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The impact of college football on academic achievement

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ABSTRACT

We revisit a recent study by Lindo, Swensen, and Waddell (2012), who found a negative relationship between the success of the University of Oregon football team and the academic performance of students as measured by grades. Using data from Clemson University, we also find that the football team's winning percentage is negatively related to academic performance. Although Lindo et al. (2012) found that the academic performance of male students was more sensitive to changes in the winning percentage than the academic performance of female students, we find evidence of the opposite phenomenon in the Clemson data. Moreover, the negative relationship between wins and academic performance at Clemson appears to persist into the spring semester.

1. Introduction

Athletic departments claim to support the academic mission of the university, a claim that is consistent with the results of McCormick and Tinsley (1987) and Pope and Pope (2014). McCormick and Tinsley argued that academics and athletics go hand in hand because the elimination of large-scale athletic programs appears to have a detrimental impact on enrollments and academic standards. Pope and Pope found that applications increased after successful football or basketball seasons. However, Clotfelter (2011) and Lindo, Swensen, and Waddell (2012) found evidence that big-time sports can negatively impact the academic performance of non-athletes.

We add to this body of research by analyzing the impact of having a successful football season on academic performance using data from a mid-sized public university: Clemson University, located in Clemson, South Carolina. Our study closely follows the specifications used by Lindo, Swensen and Waddell (henceforth LSW). LSW drew upon 9 years of data from the University of Oregon and focused on the academic performance of non-athletes. They found that increases in the winning percentage of the University of Oregon football team led to lower fall semester grades among both male and female students, although male students appeared to be more responsive to the winning percentage than female students. They also showed that male students consumed more alcohol and studied less than female students in response to increases in the winning percentage and, based on these findings, argued that the growing importance of college athletics may help explain why, nationwide, male academic performance is falling relative to female academic performance.

We revisit the LSW analysis using 20 years of data from Clemson University. Like LSW, we find successful football seasons are associated with lower grades. However, we find evidence that female students were actually more

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Table 1
Summary statistics.

Student characteristics	(A) 1982–2002	(B) 1983–1985	(C) 1999–2001	(D) Change (C − B)
Win percentage	66.7%	66.7%	61.1%	−5.6%
SAT math	566	554	576	22
SAT verbal	552	546	559	12
Male	0.56	0.57	0.54	−0.03
Age	20.1	19.8	20.1	0.3
Grade	2.81	2.70	2.93	0.23
Number of students	89,602	18,337	23,678	5,341
Number of courses attended	2,512,127	321,482	410,410	88,928
Number of observations	999,383	83,395	108,540	25,145

responsive to the winning percentage of the football team than male students even when we allow the grades of each sex to follow independent quadratic trends, a specification that is absent in previous work. Moreover, we find evidence that the negative effect of a successful football season persists into the spring semester, albeit diminished in magnitude.

2. Data and variables

We observe grades earned in all undergraduate courses taken by Clemson students between 1982 and 2002. During this period, approximately 90,000 students took undergraduate courses at Clemson University, which is ranked among the top 100 national universities by *U.S. News and World Report*. Clemson University participates in the Bowl Championship Series (BCS) football conference, and its team has won multiple conference championships and one national championship. In addition to course grades, we also observe SAT scores for over three-quarters of the students who took courses during the period 1982–2002 and individual-level characteristics such as race, sex, and state of residency.[1] One important variable that we do not observe is whether the student was an athlete. As a result of this data limitation, we are unable to restrict our sample to non-athletes and instead estimate the effect of having a successful football season on the grades of all Clemson students. Out of the 15,000 undergraduates who attend Clemson each year, only about 450 are athletes, or approximately 3 percent.

Like LSW, we include student characteristics or student fixed effects on the right-hand side of our estimation equation. We also include subject-level fixed effects; for example, all 200-level economics courses share a fixed effect, all 300-level economics courses share another, while all 100-level English courses share a third. These fixed effects for course-level combinations allow us to capture the different traits and grading patterns in different subjects (Hernández-Julián & Looney, 2013). Including course fixed effects is next to impossible because course numbers were frequently modified, many new courses were created, and many courses were archived over the 20-year period under study.

[1] Some students take the ACT instead of the SAT; for others SAT scores are simply missing.

Table 1 provides descriptive statistics for our sample and illustrates how student characteristics and course choices changed over time. Between 1983 and 1985, the average undergraduate course grade measured on a four-point scale at Clemson was 2.70; between 1999 and 2001, this average had risen to 2.93. In addition, SAT scores rose while male enrollment as a proportion of total enrollment fell slightly.

3. Results

Following LSW, we begin by estimating a bare-bones specification:

$$G_{ijt} = \alpha + \theta Winning\ Percentage_t + \in_{ijt}, \quad (1)$$

where G_{ijt} is equal to the grade (on a four-point scale) earned by student i in course j and year t, and *Winning Percentage*$_t$ is equal to wins per games played by the Clemson football team in year t. The results of this estimation are presented in the first column of Table 2. Results by sex are reported in Panels A and B of Table 2; results for the pooled sample of male and female students are reported in Panel C. An interaction between the sex of student i and *Winning Percentage* is included in Eq. (1) when the pooled sample is analyzed. Our estimate of θ is −0.304 for male students and −0.439 for female students. These estimates are statistically significant at conventional levels and are significantly different from each other, suggesting that female students were more responsive to changes in the winning percentage of the Clemson football team than were their male counterparts.[2]

Following LSW, we add a linear time trend and its square to the right-hand side of Eq. (1). The results are reported in column (2) of Table 2.[3] With the addition of these variables, the estimated coefficient of *Winning Percentage* is no longer statistically significant except in the pooled sample. In column (3), we add student characteristics such as SAT scores, race, and residency; and in column (4) student fixed effects replace the student characteristics.[4] With student fixed effects on the right-

[2] One might expect that home games would matter more than those played away from home. When we distinguished between home and away wins, we found some evidence, albeit weak, of a positive relationship between the grades of male students and home wins.

[3] Following LSW, standard errors are clustered at the student level.

[4] The estimates reported in columns (1)–(6) of Table 2 are from the same specifications as were used by LSW in their Table 2.