

The relationship between student debt and academic performance at the University of Cape Town, South Africa

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Abstract

Student debt's impact on academic performance remains under-researched, particularly in South Africa. This study investigates the correlation between student debt and GPA among undergraduates at the University of Cape Town (UCT), South Africa from 2021-2023. Employing a cross-sectional correlation-based design, debt balances and GPAs for 13,580 students were analysed. A weak, negative correlation was observed between total student debt and GPA, suggesting higher debt is associated with lower academic performance. However, a strong negative correlation emerged within a specific overpayment band, indicating a potential link between substantial overpayments and improved GPA. These findings highlight the complex relationship between student debt and academic performance. Further research incorporating demographic and socioeconomic factors is crucial to fully understand these dynamics.

1. Introduction

The escalating burden of student debt has become a global concern, increasingly recognized for its potential impact on students' academic journeys and overall well-being. This financial strain is particularly pronounced in South Africa, where historical inequalities and socioeconomic disparities continue to shape the educational landscape. While access to higher education has expanded through initiatives like the National Student Financial Aid Scheme (NSFAS), significant challenges remain, including high attrition rates and persistent performance gaps. These challenges are further compounded by factors such as language barriers, with English being the primary language of instruction at most tertiary institutions despite its limited use in many households.

While research has explored the influence of race, language, and socioeconomic background on academic performance, the specific relationship between student debt and academic success in South Africa remains under-researched. This study aims to address this gap by investigating whether a correlation exists between student debt and academic performance among undergraduate students at the University of Cape Town (UCT). Utilising a quantitative approach, this research analyses UCT student debt balances and GPA scores to determine the strength and direction of their relationship. The findings of this study will contribute to a deeper understanding of the factors influencing student success in South Africa and inform the development of targeted support programs.

2. Literature review

2.1. South African student debt history

The student debt crisis in South Africa stems from the country's history of racial segregation (Bozalek & Boughey, 2012). Prior to 1994, access to higher education was racially restricted, resulting in very low participation rates for Black and Coloured South Africans (9% and 11% respectively), despite making up over 80% of the population (Sehoole & Adeyemo, 2016). Post-apartheid, participation from these groups increased dramatically to over 80% over three decades. However, this increased access coincided with rising higher education costs and insufficient government funding, creating a significant rise in student debt (Wangenge-Ouma & Cloete, 2009).

Student protests and the National Student Financial Aid Services

The #FeesMustFall protests in South Africa highlighted the student debt crisis, emphasizing how rising higher education costs and insufficient government funding limited access and social mobility for disadvantaged students (Yaskowski, 2020). In 2017, free tertiary education was introduced for households earning under R350,000 annually, converting National Financial Aid Services (NSFAS) loans into bursaries (Griffiths, 2019). However, this policy created a “missing middle” – students from households earning between R350,000 and R600,000 who could not afford tuition but did not qualify for NSFAS funding. Programs like the Ikusasa Student Financial Aid Programme (ISFAP) aimed to bridge this gap, but funding constraints remained (Chetty, 2017).

Research on NSFAS and academic performance suggests that financial aid alone does not guarantee success. Studies found that even funded students struggled to complete their degrees on time, highlighting the need for wrap-around support, such as mentorship, academic assistance, and mental health resources (Carpenter & Roos, 2020). Despite the presence of such programs, like the Thuthuka Bursary Fund, challenges like mental health issues and poor study habits still led to student dropouts (Ontong & Smit, 2023).

2.2. Theoretical framework

This study draws upon Astin's Input-Environment-Outcome model as a framework for understanding the complex interplay of factors influencing student success. The IEO model posits that student outcomes (e.g., academic performance, persistence) are a function of student inputs (e.g., pre-university characteristics, academic preparedness) and the university environment (e.g., curriculum, peer interactions, institutional resources) (Astin, 1993). Within this framework, student debt can be conceptualised as an environmental factor that may significantly impact student success. Specifically, high levels of student debt could create a stressful environment, diverting students' time and energy away from academic pursuits and towards financial concerns. This financial strain could manifest in reduced engagement with coursework, decreased participation in extracurricular activities, and increased psychological distress, all of which could negatively impact academic performance. Conversely, manageable levels of student debt, particularly when coupled with adequate financial literacy and support services, might motivate students to perform well academically in order to secure future employment and repay their loans. This study aims to investigate the nature and strength of this relationship between student debt as an environmental factor and academic performance as an outcome within the South African higher education context.

2.3. Measuring academic success

Academic performance is commonly measured by GPA scores due to their objectivity and suitability for quantitative studies. However, some researchers argue for broader measures, including resilience, self-authorship, and preparedness for post-graduate life. Despite these arguments, GPA remains the most prevalent metric in the literature (York et al., 2015).

2.4. Student debt

Research on student debt and academic performance often considers broader factors like motivation, mental health, and well-being. While Western contexts, especially the US, dominate this research area, studies vary in approach.

2.4.1. Lower debt levels: Minimal or no impact

Studies suggest that lower levels of student debt may not significantly impair academic performance. For instance, access to moderate student loan amounts can facilitate educational attainment without negatively affecting GPA or persistence rates (D. J. Baker & Doyle, 2017; Denning & Jones, 2019). In some cases, lower debt levels may even incentivise students to perform better academically, as the financial burden is manageable and does not distract from studies (Schmeiser et al., 2015).

The manageable nature of smaller debts often leads to reduced financial anxiety, allowing students to allocate more cognitive resources to their academic work, thereby potentially enhancing their focus and overall academic achievement (Gervais & Ziebarth, 2017).

2.4.2. Higher debt levels: Negative correlations

However, the picture changes with higher levels of debt. Multiple studies have found that students with larger debt burdens tend to have lower GPAs, reduced credit hour accumulation, and lower retention rates (Bårdsen et al., 2023; Stoddard et al., 2018). For example, one study revealed that students with debt balances between \$10,001 and \$20,000 had a 13.7 percentage point lower likelihood of achieving a GPA above 3.5 compared to students without debt (Bårdsen et al., 2023). Similarly, another study found that higher debt levels were associated with fewer credits taken per semester and lower academic performance overall (Stoddard et al., 2018).

2.4.3. Threshold effects

Research also points to the existence of a debt threshold beyond which academic performance begins to decline. For instance, one study identified that debt levels exceeding \$10,000 negatively impacted college completion rates, particularly for students from lower-income backgrounds (Dwyer et al., 2012). This suggests that while some debt can be beneficial or neutral, excessive debt becomes a barrier to academic success.

2.4.4. Indirect impact of debt

Studies have shown that financial stress, mental health and attitude affected by debt impact performance. Financial stress reduces students' motivation, goal commitment, and academic engagement (A. R. Baker & Montalto, 2019; Destin & Svoboda, 2018). For example, experimental manipulations that highlight financial burdens have been shown to directly impair students' cognitive functioning, particularly when financial stress creates an identity conflict or perceived barrier to future success (Destin & Svoboda, 2018).

Medical students experience high levels of debt-related stress (increased number of years for their studies), which is correlated with poorer mental health, lower academic performance and career choices based on financial considerations rather than personal preference (Pisaniello et al., 2019; Yang et al., 2024). Similarly, non-white students and those from underrepresented minorities often face compounded financial stress, which can further exacerbate academic challenges (Bui, 2024).

Interestingly, some studies suggest that students' attitudes toward debt can mediate the relationship between debt levels and academic outcomes. Students who are more tolerant of debt may perform better academically despite accumulating more debt, while those who are debt-intolerant may experience poorer outcomes (Zhang & Kemp, 2009).

The literature also indicates that first year students who accumulate debt perform worse academically, in Australia and New Zealand (Birch et al., 2006; Zhang & Kemp, 2009). Other studies highlight the snowball effect of student debt, where undergraduate loans lead to further borrowing for postgraduate studies, increasing overall debt (Webber & Burns, 2022).

In South Africa, the focus has primarily been on NSFAS and its role in the student debt crisis. Research indicates a weak but statistically significant positive correlation between NSFAS funding and average academic performance when controlling for other variables (Wildschut et al., 2020). A study found that larger NSFAS awards are associated with improved student performance, particularly at historically black institutions (Pillay et al., 2021). Conversely, an older study with 2011 data investigated the relationship between funding and academic performance and found no relationship between being awarded a bursary and successful graduation (Naidoo & McKay, 2018). However, there are challenges associated with NSFAS funding implementation and issues such as mismanagement and corruption within NSFAS may hinder its effectiveness, impacting overall student success despite the funding provided (Matyana et al., 2023).

Student debt is not the only variable impacting academic performance. A significant body of research has formed around this topic both globally and in South Africa.

2.5. Other factors affecting determinants of success

The single best predictor of academic performance at all levels for accounting students in South Africa is prior academic performance (Bokana & Tewari, 2014; Jansen & De Villiers, 2016; Papageorgiou & Carpenter, 2019). Performance in Grade 12 is strongly correlated with academic success at all levels of tertiary education.

Evidence is inconclusive regarding age and gender and performance. Some studies indicate younger students outperform older students (Bokana & Tewari, 2014; Jansen & De Villiers, 2016), while the contrary was found at the beginning of an undergraduate degree (Papageorgiou, 2017). The impact of gender on academic performance remains uncertain, with studies yielding mixed findings. Some studies indicate male outperformance (Jansen & De Villiers, 2016), while others the opposite in undergraduate studies (Carpenter & Kunaka, 2018). Research shows that female students generally outperform male students in graduation rates, despite experiencing higher stress levels (Frazier et al., 2019). However, male students demonstrate greater self-efficacy, which has been linked to better academic outcomes in accounting (Carpenter & Shamsoodien, 2021; Lin et al., 2023).

Students from affluent backgrounds (quintile 4–5 schools, fee-paying and with less government support) tend to be better prepared for university due to greater educational resources and cultural capital (Thomas & Maree, 2022). While some studies dispute the direct impact of school type on academic performance, inadequate preparation is linked to higher dropout rates (Mtshweni, 2022).

Studies from Brazil, South Africa, and the U.S. suggest that students from historically disadvantaged racial groups tend to perform worse academically than their White counterparts (Marshall, 2021; Papageorgiou, 2017). Contributing factors include socio-economic inequalities, academic preparedness, stress, and mental health. In South Africa, racial disparities are further complicated by the country's socio-economic history. The research clearly indicates White students tend to achieve higher academic outcomes compared to other racial groups, with Black students facing lower pass rates, and Black African students experiencing the greatest challenges. Although access to tertiary education and financial support has expanded, student attrition rates remain significant (Kaburise, 2014).

Linked to the impact of race on performance, English is the primary language of instruction at most tertiary institutions in South Africa, although few households speak English at home. Non-native English speakers face additional academic challenges, impacting their performance (Joynt, 2023). While some literature notes a strong positive correlation between academic success and assessment in one's first language (Bokana & Tewari, 2014; Swart & Becker, 2014), this is not necessarily linked to Grade 12 language results (van Rooy & Coetzee-van Rooy, 2015).

Due to the scant research on student debt and performance in South Africa, it is worthwhile first exploring if there is a relationship between student debt and academic performance in South Africa, and thereafter to investigate the extent and depth of that relationship.

3. Methodology

The objective of this study was to identify whether a relationship exists between student debt and academic performance. The students investigated were those registered at the University of Cape Town over the three year period 2021 to 2023.

Student debt was measured by student debt balances, obtained from UCT's Finance Department, while academic performance was measured by GPA, obtained from UCT's Institutional Planning Department. The final sample of students, after data cleaning, amounted to 13,580 (representing 15.3% of the 88,626 population). The main three reasons (accounting for 83.7% of the population) for the large reduction from population to sample was that 1) only final year students had calculated GPAs, 2) international students were excluded and 3) incomplete observations were removed. The sample was representative of the population across all of race, gender, language, Grade 12 performance and school quintile.

Student debt was also disaggregated into debt balances with R60,000 intervals, determined by using two standard deviations of the debt balance variable. Additionally, the -R60,000 to R0 range was changed to -R60,000 to R0.99, as debt balances below R1 would not ordinarily count as debt. The notable feature of overpayment arises when bursary funders pay UCT their budgeted amounts for student fees (but which are more than UCT charges) and when students are awarded multiple funding awards in excess of fee cost.

The study employed a cross-sectional correlation-based research design. The data obtained was continuous for both debt and performance. Therefore, a two-tailed Pearson's correlation test – a parametric measure of the strength and direction of the correlational relationship – was calculated using IBM SPSS Statistics version 30. The test was performed for each of the R60,000 intervals per year, as well as for the sample as a whole.

4. Findings, results and discussion

A Pearson's two-tailed correlation was run to determine the relationship between student debt and academic performance amongst the 13,580 students. Results are displayed in Table 1. For the whole sample and at a total debt level, a weak, negative correlation exists that is statistically significant ($r=-0.156$, $\rho < 0.001$). Increases in student debt are correlated with decreases in academic performance. This is supported by past studies (Bårdsen et al., 2023).

Table 1. Pearson correlation co-efficient (r) with p -values.

	2021 Sample	2022 Sample	2023 Sample	Total Sample
Sample size	4,510	4,359	4,711	13,580
(300 000) - (240 001)	0	0	0	1,000 ($p < .001$)
(240 000) - (180 001)	0	-1.000 ($p < .001$)	-0,996 ($p = .056$)	-0,973 ($p < .001$)
(180 000) - (120 001)	0	-0.821 ($p = .179$)	0,163 ($p = .613$)	0,003 ($p = .992$)
(120 000) - (60 001)	0.052 ($p = .777$)	0.237 ($p = .177$)	0,015 ($p = .924$)	0,085 ($p = .379$)
(60 000) - 0.99	0.008 ($p = .654$)	0.086 ($p < .001$)	0,038 ($p = .026$)	-0,166 ($p < .001$)
1 - 60 000	-0.081 ($p = .048$)	-0.268 ($p < .001$)	-0,140 ($p < .001$)	-0,155 ($p < .001$)
60 001 - 120 000	-0.046 ($p = .63$)	-0.141 ($p = .155$)	0,101 ($p = .272$)	-0,022 ($p = .694$)
120 001 - 180 000	0.076 ($p = .534$)	-0.081 ($p = .537$)	-0,080 ($p = .451$)	-0,043 ($p = .525$)
180 001 - 240 000	-0.023 ($p = .936$)	0.260 ($p = .23$)	-0,013 ($p = .95$)	0,190 ($p = .136$)
240 001 - 300 000	0	0.547 ($p = .262$)	-0,458 ($p = .438$)	-0,051 ($p = .876$)
300 001 - 360 000	0	0	-1,000 ($p < .001$)	-0,823 ($p = .385$)
Total debt level	-0.152 ($p < .001$)	-0.138 ($p < .001$)	-0.174 ($p < .001$)	-0.156 ($p < .001$)
Positive debt balance	-0.185 ($p < .001$)	-0.184 ($p < .001$)	-0.215 ($p < .001$)	-0.196 ($p < .001$)
Negative debt balance	-0.030 ($p = .392$)	0.004 ($p = .908$)	0.001 ($p = .965$)	-0.009 ($p = .633$)

Bolded correlation co-efficients and p -values are statistically significant.

Source: Authors' own construct

Disaggregating by years, the results remain similar. For each of 2021, 2022 and 2023 a statistically significant, weak, negative correlation exists. When each of the levels of student debt were correlated with the respective GPA scores at those levels, the results for the total sample show that the -R60,000 to R0.99 band ($r=-0.166$, $\rho < 0.001$), the R1 - R60,000 band ($r=-0.155$, $\rho < 0.001$) and the R480,001 to R540,000 band ($r=-1$, $\rho < 0.020$) mimicked the correlation test results of the entire sample in strength and direction. The association between student debt and lower academic performance corroborates past research (A. R. Baker & Montalto, 2019; Bårdsen et al., 2023; Zhang & Kemp, 2009). The results are in contradiction to the view that lower levels of debt do not affect academic performance (D. J. Baker & Doyle, 2017; Denning & Jones, 2019; Schmeiser et al., 2015), as the findings for the total sample are significant only at the lower level of debt. To be explicit, these results indicate that increased levels of debt is not significantly related to academic performance, in contrast with past research (Bårdsen et al., 2023; Stoddard et al., 2018).

Interestingly, the -R240,000 to -R180,001 band ($r=-0.973$, $\rho=0.001$) revealed a statistically significant, strong, negative correlation between student debt and academic performance. This is counter to expectations.

At an overpayment level, this band suggests for the most part that an overpayment was associated with an increase in academic performance at UCT. This is to be expected, as overpayments can occur either from

bursars or from awards given to the student. This type of student in their final undergraduate year would be expected to be academically strong. It is interesting this did not occur in all the overpayment bands.

It is notable that the total sample band -R60,000 to R0.99 band swung from a weak, negative correlation to a weak, positive correlation. This finding was significant for the 2022 ($r=0.086$, $\rho<0.001$) and 2023 ($r=0.038$, $\rho=0.026$) academic years. Surprisingly, the total sample had a weak, negative correlation ($r=-0.166$, $\rho<0.001$). One wouldn't expect an overpayment to be associated with lower academic performance. However, it must be noted that this band, for the vast majority, was made up of balances between R0 and R0.99.

5. Conclusion

This study investigated the relationship between student debt and academic performance among students at the University of Cape Town from 2021 to 2023. The findings revealed a statistically significant, weak, negative correlation between student debt and academic performance for the entire sample, indicating that increased student debt is associated with decreased academic performance, aligning with previous research (Bårdsen et al., 2023). The study's disaggregated analysis by year also revealed similar results, with each year (2021, 2022, and 2023) showing a statistically significant, weak, negative correlation.

These findings have implications for universities and policymakers in South Africa. Understanding all the factors influencing students' academic success in higher education is crucial. Awareness of these factors will enable universities to support students in developing effective learning strategies, ultimately enhancing their academic performance. Research on the impact of student debt (excluding NSFAS) in South Africa remains in its early stages.

While the study suggests a negative association between student debt and academic performance, it is important to consider the limitations of the study. Firstly, this study is confined to one large contact (face-to-face) higher education institution and may not be generalisable to other institutions in South Africa. Secondly, the study did not consider other factors that may influence academic performance, such as race, gender, school quintile, school-leaving marks, mental health, poverty, students' metacognition, academic preparedness and cultural capital.

Future research could focus on conducting a longitudinal study to examine a potential causal relationship between student debt and academic performance, as alluded to in Bårdsen et al. (2023). Additionally, future studies could consider the impact of the factors not investigated in this study. It would also be worthwhile to compare these results to those of other higher education institutions in South Africa.

6. References

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