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Cover Page Footnote

We thank James Allen for helpful comments on an earlier draft. Any remaining errors are our own.

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Athletics, Academics, and the Financial Condition of U.S. Private Colleges

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Abstract

Many private colleges in the United States face financial difficulty. The role of athletics in the financial condition of U.S. colleges is subject to controversy. Supporters argue that collegiate sports draw students, improve student quality, and increase donor support. Detractors argue that athletics are costly and undermine the academic mission of the institution. Accordingly, this study examined metrics of athletic and academic quality to determine their effects on the financial health of a sample of 561 U.S. private colleges. The relationship between athletics and an institution's financial health was examined using a simultaneous equations model. Financial GPA was the dependent variable in the first equation and athletic spending per athlete was the dependent variable in the second equation. Measures of academic quality served as control variables. The results of this study indicate that higher spending on athletics reduces an institution's financial health and that academic quality increases an institution's financial health.

Keywords: *academics, athletics, college sports, finance, institutional health*

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Introduction

Many private colleges and universities in the United States face financial difficulties. Although the covid-19 pandemic exacerbated these problems, fiscal troubles were in place for many institutions beforehand (Carapezza, 2020). Pre-pandemic, Moody's determined one-fifth of small private schools faced financial stress, and Edmit, a higher education consulting firm, put the figure at one-third (Cohen, 2019; Thys, 2020). In an analysis of private and public institutions, Butrymowicz and D'Amato (2020) found that more than 500 of about 2,300 exhibited weaknesses in at least two of four critical metrics of financial strength: enrollment, retention, average tuition revenue per student, or the endowment spending rate. The reasons for the poor financial condition of these institutions are many, but foremost among them is dwindling enrollment. Discounting tuition heightens financial risks, especially for institutions that are less-selective and that have modest endowments (Eide, 2018; Thys, 2020; Vedder, 2020).

Financially troubled schools employ many strategies to reverse enrollment trends, including marketing campus and local amenities, adding new academic, graduate, or online programs, or appealing to older adults and first-generation students (Podolsky, 2014; Marcus, 2019). Athletics provides another possible means of enhancing revenues, especially for small private schools. In a study of mostly small and medium-sized private schools, Hearn et al. (2018) reported that sports "can be a key element in colleges' strategic positioning for future success" (p. 5) even though the athletic programs of these institutions "rarely generate large crowds, provide significant gate revenues, or attract national media attention" (p. 8). The authors found that 62 percent of college presidents surveyed expanded their athletic programs over the prior five years by increasing the number of sports and student-athletes. Nonetheless, athletic programs come with costs, and fees to fund athletics may draw the ire of students who are not athletes (Enright et al., 2020).

At a time when many U.S. private colleges face financial hardship, assessing the role of athletics in institutions' financial health is important for the institutions in question and for the higher education industry. The purpose of this paper is to examine how athletic and academic emphasis, status, and success affect the financial conditions of private institutions affiliated with the National Collegiate Athletic Association (NCAA), using a comprehensive measure of financial health developed by *Forbes* magazine. This examination may be useful to private colleges' presidents, board members, faculty, and alumni in their attempt to allocate resources to uses that most enhance their institutions' financial viability.

Athletics versus Academics? A Brief Review of the Literature

Many scholars have undertaken the task of determining the effects of college athletic programs on an institution's academic quality and financial status. As this review of this literature shows, the results have been mixed, with few conclusions. Turning first to academic quality, numerous studies have found that athletic success at the Division I Football Bowl Subdivision (FBS) level benefits institutions of higher education through higher average SAT scores of incoming students (McCormick & Tinsley, 1987; Mixon, 1995; Mixon et al., 2004, Pope & Pope, 2009; Smith, 2009), higher retention and graduation rates (Mixon &Trevino, 2005), and increased giving to the academic program (Koo & Dittmore, 2014).

Looking at athletic spending instead of success, Litan et al. (2003) and Orszag and Israel (2009) found that spending had no effect on SAT scores for Division I FBS schools, and Baumer and Zimbalist (2019) found that the magnitude of this effect was trivial. Zoda (2012) reported the same result for Division I Football Championship Subdivision (FCS) schools, and Hernandez-Julian and Rotthoff (2014) observed

that football success was correlated with lower student grades, perhaps because it detracted from time that would have been spent studying. With respect to academic giving, Litan et al.(2003) and Orszag and Israel (2009) did not find beneficial effects. Baumer and Zimbalist (2019) also found these effects negligible.

From a theoretical standpoint, Frank (2004) argued that athletic spending occurs in a winner-take-all market in which over-optimism or an expenditure arms race leads to financial losses for most institutions. Such losses may be especially severe for Division I FCS and Division II institutions where spending per athlete is high and there are institutional subsidies and student fees (Orszag and Orszag 2005; Derochers 2013). Yet, despite the uncertain financial effects of athletic spending, the leadership of many institutions believes that investments in athletics will enhance their institution's reputation and prestige (Weaver, 2010; Kelly & Dixon, 2011). Whatever the effects on an institution's reputation and prestige, Tomasini (2005) found no improvements in donations, applications, or enrollment for schools that transition from Division III or Division II to Division I, and that rising costs overwhelmed increases in revenues for schools that underwent these transitions (Orszag & Orszag, 2005; Frieder, 2007). Feezell (2009) reported similar results for Division III and Division II schools that added football.

Sample, Method, and Model

Sample

Although the *Forbes* financial ratings are available for 921 institutions, the final sample for this study consisted of 561. The sample was restricted to schools governed by the NCAA. Within the NCAA, schools that transitioned from one NCAA division to another, Ivy League schools that play at the FCS level but that do not give athletic scholarships, and institutions that play in the FBS were deleted from the sample. Next, schools without athletic teams, such as religious and technological institutions and schools of art and design, were deleted from the sample. Institutions for which there were not complete data for all variables in the model were also omitted. This resulted in a reduction from 921 institutions to 561 institutions.

Method and Model

A simultaneous equations model was used to explore the relationship between athletics and an institution's financial health. Financial GPA was positioned as the dependent variable in the first equation, and athletic spending per athlete was the dependent variable in the second equation. Other important measures of athletic emphasis and success were included in the model. Measures of academic quality revealed the importance of the academic program and served as control variables. The equations were estimated using three-stage least squares regression. The complete model is given below:

$$\text{Financial GPA} = \beta_0 + \beta_1\text{Athletic Spending per Athlete} + \beta_2\text{Students per Athlete} + \beta_3\text{Football Success} + \beta_4\text{Basketball Success} + \beta_5\text{Retention Rate} + \beta_6\text{Graduation Rate} + \beta_7\text{Percent Full-Time Faculty} + \varepsilon, \text{ and}$$

$$\text{Athletic Spending per Athlete} = \delta_{0+}\delta_1\text{Financial GPA} + \delta_2\text{Students per Athlete} + \delta_3\text{Football Program} + \delta_4\text{NCAA Division II} + \delta_5\text{NCAA Division III} + \varepsilon.$$

Since 2013, *Forbes* magazine has provided periodic financial assessments of U.S. private colleges and universities. The measures consist of qualitative "grades," ranging from A+ to D, and as quantitative Grade Point Averages or "GPAs," ranging from 4.5 (an A+) to 0.6 (a low D). *Forbes* uses nine financial indictors to determine the financial grade or GPA. These indicators evaluate insti-

tutions' assets, liquidity, debt, revenues, expenses, tuition dependency, enrollment, and tuition discounting. Higher grades and GPAs indicate a stronger financial condition. Schifrin and Tucker (2021) provide a full discussion of these indictors. The 2021 financial grades and GPAs are based on data from 2018 and 2019 and so provide a measure of institutions' financial health before the pandemic and the effects it may have had on a college's finances. The independent variables, their measures and calculations, are shown in Table 1. Descriptive statistics for the variables are provided in Table 2.

Table 1

Variable Definitions and Calculations

Independent Variables for the First Equation		
Variable	Measure	Calculation
Athletic Spending Per Athlete	Emphasis on the athletic program	Average expenditure per athlete
Students per Athlete	Resources available to fund the athletic and academic programs and dependence on athletics to provide students	Number of undergraduates divided by the number of athletes
Football Success	Emphasis on and success of the football program	Cumulative playoff rounds reached, 2015-2019
Basketball (Men's) Success	Emphasis on and success of the basketball program	Cumulative tournament rounds reached, 2015-2019
Retention Rate	Academic quality	Percent of first-year students that reenrolled the following year
Graduation Rate	Academic quality	Percent of students that completed a bachelor's degree within six years
Percent Full-Time Faculty	Academic quality	Percent of faculty that are full-time as a share of full-time, part-time and graduate student instructional staff
Independent Variables for the Second Equation		
Variable	Measure	Calculation
Financial GPA	Institutional financial condition	Explained in text
Students per Athlete	See Above Explanation	See above explanation
Football Program	Effect of football on an institution's financial condition	Dummy variable coded one for institutions with a football program
NCAA Division	Resource demands of different NCAA divisions	Division I FCS is included in the intercept. Dummy variables are coded one for Division II and Division III.

Note. Sources: Athletic data are from the Equity in Athletics Data Analysis at https://ope.ed.gov/athletics/#/, with the exception of football playoff and basketball tournament appearances which come from annual playoff and tournament records. Academic data are from the Integrated Postsecondary Education Data System at https://nces.ed.gov/ipeds/. Data on the number of sports, games, and scholarships by NCAA division may be found in the 2018-19 NCAA Division Manuals at https://www.ncaapublications.com/p-4547-2018-2019-ncaa-division-i-manual-august-version-available-august-2018.aspx, https://www.ncaapublications.com/p-4548-2018-2019-ncaa-division-ii-manual-august-version-available-august-2018.aspx, and https://www.ncaapublications.com/p-4549-2018-2019-ncaa-division-iii-manual-august-version-available-august-2018.aspx.

Table 2
Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Financial GPA	2.315	0.918	0.723	4.5
Athletic Spending per Athlete	18,980	20,430	2,532	146,713
Students per Athlete	6.61	6.42	1.30	63.40
Football Success	0.68	2.12	0	24
Basketball Success	1.93	3.63	0	26
Retention Rate	78.43	10.20	46	99
Graduation Rate	62.65	16.25	14	95
Percent Full-Time Faculty	54.05	19.94	2.52	100
Football Program	0.56	0.50	0	1
NCAA Division II	0.257	0.437	0	1
NCAA Division III	0.583	0.494	0	1

Note. Sources: See Table 1.

Results

The model was estimated in linear form. The fit and explanatory power are good, as indicated by the R-square and Chi-square statistic values. The results are shown in Table 3.

Table 3
Results of Simultaneous-Equations Regression

Equation 1: Dependent Variable: Financial GPA		Equation 2: Dependent Variable: Athletic Spending per Athlete	
Independent Variable	Coefficient / (z-statistic)	Independent Variable	Coefficient / (z-statistic)
Athletic Spending per Athlete	-0.00000723 / (-3.72)***	Financial GPA	2,790 / (4.39)**
Students per Athlete	0.018 / (3.22)***	Students per Athlete	830 / (12.01)***
Football Success	0.009 / (0.074)	Football	
Program	-1,334 / (-1.62)		
Basketball Success	0.012 / (1.54)	NCAA Division II	-31,460 / (-24.49)***
Retention Rate	0.021 / (3.53)***	NCAA Division III	-43,123 / (-37.27)***
Graduation Rate	0.018 / (4.74)***	Constant	40,991 / (21.85)***
Percent Full-Time Faculty	0.015 / (10.33)***		
Constant	-1.30 / (-4.62)***		
R-square	0.53	R-square	0.82
Chi-square statistic	648.94***	Chi-square statistic	2,499.48***
N	561	N	561

Note. *significant at the 10 percent level for a two-tail test. ** significant at the 5 percent level for a two-tail test.
*** significant at the 1 percent level for a two-tail test.

Athletic spending per athlete was negative and statistically significant. The coefficient indicated that an additional $10,000 spent per athlete reduced the financial GPA by about 0.07. Although this figure is not large, the coefficient suggests that institutions that spend more on their athletic programs may not help their financial condition and that these expenditures may be a net drain on the institution's budget. Students per athlete was positively and significantly correlated with the financial GPA, indicating that a high ratio of students per athlete provides the resources an institution needs to fund its athletic and academic programs. Raising this ratio by one was associated with an increase in the financial GPA of 0.018. Neither football nor basketball success was significantly correlated with the financial GPA. However, the retention and graduation rates were positively and significantly correlated with the financial GPA, with coefficient values that indicated that a one-unit increase in each of these raises the financial GPA by 0.021 and 0.018, respectively. This finding is consistent with a view that prospective students, their parents, alumni, donors, and other constituents reward institutions with quality academics with higher enrollment and financial support. The coefficient on the percent of full-time faculty was also positive and significant, indicating that a one percentage point increase in this ratio raises the financial GPA by 0.015. This finding suggests that a high share of full-time faculty, who offer quality instruction and are involved and invested in the institution and its students, benefits an institution financially.

The findings of the second equation provide insights into athletic spending and help to explain how athletic costs affect an institution's financial GPA. Greater financial resources, measured by the financial GPA and the ratio of students per athlete, enabled greater spending per athlete of nearly $2,800 from an increase of one in the financial GPA and over $800 from an increase of one in the students per athlete ratio. The coefficient on whether a school had a football team was statistically insignificant. The choice of NCAA division dwarfed the effects of other variables and was highly significant. Division II lowered spending per athlete by over $31,000 compared to Division I, and Division III lowered spending per athlete by over $43,000 compared to Division I. Evidently, the costs of Division I more than offset the benefits. If these figures are multiplied by the coefficient values for athletic spending per athlete in the first equation, the resulting calculations indicated that Division II schools have financial GPAs 0.23 higher than Division I schools and that Division III schools have financial GPAs 0.31 higher than Division I schools.

Closing Thoughts and Implications

As many U.S. private colleges face financial hardship, attracting students, increasing tuition revenue, and drawing donations from alumni and other constituents, becomes critical. For some institutions, it is a matter of survival. And for all institutions, college administrators and board members must weigh carefully how they allocate resources to best ensure financial success. Many U.S. private colleges have turned to athletics to attract students and financial resources. Thus, the central point of this study was to examine the effects of athletics on institutions' overall financial standing. To the best of our knowledge, this study is the first to analyze the effects of different athletic and academic metrics on the overall financial condition of private colleges and universities in the U.S.

This study adds to the literature on the relationship between athletics and academics by providing a fuller picture of how these variables affect institutions' overall financial condition. Most studies have examined how athletics affects single variables, such as SAT scores or donations. Because this study employs a comprehensive measure of institutions' financial wellbeing, it provides a more complete assess-

ment of how athletic and academic emphasis and success affect institutions' overall financial standing. This study indicates that sound athletic and academic programs are associated with better financial standing, but that institutions that play at lower NCAA divisions improve their financial health. Athletics are important but costly. By playing at a lower NCAA division, many schools can reap benefits from their athletic programs at an affordable cost. In addition, students' academic success translates into institutional financial success as well. This study does, however, face limitations. The sample includes only private institutions and is only for a single year. Analyses of state schools or panel data would provide further insights into the questions this study has investigated. If the findings were similar, they would strengthen the conclusions this study has reached. If not, they would suggest researchers need to do more analysis before making strong recommendations to those who oversee institutions of higher education.

In closing, the results of this study show that spending high amounts on athletics may be detrimental to an institution's financial health and that too few students per athlete is indicative of financial problems. Athletics are important, but keeping investment in them to an appropriate level is too. De-escalation of an athletic program to a lower NCAA division is not common, but a small number of institutions have done so, in part to reduce their athletic costs (Hutchinson, 2013; Hutchinson & Bouchet, 2014). Moreover, these results suggest that undertaking measures that enhance the quality of the academic program may yield the requisite resources to improve an institution's financial standing.

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