

How Do Men's Football and Basketball Programs Affect Athlete Graduation Rates at NCAA
Power 5 Conference Institutions?

James Vaughan

Linfield College

5/23/18

I study factors that explain variation in the six-year graduation rate for athletes in both the 2003 and 2009 academic cohorts across the Power Five Conferences of NCAA Division 1 academic institutions. I use data for 64 universities that play both football and men's basketball collected from IPEDS, the NCAA, the NCAA Equity in Athletics Cutting Tool, and Sports Reference.com. The results reveal that an increase in revenue for Power 5 Conference football programs leads to lower overall graduation rates for student athletes while the presence of a basketball program has no effect.

I. Introduction

Athletes at higher education institutions are often thought to be a nuisance. If the role of higher education is to create and enhance learning, it is thought that athletics are not necessary. In fact, it could be argued that athletics (much like many other extracurricular pursuits) is a hindrance to the facilitation of learning.

The National Collegiate Athletic Association (NCAA) publishes results of how “student-athletes” graduation rates at these institutions compare to their non-athlete student participating cohorts (Eckard, 2010). Eckard provides evidence that student-athletes in NCAA sanctioned sports graduate at higher rates than their non-athlete counterparts. However, there are some sanctioned sports where athletes tend to graduate at much lower rates than the general student body (Eckard, 2010; Ferris, Finster, & McDonald, 2004; Henschen & Fry, 1984; Mangold, Bean & Adams, 2003; Shapiro, 1984; Tucker, 2004). Oftentimes these sports are the two highest revenue generators: men’s football and basketball. The results of my study revealed that an increase in revenue for Power 5 Conference football programs lead to lower overall graduation rates from student athletes at those respective institutions. These results indicate a link between revenue generation in sports and lower graduation rates for athletes.

In this paper, I first provide a review of the literature studying factors that affect the graduation rate of athletes. The next section provides the details of my theory and model. The fourth section will discuss the data sources for the regression along with issues that were encountered both in terms of data collection and transformations. Included in this section will be a summary and tabular presentation of the regression results. The final section of this paper provides a conclusion to this paper.

II. Literature Review

Literature related to the topic of graduation rates for athletes at colleges and universities is well developed. An overarching theme from the studies reviewed here is that as

a sports team becomes more successful in terms of winning percentage and garnering monetary revenues, the graduation rate for the athletes in the school were found to decrease over time (Eckard, 2010; Ferris, Finster, & McDonald, 2004; Henschen & Fry, 1984; Mangold, Bean & Adams, 2003; Shapiro, 1984; Tucker, 2004).

Eckard (2010) discussed use of the Graduation Success Rate as a measure for comparing the graduation rates of athletes at NCAA sanctioned institutions to those of the general student body. He argues that the Graduation Success Rate is flawed. The Graduation Success Rate is the measure preferred by the NCAA for comparing graduation rates because it tends to mask the low graduation rates of athletes in certain sports. It accomplishes this by comparing the graduation rates of student-athletes, who are required to attend an academic institution as a full-time student in order to maintain athletic eligibility, to the graduation rates of the general student body, which does account for part-time students (Eckard, 2010). Including part-time students in the measure biases the comparison in favor of athletes because part-time students will usually take longer to graduate.

To help illustrate his point, Eckard shows that on average, the graduation rates of football and men's basketball players were seventeen and twenty-two percentage points lower when compared to the graduation rates of the general student body without including part-time students (2010). To help correct for this problem, Eckard advocated use of the Federal Graduation Rate, which compares the graduation rate of student-athletes to the rate of the general student body without including part-time students (2010). A weakness of the Federal Graduation Rate is that it does not account for student-athletes who have transferred to a new institution (Eckard, 2010).

Ferris, Finster, & McDonald (2004) studied whether student-athletes graduated at the same rates as other student cohorts, if academically selective universities graduated athletes at higher rates, and if athletically successful universities graduated athletes at lower rates. Using

ten years' worth of graduation rate data from 1992-2002 for all NCAA I-A universities, they concluded that on average, student-athletes graduate at the same rate as their general student cohorts, which does not support the hypothesis of student-athletes being "dumb jocks" at their respective institutions (Ferris, Finster, & McDonald, 2004).

According to Ferris, Finster, & McDonald (2004), academically selective universities graduate athletes at lower rates relative to the other student cohorts. However, this finding can be questioned as these universities often have higher overall graduation rates of athletes compared to the graduation rates of athletes at not academically selective universities (Ferris, Finster, & McDonald, 2004). A conclusion found by Ferris, Finster, & McDonald (2004) was that as a sports program improves its winning percentage, the athletes in those programs graduate at lower overall rates (Ferris, Finster, & McDonald, 2004). While no explanation is made as to why this happens, it could be theorized that in order to maintain a winning tradition, more of a focus has to be put on the program and less on academics.

Using graduation rate data at the University of Utah from 1973-1982 for male athletes and 1976-1982 for female athletes, Henschen and Fry (1984) found that as sports received more national recognition, the graduation rates for athletes participating in those programs decreased. The authors also found that "as the emphasis on a particular sport increases and more money is pumped into that particular program, there is a corresponding decrease in graduation productivity," (Henschen & Fry, 1984, pg. 55). This provides the theoretical argument that money generation from athletics lowers graduation rates of athletes. Shapiro (1984) reached the same conclusion. He found that "as the visibility, success, and popularity of [sports programs] on campus grew, graduation rates for athletes in these sports declined" (Shapiro, 1984, pg. 48).

Tucker (2004) used multiple variables like faculty salary to account for differences in graduation rates. He compares graduation rates of football and basketball athletes at private

universities to those at public institutions, finding that private institutions graduate athletes at a higher overall rate compared to public institutions.

Using data for 97 schools that have both NCAA Division I-A football and basketball programs from the years 1997-1999, Mangold, Bean, & Adams (2003) also used unique variables such as the number of courses taught by teacher assistants (TAs), the size of the university in terms of the number of students enrolled, and the percentage of students living on campus. Mangold, Bean, & Adams (2003) found that institutions with higher overall graduation rates often had lower athlete graduation rates. An unexpected finding was that academic institutions with low overall graduation rates often graduated athletes at higher rates than the student cohorts at those same schools.

III. Theory and Model

I begin by considering the theory informing the variables in the model. The factors hypothesized to affect the graduation rates of athletes were placed into two distinct categories: institutional factors and factors that have an emphasis directly related to men's football and basketball. To clarify, institutional factors measure all aspects that contribute to the graduation rate of all students and of student-athletes. Equation 1 presents the empirical model and Table 1 below provides definitions for all of the variables in the model.

$$GRA_{it}=F(GRTOT_{it}, PRV_{it}, BBREV_{it}, FBREV_{it}, BBWIN_{it}, FBWIN_{it})$$

Equation 1

Table 1 Variables and Definitions

Institutional Characteristics	
Graduation Rate of Athletes (GRA)	Percentage graduation rate of all student-athletes at an academic institution in an academic cohort from 2003-2008 and 2009-2015
Total Graduation Rate (GRTOT)	Percentage graduation rate of all students and student athletes at an academic institution in an academic cohort from 2003-2008 and 2009-2015
Private (PRV)	Dummy variable used to distinguishing between public and private institutions
Athletic Factors	
Men's Basketball Revenue (BBREV)	Average percentage of total athletic revenue generated by a men's basketball program from 2003-2015
Men's Football Revenue (FBREV)	Average percentage of total athletic revenue generated by a football program from 2003-2015
Men's Basketball Winning Percentage (BBWIN)	Average winning percentage of a men's basketball program from 2003-2015
Men's Football Winning Percentage (FBWIN)	Average winning percentage of a football program from 2003-2015

I begin in turn by discussing institutional factors and then athletic factors.

Institutional Factors

Using data for the student cohort for all sixty-four Power 5 Conference schools for the cohorts of 2003-2008 and 2009-2015 the institutional factor GRTOT serves as a proxy for the educational aspects that an institution provides students such as professor salaries, number of TA taught courses, and the age of the university. GRTOT is hypothesized to have a positive relationship with GRA because an increase in the graduation rate of all students should cause an increase in the graduation rate of student-athletes. However, previous studies have shown that this relationship could either be positive or negative because athletes graduated at the same rate as their student cohorts (Ferris, Finster, & McDonald, 2004) while the theory that Mangold, Bean, & Adams (2003) provided was that institutions with lower overall graduation rates graduated athletes at higher rates in comparison.

PRV is hypothesized to have a positive relationship with GRA if private institutions graduate student-athletes at higher rates than do public institutions. Due to the fact that private institutions have higher admissions standards and higher expectations when it comes to staying eligible for financial aid and other benefits it is thought that this should have a positive effect on the graduation rate of athletes.

Athletic Factors

The first two athletic factors theorized to affect the graduation rate of athletes were the average percentage of revenues brought in by men's basketball and football (denoted as BBREV and FBREV respectively) during the period between 2003-2008 and 2009-2015. The expected signs for both of these coefficients should be negative if revenue generation negatively affects the graduation rate of student-athletes. Henschen & Fry (1984) and Tucker (2004) both found that increases in revenues generated by football and basketball decreased the graduation rates of athletes in those sports.

The next two athletic factors theorized to affect GRA were the average winning percentages of both men's basketball and football programs (denoted as BBWIN and FBWIN respectively) between the years 2003-2008 and 2009-2015 at Power 5 Conference schools. It was hypothesized that these variables should have negative relationships with GRA if winning percentage negatively affects the graduation rate of student-athletes. As a team wins more games and approaches games that are more important in the schedule more emphasis is placed on practices and traveling, while less time is spent on studying.

IV. Data and Results

As stated previously, data was collected for a total of sixty-four schools competing in NCAA Division 1 Power 5 Conferences between the years 2003-2015. All institutional data was gathered from The Integrated Postsecondary Education Data System (IPEDS). All data relating to the athletic factors of the models were gathered through the NCAA, NCAA Equity in Athletics Cutting Tool, and SportsReference.com.

There was one issue related to the data itself that must be addressed before discussing the results. Using the Federal Graduation Rate as the comparison rate between the athletes and student cohorts is flawed in that the measure does not account for athletes transferring into new schools. However, this measure still is useful because it maintains the apples to apples comparison between full-time student athletes and full-time students.

Results

The final estimation of the model is in Table 2. Adjusted for degrees of freedom, the model explained 53% of the variation in the graduation rate of athletes in the 2003 and 2009 cohorts. Using a two-tailed test the coefficient for GRTOT, was found to be significantly positive at the one percent level. Using a one-sided test for all the other coefficients, only the variable FBREV was found to be significantly negative at the one percent level. While theory did suggest the use of other variables to potentially explain the

variation in the graduation rates of athletes across NCAA Power 5 Conference schools, the empirical results showed that revenues generated by a football program mattered most.

As each of these coefficients are measured as elasticities, the results can be interpreted in percentage terms. Using Table 2, the results indicate that for every one percent increase in the total graduation rate of students at a college or university, an increase in the graduation rate of athletes will be .52 percent. For every one percent increase in the amount of revenue generated by a football program, the graduation rate of athletes will decrease by about .189 percent.

Table 2 Empirical Results

Constant	43.37 (6.86)
GRTOT _{it}	.523 (9.26)*
PRV _{it}	1.97 (1.03)
BBREV _{it}	-.601 (-0.627)
FBREV _{it}	-0.189 (-3.32)*
BBWIN _{it}	-.784 (-1.18)
FBWIN _{it}	-0.985 (-0.231)
Adjusted R ²	.531

T-stats in parentheses (*, **, ***) Statistically different from zero at (.01, .05, .10) level of significance, one-tailed test

V. Conclusion

Using data for sixty-four colleges in universities competing in football and men's basketball in NCAA Power 5 Conferences across two separate six-year cohorts, I estimated the factors explaining variation in the graduation rates of student-athletes. The institutional factor that measured the graduation rate of all students at an academic institution proved to be

significant. The athletic factor measuring football revenue proved to be significant. This measure showed that it negatively affected the graduation rates of athletes at an institution. The results of this study showed that the graduation rate of all students is positively related to the graduation rate of student-athletes. For every one percent increase in the total graduation rate of students, there is an increase of 0.523 percent in the graduation rate of student-athletes. The results also showed that the average percentage of revenues generated by a football program is negatively related to the graduation rate of student-athletes. For every one percent increase in the revenues generated by a football program, there is a decrease of -0.189 percent in the graduation rate of student-athletes. Holding these factors constant, the results also showed that the presence of a men's basketball program has no effect on the graduation rate of student athletes.

VI. References

- Eckard, E. W. (2010). NCAA Athlete Graduation Rates: Less than Meets the Eye. *Journal of Sport Management*, 24(1), 45-59. doi:10.1123/jsm.24.1.45
- Ferris, E., Finster, M., & McDonald, D. (2004). Academic Fit of Student-Athletes: An Analysis of NCAA Division I-A Graduation Rates. *Research in Higher Education*, 45(6), 555-575. Retrieved from <http://www.jstor.org/stable/40197361>
- Henschen, K. P., & Fry, D. (1984). An Archival Study of the Relationship of Intercollegiate Athletic Participation and Graduation. *Sociology of Sport Journal*, 1(1), 52-56. doi:10.1123/ssj.1.1.52
- Mangold, W. D., Bean, L., & Adams, D. (2003). The Impact of Intercollegiate Athletics on Graduation Rates among Major NCAA Division I Universities. *The Journal of Higher Education*, 74(5), 540-562. doi:10.1080/00221546.2003.11778889
- Shapiro, B. J. (1984). Intercollegiate Athletic Participation and Academic Achievement: A Case Study of Michigan State University Student-Athletes, 1950-1980. *Sociology of Sport Journal*, 1(1), 46-51. doi:10.1123/ssj.1.1.46
- Tucker, I., (2004). A reexamination of the effect of big-time football and basketball success on graduation rates and alumni giving rates. *Economics of Education Review* Volume 23 issue 6 pages 655-661.