000 vs. No student debt)	0.006** (0.003)	0.034** (0.013)	0.062*** (0.022)	-0.022** (0.010)	-0.078*** (0.026)
(\$10,001-20,000 vs. No student debt)	0.016** (0.006)	0.069*** (0.020)	0.111*** (0.022)	-0.061*** (0.019)	-0.137*** (0.026)
(>\$20,000 vs. No student debt)	0.005 (0.004)	0.023 (0.016)	0.053* (0.029)	-0.017 (0.013)	-0.067* (0.036)
Number of observations	809	809	809	809	809

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The magnitudes of probability changes reported in Table 5 are large, suggesting that academic performance has a strong negative correlation with student debt.

To further isolate the effect of student debt, we treat debt as a binary variable (0 = no debt; 1 = debt). In Table 6, we report the estimation results from similarly ordered probit regressions as in Table 4. The

main findings of the analysis presented in Table 6 are consistent with the previous findings. The coefficient estimates for student debt are stable across all four model specifications. The estimates vary between -0.428 and -0.334 and are significant at the 1% level. The remaining estimates are similar to those in Table 4.

**Table 6:** Estimates of the ordered probit specifications for GPA. Students are classified as either not having debt (0) or as having debt (1). Robust standard errors are reported in parentheses

GPA	(1)	(2)	(3)	(4)
Student debt	-0.428*** (0.074)	-0.411*** (0.079)	-0.383*** (0.085)	-0.344*** (0.077)
Gender		-0.006 (0.079)	0.099 (0.086)	
Age		-0.120** (0.053)	-0.108* (0.058)	-0.127** (0.050)
Class standing		-0.053 (0.074)	-0.019 (0.080)	
Starting salary (major)		0.093*** (0.020)	0.096*** (0.022)	0.087*** (0.020)
Work status		0.096 (0.080)	0.037 (0.086)	
Investments		-0.054 (0.081)	-0.116 (0.090)	
Parental guidance		-0.081 (0.092)	-0.064 (0.100)	
Money management			0.066** (0.029)	0.070*** (0.022)
Rel. money management			0.012 (0.055)	
Financial literacy			0.274*** (0.082)	0.289* (0.077)
Salary expectations			0.055 (0.055)	
Cut1	-2.532 (0.143)	0.953 (0.913)	1.902 (1.023)	1.600 (0.855)
Cut2	-1.594 (0.073)	1.911 (0.901)	2.937 (1.013)	2.612 (0.842)
Cut3	-0.465 (0.055)	3.061 (0.903)	3.061 (1.016)	3.799 (0.847)
Cut4	0.603 (0.056)	4.147 (0.906)	5.182 (1.020)	4.887 (0.851)
McFadden's adjusted $R^2$	0.01	0.02	0.03	0.03
Count adjusted $R^2$	0.00	0.02	0.04	0.04
AIC	2220.17	2099.43	1861.03	2097.27
BIC	2243.96	2155.97	1934.51	2139.78

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 7:** Percentage point changes in the predicted probability of a student with and without debt with a GPA in the given interval. Standard errors are given in parentheses

GPA	<2.0	2.0-2.5	2.5-3.0	3.1-3.5	>3.5
Student debt vs No student debt	0.008*** (0.003)	0.043*** (0.011)	0.077*** (0.017)	-0.032*** (0.009)	-0.096** (0.021)

\*\*\* p<0.01, \*\* p<0.05, \*p<0.1

Table 7 reports marginal changes in the predicted probability of a student with or without debt in specific GPA interval ranges. The changes relate to Model (4) in Table 6. The results show that the predicted probabilities of a student with a GPA in the lower three intervals increase by 0.8, 4.3, and 7.7 percentage points respectively when a student has debt. These results are significant at the 1% level. For the remaining two GPA

intervals, the corresponding probabilities decrease by 3.2 and 9.6% points, respectively.

## Discussion

"Are students who take up loans to finance their education just as likely to obtain a high-Grade Point Average (GPA)-the standard measure of academic

achievement-as other students?" Our results provide a negative answer to this question. We find that students with debt have a significantly lower probability of obtaining a GPA above 3.0 than students with no debt. Thus, our empirical results suggest that increasing levels of student debt are negatively associated with academic performance, independent of gender, age, and other variables under consideration. Whereas this study broadly supports insights of previous studies (Robb, 2017; Stoddard *et al.*, 2018, Ross *et al.*, 2006), it does provide an additional research context by focusing on undergraduate business students.

## Conclusion

Further research is required in the context of academic outcomes and student debt. As highlighted by Stoddard *et al.* (2018), disentangling the causal relationship between these two variables is challenging because of the possibility of unobserved heterogeneity driving these relationships. Consequently, additional research is needed to understand the mechanisms through which debt affects academic performance. As suggested by Barr *et al.* (2021), various types of loans may correlate differently with academic performance; moreover, it is plausible that the effect of student loans on academic performance may not be constant over time (Stoddard *et al.*, 2017). Simultaneously, the relationship between debt and academic performance may differ between student populations. Our study focuses on undergraduate business majors at a large state university. Whether the results obtained from this sample can be replicated in other populations (e.g., students attending private colleges, non-business majors, or students enrolled in graduate programs) requires further investigation.

In the US, recent government initiatives, such as proposed debt forgiveness programs, are designed to address the student debt crisis, at least partially. Specifically, the current debt relief program proposes forgiving up to \$20,000 in federal student loan debts based on income in 2020 or 2021. However, these programs face considerable legislative and legal hurdles and address the issue *ex post*. If the correlation between academic performance and student debt is significant, as suggested by the results of this study, *ex ante* interventions could be considered. These *ante facto* interventions could differ according to the institution, increasing the availability of scholarships to provide targeted academic support for students with higher debt balances.

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## Author's Contributions

All authors contributed equally to this study.

## Ethics

This article is original and contains no unpublished data. The study strictly adhered to the ethical principles governing research involving human participants. There was complete anonymity and confidentiality for the research participants. Only group scores were reported, with no reference to individual participants in the study.

## References

- Allen, J., Robbins, S. B., Casillas, A., & Oh, I. S. (2008). Third-year college retention and transfer: Effects of academic performance, motivation, and social connectedness. *Research in Higher Education, 49*, 647-664. <https://doi.org/10.1007/s11162-008-9098-3>
- Avery, C., & Turner, S. (2012). Student loans: Do college students borrow too much-or not enough? *Journal of Economic Perspectives, 26*(1), 165-192. <https://doi.org/10.1257/jep.26.1.165>
- Baker, A. R., & Montalto, C. P. (2019). Student loan debt and financial stress: Implications for academic performance. *Journal of College Student Development, 60*(1), 115-120. <https://doi.org/10.1353/csd.2019.0008>
- Barr, A., Bird, K. A., & Castleman, B. L. (2021). The effect of reduced student loan borrowing on academic performance and default: Evidence from a loan counseling experiment. *Journal of Public Economics, 202*, 104493. <https://doi.org/10.1016/j.jpubeco.2021.104493>
- Bartels, L. K., Bommer, W. H., & Rubin, R. S. (2000). Student performance: Assessment centers versus traditional classroom evaluation techniques. *Journal of Education for Business, 75*(4), 198-201. <https://doi.org/10.1080/08832320009599014>
- Boatman, A., & Long, B. T. (2016). Does financial aid impact college student engagement? Evidence from the Gates Millennium Scholars Program. *Research in Higher Education, 57*, 653-681. <https://doi.org/10.1007/s11162-015-9402-y>
- Cabrera, A. F., Burkum, K. R., La Nasa, S. M., & Bibo, E. W. (2005). Pathways to a four-year degree. *College Student Retention: Formula for Student Success, 155214*. ISBN: 9780275981938.



- Carini, R. M., Kuh, G. D., & Klein, S. P. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, 47, 1-32. <https://doi.org/10.1007/s11162-005-8150-9>
- Chamorro-Premuzic, T., & Furnham, A. (2008). Personality, intelligence and approaches to learning as predictors of academic performance. *Personality and Individual Differences*, 44(7), 1596-1603. <https://doi.org/10.1016/j.paid.2008.01.003>
- Chee, K. H., Pino, N. W., & Smith, W. L. (2005). Gender differences in the academic ethic and academic achievement. *College Student Journal*, 39(3), 604-619.
- Chemers, M. M., Hu, L. T., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology*, 93(1), 55. <https://doi.org/10.1037/0022-0663.93.1.55>
- Christman, D. E. (2000). Multiple realities: Characteristics of loan defaulters at a two-year public institution. *Community College Review*, 27(4), 16-32. <https://doi.org/10.1177/009155210002700402>
- Conger, D., & Long, M. C. (2010). Why are men falling behind? Gender gaps in college performance and persistence. *The Annals of the American Academy of Political and Social Science*, 627(1), 184-214. <https://doi.org/10.1177/0002716209348751>
- Denning, J. T., & Jones, T. R. (2021). Maxed Out?: The Effect of Larger Student Loan Limits on Borrowing and Education Outcomes. *Journal of Human Resources*, 56(4), 1113-1140. <https://doi.org/10.3368/jhr.56.4.0419-10167R1>
- Dunaway-Seale, J. (2022). Data: College students overestimate starting salary by \$50,000. Real Estate Witch.
- Ebenuwa-Okoh, E. E. (2010). Influence of age, financial status, and gender on academic performance among undergraduates. *Journal of Psychology*, 1(2), 99-103. <https://doi.org/10.1080/09764224.2010.11885451>
- Fuller, J. B., & Raman, M. (2017). Dismissed by degrees: How degree inflation is undermining US competitiveness and hurting America's middle class. *Published by Accenture, Grads of Life, Harvard Business School*.
- Harris, D. (2019). The truth about student debt: 7 Facts no one is talking about. Newsweek.
- Hawkins, C. A., Smith, M. L., Hawkins, II, R. C., & Grant, D. (2005). The relationships among hours employed, perceived work interference, and grades as reported by undergraduate social work students. *Journal of Social Work Education*, 41(1), 13-27. <https://doi.org/10.5175/JSWE.2005.200202122>
- Heckman, S., Lim, H., & Montalto, C. (2014). Factors related to financial stress among college students. *Journal of Financial Therapy*, 5(1), 3. <https://doi.org/10.4148/1944-9771.1063>
- Kaur, H. (2020). The student loan debt is 1.6 trillion and people are struggling to pay it down. <https://www.cnn.com/2020/01/19/us/student-loan-slow-repayment-moodys-trnd/index.html>
- Lindsay, S. (2022). What's the average college GPA? By major? <https://blog.prepscholar.com/average-college-gpa-by-major>
- Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54(1), 205-224. <https://doi.org/10.1016/j.jmoneco.2006.12.001>
- Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and planning: *Implications for Retirement Wellbeing* (No. w17078). National Bureau of Economic Research. <https://www.nber.org/papers/w17078>
- Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, 44(2), 358-380. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1745-6606.2010.01173.x>
- Ma, J., Baum, S., Pender, M., & Libassi., C. (2019). Trends in college pricing 2019. New York: College Board. <https://doi.org/10.3386/w17078>
- Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. *Science*, 341(6149), 976-980. <https://www.science.org/doi/abs/10.1126/science.1238041>
- Marx, B. M., & Turner, L. J. (2019). Student loan nudges: Experimental evidence on borrowing and educational attainment. *American Economic Journal: Economic Policy*, 11(2), 108-141. <https://doi.org/10.1257/pol.20180279>
- Nora, A., Barlow, L., & Crisp, G. (2006). Examining the tangible and psychosocial benefits of financial aid with student access, engagement, and degree attainment. *American Behavioral Scientist*, 49(12), 1636-1651. <https://doi.org/10.1177/0002764206289143>
- Northern, J. J., O'Brien, W. H., & Goetz, P. W. (2010). The development, evaluation, and validation of a financial stress scale for undergraduate students. *Journal of College Student Development*, 51(1), 79-92. <https://doi.org/10.1353/csd.0.0108>
- Pascarella, E. T., & Terenzini, P. T. (2005). *How College Affects Students: A Third Decade of Research*. Volume 2. Jossey-Bass, An Imprint of Wiley. 10475 Crosspoint Blvd, Indianapolis, IN 46256. ISBN: 0787910449.

- Pascarella, E., Edison, M. I., Nora, A., Hagedorn, L. S., & T. Terenzini, P. (1998). Does work inhibit cognitive development during college?. *Educational Evaluation and Policy Analysis*, 20(2), 75-93. <https://doi.org/10.3102/01623737020002075>
- Perry, M. (2019). Chart of the day...or century? American Enterprise Institute.
- Pike, G. R., Kuh, G. D., & Massa-McKinley, R. C. (2008). First-year students' employment, engagement, and academic achievement: Untangling the relationship between work and grades. *NASPA Journal*, 45(4), 560-582. <https://doi.org/10.2202/1949-6605.2011>
- Podgursky, M., Ehlert, M., Monroe, R., Watson, D., & Wittstruck, J. (2002). Student loan defaults and enrollment persistence. *Journal of Student Financial Aid*, 32(3), 27-42.
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353. <https://doi.org/10.1037/a0026838>
- Robb, C. A. (2017). College student financial stress: Are the kids alright?. *Journal of Family and Economic Issues*, 38, 514-527. <https://doi.org/10.1007/s10834-017-9527-6>
- Rochford, C., Connolly, M., & Drennan, J. (2009). Paid part-time employment and academic performance of undergraduate nursing students. *Nurse Education Today*, 29(6), 601-606. <https://doi.org/10.1016/j.nedt.2009.01.004>
- Ross, S., Cleland, J., & Macleod, M. J. (2006). Stress, debt and undergraduate medical student performance. *Medical Education*, 40(6), 584-589. <https://doi.org/10.1111/j.1365-2929.2006.02448.x>
- Sandvig, J. C., Tyran, C. K., & Ross, S. C. (2005). Determinants of graduating mis students starting salary in boom and bust job markets. *Communications of the Association for Information Systems*, 16(1), 29. <https://doi.org/10.17705/1CAIS.01629>
- Sax, L. J., & Harper, C. E. (2007). Origins of the gender gap: Pre-college and college influences on differences between men and women. *Research in Higher Education*, 48, 669-694. <https://doi.org/10.1007/s11162-006-9046-z>
- Schak, J. O., Wong, N., Fung, A., & Ahlman, L. (2020). Student Debt and the Class of 2019. 15<sup>th</sup> Annual Report. *Project on Student Debt*.
- Segerstrom, S. C., & Nes, L. S. (2006). When goals conflict but people prosper: The case of dispositional optimism. *Journal of Research in Personality*, 40(5), 675-693. <https://doi.org/10.1016/j.jrp.2005.08.001>
- Sheard, M. (2009). Hardiness commitment, gender, and age differentiate university academic performance. *British Journal of Educational Psychology*, 79(1), 189-204. <https://doi.org/10.1348/000709908X304406>
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75(3), 417-453. <https://doi.org/10.3102/00346543075003417>
- Spitzer, T. M. (2000). Predictors of college success: A comparison of traditional and nontraditional age students. *Journal of Student Affairs Research and Practice*, 38(1), 99-115. <https://doi.org/10.2202/1949-6605.1130>
- Stinebrickner, R., & Stinebrickner, T. R. (2003). Working during school and academic performance. *Journal of Labor Economics*, 21(2), 473-491. <https://doi.org/10.1086/345565>
- Stoddard, C., Urban, C., & Schmeiser, M. D. (2018). College financing choices and academic performance. *Journal of Consumer Affairs*, 52(3), 540-561. <https://doi.org/10.1111/joca.12175>
- Stoddard, C., Urban, C., & Schmeiser, M. (2017). Can targeted information affect academic performance and borrowing behavior for college students? Evidence from administrative data. *Economics of Education Review*, 56, 95-109. <https://doi.org/10.1016/j.econedurev.2016.12.004>
- Tetzner, J., & Becker, M. (2018). Think positive? Examining the impact of optimism on academic achievement in early adolescents. *Journal of Personality*, 86(2), 283-295. <https://doi.org/10.1111/jopy.12312>
- The Federal Reserve. (2021). *Consumer Credit G.19*, 7 (May). <https://www.federalreserve.gov/releases/g19/20210507/>
- United States Department of Education. (n.d.). *Federal Student Loan Portfolio*. <https://studentaid.gov/data-center/student/portfolio>
- Velez, E. D. (2013). What do Stafford loans actually buy you: The effect of Stafford loan access on community college students.
- Waldman, D. A., & Korbar, T. (2004). Student assessment center performance in the prediction of early career success. *Academy of Management Learning & Education*, 3(2), 151-167. <https://doi.org/10.5465/aml.2004.13500529>
- Walker, I., & Zhu, Y. (2011). Differences by degree: Evidence of the net financial rates of return to undergraduate study for England and Wales. *Economics of Education Review*, 30(6), 1177-1186. <https://doi.org/10.1016/j.econedurev.2011.01.002>
- Wiederspan, M. (2016). Denying loan access: The student-level consequences when community colleges opt out of the Stafford loan program. *Economics of Education Review*, 51, 79-96. <https://doi.org/10.1016/j.econedurev.2015.06.007>
- Xu, L., & Zia, B. (2012). Financial literacy around the world: An overview of the evidence with practical suggestions for the way forward. *World Bank Policy Research Working Paper*, (6107).