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Athletic Academic Reform

James W. Batley

Public Administration Capstone

Dr. Cowen, Faculty Advisor

Does the level of spending on Academic Services by Athletic Departments affect the Academic Progress Rates of Revenue Sports?

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I. Abstract

This study examines the relationship between the level of spending on academic services per student-athlete for 22 athletic departments within the Division I structure and the recently established performance measure outlined in the National Collegiate Athletic Association (NCAA) Division I Academic Reform: the Academic Progress Rate (APR).

The importance placed on student-athletes to learn, develop, and maintain academic eligibility has led to the implementation of a number of academic tutorial and support programs provided by college and university athletic departments. This analysis investigates the relationship between the level of spending on student-athlete academic services and student-athlete academic performance for two major NCAA Division I conferences. Additionally, it examines whether these programs are successful in accomplishing their goal of student-athlete academic success.

This analysis focuses on football and male basketball programs. It finds a relationship between per athlete spending changes and academic progress for men's football. However, this impact is not found at low levels of spending or when applied to men's basketball. Additionally, other factors such as academic quality, spending on student services, and the student faculty ratio mattered as expected. While these findings may signify that academic support programs only have significant effects on the academic achievement of student-athletes at higher levels of spending, the magnitude of this effect is unclear. Implications for these athletic departments are presented to address the potential concern that dollars spent on support services may not foster measureable academic improvements at lower levels of spending.

II. Background

The role that intercollegiate athletics plays in higher education today has become an increasingly common topic of debate. Academic fraud, low graduation rates, disciplinary incidents, and excessive expenditure figures have ultimately cast a shadow over the proposed educational benefits of participation in collegiate sports. On December 19, 2007, *USA Today*, reported that a collection of Florida State football players were suspended from the Music City Bowl due to a cheating scandal that revealed numerous academic improprieties. The preceding example outlines the considerable amount of media attention and coverage dedicated exclusively to the academic failures of America's colleges and universities, exposing the scrutiny that most institutions of higher education currently face.

Despite these issues, many people maintain the argument that important values such as teamwork, cooperation, and sportsmanship can still be taught within the realm of amateurism. Some even contend that when college sports are properly conducted in accordance with a university's essential mission, they are unquestionably worth saving (Knight Commission, 2001). However, research has shown that the values deemed educational from the participation in college sports have potentially been overstated (Knorr, 2004), further supporting the belief that the relationship between athletics and academics will never be compatible (Meyer, 2005).

In his book, *Big-Time Sports in American Universities*, Charles T. Clotfelter outlined four justifications that are commonly associated with the existence and continuation of collegiate athletics; educational value, money and revenue, public attention, and campus morale. However, he also outlined that even though a great deal of scholarly research has been dedicated toward American higher education, there seems to be a lack of attention regarding the role of collegiate

athletics. In fact, Clotfelter states “to read most scholarly research about American higher education, one would conclude that commercial college sports did not exist at all” (Clotfelter, 2011, p.13), emphasizing the view that college athletics are largely ignored in the realm of research pertaining to higher academia.

Empirical literature published by McCormick and Tinsley in 1987 examined the effect of athletic success on institutional academic quality. They concluded that schools with athletic programs had significantly better undergraduate student bodies than schools that did not. Additionally, they found evidence suggesting that athletic success is associated with academic quality through a relationship they described as the ‘advertising view of athletics.’ In theory, schools would see a rise in the number of admission applications and then be able to select from a larger pool of applicants even under a fixed enrollment policy. Since then, conflicting studies have been published supporting and negating the overall affects that intercollegiate athletics has on colleges and universities academic missions (Trenkamp, 2006).

McCormick and Maloney published an article in 1993 that examined the impact of athletic participation on student-athlete academic achievement. They found evidence suggesting that student-athletes who participate in revenue sports do not do as well as nonathletes academically. This relationship was described as the ‘in-season effect’ because student-athletes seemed to achieve lower grades during the semester of participation. In addition to this research, Burnett and Peak (2010) attempted to investigate the academic success of student-athletes when separating the genders. The results indicated that male student athletes were performing at lower academic levels than female student-athletes, exposing a possible ‘academic gap’ between the

two categories. This could suggest that male student-athletes require more academic guidance and attention than their female counterparts.

A study by Gaston-Gayles in 2004 looked into the academic motivations among student-athletes and the factors that may contribute to differences in academic performance. She concluded that academic motivation, incoming American College Testing (ACT) scores, and ethnicity all have a significant relationship with academic performance when evaluating differences in college grade point averages. This finding could outline the need to support academically underprepared minority students who come to college primarily to compete in high profile sports. Additionally, Gaston-Gayles and Hu (2009) published findings relating to the influence of student engagement and athletic participation on college outcomes: cultural attitudes, personal self-concept, and learning and communication skills. They concluded that student engagement has positive effects on student-athlete outcomes and that cognitive outcomes are conditional on the type of sport. This cognitive finding suggested that student-athletes in low profile sports may actually benefit more from participation in academic related activities than student-athletes in high profile sports. However, they determined that more analysis is needed to determine the types of involvement needed to benefit the student-athletes in high profile sports.

Although the literature is partial and scholarly research cannot be found in abundance, when the topic of collegiate athletics became associated with the diminishing integrity of higher education it became apparent that an allegiance of stakeholders was necessary to propose reform agenda for college sports. In 1989, the Knight Commission was established by John S. Knight and James L. Knight to meet this fundamental need. The Commission wanted to expose the problems associated with collegiate athletics in an attempt to rectify these issues and revitalize the public's

confidence in higher education. They did not want to adversely affect the existence of college sports; they just wanted to put it back into perspective (Knight Commission, 2001).

In 2001, the Knight Commission published a report stating that athletics “threaten to overwhelm the universities in whose name they were established” (Knight Commission, 2001, p.11). They determined that big-time athletic departments had broken away from the essential educational missions of the institutions that had created them, and reduced pedagogic substance to the constricted view of maintaining eligibility (Knight Commission, 2001). This problem was evident in the low graduation rates of Division I revenue sports. According to the National Collegiate Athletic Association (NCAA), only 34 percent of men’s basketball players and 48 percent of men’s football players at Division I schools had received degrees, under-preparing them for a societal workplace that demands various skills (Knight Commission, 2001). The Knight Commission concluded that reform was necessary in a number of areas: graduation rates needed to be addressed; the time spent practicing and playing needed to be reduced; and a satisfactory progress toward a degree requirement needed to be implemented (Knight Commission, 2001).

In response to public criticism, the NCAA has increased the academic requirements for current student-athletes, implemented restrictions on the number of hours student-athletes can participate in varsity level sports, and mandated that all Division I Institutions provide academic support services for their entire student-athlete population. However, even with these more stringent requirements, the Knight Commission reports that a number of student-athletes are still being admitted into institutions where they do not have a realistic chance of academic success (Knight

Commission, 2001). They state “they are athlete-students, brought into the collegiate mix more as performers than aspiring undergraduates” (Knight Commission, 2001, p.16).

In 2005, the NCAA introduced more requirements; the Academic Progress Rate (APR) and progress-toward-degree requirement in an effort to encourage student-athlete retention and increase overall academic achievement (Meyer, 2005). These measures not only aim to maximize the academic performance of student-athletes but also try to ensure that they have sufficient opportunities to receive a full educational experience while enrolled. The question now is whether these institutions can help to find a balance between the demands of college athletics and the goals of higher education so that their student-athlete population can succeed in the classroom as well as on the playing field.

III. The National Collegiate Athletic Association (NCAA)

The NCAA is the governing body that coordinates the athletic programs of a number of member institutions, specifically colleges and universities. These colleges and universities are divided into three categories, usually determined by the financial support they receive from their institutions: Division I, II, and III. Division I schools are the schools predominantly associated with ‘big-time’ athletic programs. They may offer athletic scholarships to prospective student-athletes and are some of the few programs that potentially operate in the ‘black’. For the purpose of this study we will be only be focusing on Division I schools.

Although the NCAA primarily deals with athletic affairs, they also claim to put a great deal of emphasis on academic achievement. Recent data has shown that very few student-athletes ever become professional athletes in their sport of choice. In reality, only 1.7% of NCAA student-athletes become professional football players and only 1.2% of student-athletes become

professional basketball players (Behind the Blue Disk Division I Academic Reform, 2010). These numbers demonstrate that student-athletes must maintain the perspective that they are students first and athletes second. The NCAA launched a branding campaign to educate the public about these statistics, expanding on the message “There are over 380,000 NCAA student-athletes, and just about all of them will be going pro in something other than sports” (Zillgitt, 2007).

Recently, the NCAA has taken a more progressive stance within its academic reform effort and updated its academic performance program in order to ensure that firm standards are maintained in the classroom. The NCAA seems to understand that the most reliable route to accomplishment in life is through academic achievement, not athletic performance; stating the primary goal of the entity regarding the academic reform effort is to ensure that student-athletes are prepared for the rest of their lives by graduating with ‘meaningful’ degrees (Behind the Blue Disk Division I Academic Reform, 2010). Myles Brand, Former NCAA President, stated “We owe it to all NCAA student-athletes to ensure a system is in place that demands academic progress and has an ultimate goal of graduation” (Behind the Blue Disk Division I Academic Reform, 2010).

IV. Academic Requirements

Currently, certain academic requirements must be met before prospective student-athletes can be officially added to a team’s roster. Prospective Division I student-athletes must meet a specific academic criteria during high school to initially be eligible to compete and attend practice (Burnett & Peak, 2010). In 1986, Proposition 48 was enacted placing a greater emphasis on high school grades and standardized test scores. It required “high school graduates to have a 2.00 grade point average (GPA) in eleven academic-core courses and a minimum Scholastic Aptitude

Test (SAT) score of 700” (Meyer, 2005, p.16). Over the years this rule has evolved, and at present, Proposition 16 requires prospective Division I student-athletes to have successfully completed 16 core courses in high school to be eligible (NCAA Academic Reform, 2010).

There has been some debate however, since the inception of NCAA Bylaw 14.3.1.1.2 that came into effect in 2003. It provides college coaches with an ‘Initial Eligibility Index’ to determine the academic requirements necessary for incoming student-athletes. Ultimately, this is a tangible sliding scale of SAT scores and GPA scores that breaks down the requirements given any prospective student-athlete’s academic situation. For example, a student-athlete with a high school GPA of 3.550 only needs an SAT score of 400 to be eligible to enter the institution (Meyer, 2005). Table 1 shows the initial eligibility index. Some argue that, through high school grade inflation, this Bylaw has made it easier for student-athletes to circumvent the admissions process and enter their institution of choice. Meyer (2005) outlined that, although the preceding regulation, Proposition 48, seemed to have a positive effect on graduation rates; currently no data has been collected to analyze the effects of Bylaw 14.3.1.1.2.

Table 1: Freshman Academic Requirements: NCAA Initial-Eligibility Index

Core Sum GPA	SAT	ACT	Core Sum GPA	SAT	ACT	Core Sum GPA	SAT	ACT
3.550 & above	400	37	3.025	610	51	2.500	820	68
3.525	410	38	3.000	620	52	2.475	830	69
3.500	420	39	2.975	630	52	2.450	840-850	70
3.475	430	40	2.950	640	53	2.425	860	70
3.450	440	41	2.925	650	53	2.400	860	71
3.425	450	41	2.900	660	54	2.375	870	72
3.400	460	42	2.875	670	55	2.350	880	73
3.375	470	42	2.850	680	56	2.325	890	74
3.350	480	43	2.825	690	56	2.300	900	75
3.325	490	44	2.800	700	57	2.275	910	76
3.300	500	44	2.775	710	58	2.250	920	77
3.275	510	45	2.750	720	59	2.225	930	78
3.250	520	46	2.725	730	59	2.200	940	79
3.225	530	46	2.700	730	60	2.175	950	80
3.200	540	47	2.675	740-750	61	2.150	960	80
3.175	550	47	2.650	760	62	2.125	960	81
3.150	560	48	2.625	770	63	2.100	970	82
3.125	570	49	2.600	780	64	2.075	980	83
3.100	580	49	2.575	790	65	2.050	990	84
3.075	590	50	2.550	800	66	2.025	1000	85
3.050	600	50	2.525	810	67	2.000	1010	86

Source: Extracted from 2010-2011 NCAA Division I Manual

Once a student-athlete enrolls in an institution, he or she must stay academically eligible and make steady progress toward a degree in order to participate throughout the rest of their collegiate career. Sometimes this can prove problematic at an individual level, for example, Maurice Clarett, one of the nation’s leading college running backs for Ohio State University, was declared academically ineligible in 2003 and could not compete at that time (Dickson, 2005). Instances like this have become more common with the new academic requirements, tightening the reins on many student-athletes to perform in the classroom. Below are the two main eligibility standards outlined in the NCAA Academic Reform:

- I. “Student-athletes entering college are required to complete 40 percent of their degree by the end of their second year, 60 percent by the end of year three, and 80 percent by the end of year four” (NCAA Academic Reform, 2010).
- II. “All student-athletes must earn a minimum of six hours per semester (or quarter) in order to remain eligible the next semester” (NCAA Academic Reform, 2010).

These individual standards may seem particularly easy to an outsider, but given the demands faced by most student-athletes, others may argue. These requirements are also factored into the team academic performance measure (the APR) which ultimately dictates whether a team will face NCAA sanctions for not complying with academic standards. These team standards should encourage athletic departments to become more concerned with the academic successes of their student-athletes because academic penalties may be inflicted on teams that could affect their number of scholarships, their level of competition, and even their NCAA membership.

V. The Academic Progress Rate (APR)

In 2005, the NCAA published its first Academic Progress Rate for Division I programs. This measure was created to monitor the scholastic achievement of Division I teams throughout the academic year, allowing schools to intervene and help academically troubled student-athletes (Behind the Blue Disk Division I Academic Reform, 2010). It provides a ‘snapshot’ of a team’s academic success by incorporating the progress of every student-athlete within a team regardless of whether they leave school early to pursue a career in professional sports. This measure ultimately “includes eligibility, retention, and graduation as factors in the rate of calculation” (NCAA Academic Reform, 2010).

Essentially each student-athlete receives one point for staying in school and one point for being academically eligible. The APR is then calculated by taking the total number of points a team receives, divided by the total number of points possible for that team, multiplied by 1000. An APR score of 925 can potentially expose a team to sanctions that could reduce its overall number of scholarships by up to 10 percent outlined by an immediate penalty structure. An APR score that falls below 900 may expose a team to additional sanctions outlined by a historical penalty structure. This historical penalty structure would result in a first year warning, a second year restriction on financial aid and practice time, a third year loss of post season eligibility, and a fourth year restriction on NCAA membership (NCAA Academic Reform, 2010).

If a student-athlete chooses to leave an institution early to pursue a professional career it could have a number of effects on the calculation of a team's APR. If the student-athlete would have been academically eligible to compete during the following semester, the team still receives one point for eligibility and is not penalized for the retention point. The team would in essence receive one point out of a possible one point. However, if the student-athlete leaves in poor academic standing and would not have been eligible to compete during the following semester then the team would lose both the eligibility point and the retention point, meaning the team would receive zero points out of a possible two points. Ultimately, this could have a detrimental effect on a team's APR score forcing administrators to be aware of the issues related to student-athletes aspiring to compete in the professional leagues (Behind the Blue Disk Division I Academic Progress Rate, 2009).

According to the NCAA, a score of 925 signifies that 50 percent of a team's roster is on track to graduate. However, Arne Duncan, Secretary of Education, reported in his article, "What's

missing from March Madness? Better academics.” that out of the 68 teams competing in the 2011 men’s NCAA basketball tournament, 10 were not achieving this standard and did not appear to be on track to graduate the desired number of players. Below are the average APR scores for a number of teams reported by the NCAA for the 2007-08 school year. As indicated by Table 2, the average APR for both football and men’s basketball is significantly lower than the other sports. Arne Duncan’s article leads the reader to believe that this trend is still evident today.

Table 2: Average APR by sport (2007-08)

<i>Men’s</i>	
Baseball	946
Football	939
Basketball	933
<i>Women’s</i>	
Softball	968
Basketball	962

Source: Extracted from Behind the Blue Disk Division I Academic Progress Rate, 2010

Schools that have APR challenges are encouraged or required to propose plans that will improve their academic standings in a timely manner. The NCAA takes into account the schools resource levels when determining APR penalties and gives special consideration to schools that show improvements with their academic missions (Behind the Blue Disk Division I Academic Progress Rate, 2009).

VI. Academic Services

To overcome the issues related to recent academic reform and the overall demands placed on student-athletes’ time, the importance placed on academic and tutorial support programs has grown rapidly. Institutions of higher education have realized that they have an obligation to serve the student-athletes they recruit by providing them with supportive environments dedicated

exclusively to academic and personal development. In 1991, the NCAA implemented Bylaw 16.3.1.1 mandating all Division I Institutions to provide counseling and tutoring services for all student athletes. Over the years, these services have expanded and institutions can now finance and support any services that are deemed appropriate and necessary for academic success (Meyer, 2005). Some have even contended that these favorable student-athlete support programs have become an effective way to recruit and retain student-athletes at institutions of higher education (Storch & Ohlson, 2009).

Broughton and Neyer (2001) outlined that these services have been provided to a lesser extent for some time. Apparently these support services initially focused on components such as class registration, academic tutoring, and time management. They also discussed the introduction of a professional association called the National Association of Academic Advisors for Athletics (N4A) which was established in 1975 to address the growing needs surrounding the academic environment for student athletes. The arrival of the N4A brought about increased efforts to improve graduation rates and maintain eligibility as this group of professionals was dedicated exclusively to the academic needs of student-athletes. Broughton and Neyer (2001) found that the relationship between a counselor and a student-athlete significantly improves if the counselor has a fundamental understanding of the sport. They recommended that programs could benefit immensely if they revised the approach of their support systems and considered the effects of academic advising, life skills development, and the contributions of performance enhancement on the overall development of their student-athlete population.

A study by Watson in 2005 examined the attitudes of student-athletes toward help-seeking behavior and the expectations of counseling services. Findings suggested that there were

significant differences between student-athletes and nonathletes regarding the attitudes and expectations toward both factors studied. The relationships suggested that student-athletes were less inclined to seek help from outside of an athletic department and that student-athletes expected more from their counseling services. Watson concluded that the results of this study might suggest reasons for an underutilization of counseling services by student-athletes, providing important information to support staff trying to serve the student-athlete population in a more effective manner.

The preceding findings are of particular importance to athletic administrators who must determine the costs and benefits of providing internally operated student-athlete support programs alongside the general academic services of an institution. Dickson (2005) found evidence in his study of the New Jersey Athletic Conference (NJAC) suggesting that student-athletes should be provided with academic services through the athletic department. Dickson also concluded that head coaches within the conference favored academic counselors who were directly assigned to student-athletes. This finding paired with the increased expectations of student-athletes toward counseling services, suggest there is a need for athletic departments to provide internally controlled support services to address the special needs and increasing demands faced by student-athletes.

Athletic administrators must also determine what components are going to be built into their academic support programs in order to fulfill the educational needs of their student-athlete population. Carodine, Almond, and Gratto (2001) concluded that ideal student-athlete support programs should include components of academic support, career counseling, and personal development. Additionally, they maintain that high quality programs require sufficient monetary

resources and adequate staffing while preserving the accountability and integrity necessary to uphold their educational missions.

Despite humble beginnings, the expansion of athletic academic support programs has been substantial. This surge has been evident for a number of reasons relating to the academic reform. NCAA Bylaw 14.3.1.1.2 has made admissions standards easier for incoming freshman, while the academic progress and progress-toward-degree requirements have made it harder to stay eligible. Because of these increasing academic expectations and Bylaw 16.3.1.1, many colleges and universities have established these academic services allowing administrators to find ways to keep their at-risk student-athletes on the playing field. In fact, universities are now trying to find more ways to provide additional services to student-athletes to help them succeed in the classroom.

According to an article by Brad Wolverton titled “Spending Plenty So Athletes Can Make the Grade,” a new type of arms race has developed in the world of intercollegiate athletics concerning the construction of new academic centers dedicated exclusively for student-athletes. A ‘building binge’ has become evident alongside an increase in the number of academic-support staff. It is argued that this new development has provided student-athletes with more opportunities to succeed in the classroom, allowing them to focus more of their attention toward academic work. However, some have opposed these multimillion dollar facilities, such as the \$27-million Alice and Erle Nye ’59 Academic Center at Texas A&M, stating that they take away from the resources of the nonathletes on campus. Either way, the spending on these academic services has skyrocketed and it begs the question, can this additional spending by athletic departments determine whether or not a student-athlete maintains eligibility? Some would argue

that the student-athletes themselves are the only ones that can keep themselves eligible (Meyer, 2005).

VII. Statement of the Problem

Student-athletes are a unique population within the realm of higher education because of their distinctive role on campus, their increasing daily demands, and their atypical needs in comparison to that of the general student body. They also face a number of demanding expectations that include physically strenuous workouts and extensive public notoriety, while maintaining required academic work in the classroom.

It has been found that many of these student-athletes enter university environments from high school underprepared, especially minority students recruited to play revenue sports. Bylaw 14.3.1.1.2 may have contributed to this in part because of its nature in easing the admission requirements. However, all of these student-athletes must meet the current academic requirements of the NCAA and their institutions to maintain overall eligibility for participation in collegiate sports. Because of these tighter measures and the academic reform effort, academic support programs required by the NCAA must be evaluated. This is especially true given the effects of the new APR requirement and the recent surge in spending by Division I schools on exclusive student-athlete academic centers.

The purpose of the study is to investigate whether the level of spending on academic services per student-athlete affects the APR for men's football and men's basketball. The NCAA states that it takes into consideration the level of resources a school has available before imposing sanctions regarding the APR measures and it also holds all universities accountable for the programs and services they provide. However, if an athletic department can direct more resources toward an

academic support program, can they avoid these sanctions altogether? Hopefully, this study will determine whether these performance measures are contended on a level playing field or if money is the ultimate factor in determining academic success. Using a sample of 22 Division I schools from two Division I conferences, I will inquire into the following research questions:

- I. Is there a statistically significant association between the level of spending on academic services for student-athletes and the APR scores for Division I men's basketball programs?
- II. Is there a statistically significant association between the level of spending on academic services for student-athletes and the APR scores for Division I men's football programs?

VIII. The Data and Model of Academic Performance

Data Source

For the purpose of examining the significance level of spending on academic services per student-athlete, data was gathered through a number of primary and secondary research methods. This included contacting a number of upper-level athletic administrators within the sample of Division I schools by means of general and public records requests. All athletic administrators involved were either contacted via e-mail, telephone, or mail during the month of February 2011. Additional e-mails were sent to non-respondents in early March. The requested information included the expenditure figure for student-athlete academic services during the 2007-08 academic year and the number of student-athletes enrolled at the institution that year. After contacting the 22 schools within the sample, only 16 of the schools responded generating a response rate of 72.7%. The Academic Progress Rates for each of the schools were obtained through the NCAA website. The supporting data and control variables relating to the institutional quality of each school were collected through the Integrated Postsecondary Education Data

System (IPEDS); a database maintained by the U.S Department of Education. The supporting data and control variables relating to the athletic success were collected through the ESPN website.

Variables

The variables in this study were divided into four categories: (1) dependent variables, (2) explanatory variables, (3) institutional quality variables, and (4) athletic success variables.

Two alternative dependent variables are used in the analysis; *APR_BBALL* and *APR_FBALL*. *APR_BBALL* is defined as the Academic Progress Rate (APR) for men's basketball teams reported by the sample schools during the 2007-08 school year. *APR_FBALL* is defined as the same measure when applied to men's football. This is the primary indicator of academic success as outlined by the NCAA Academic Reform for the revenue sports of interest.

The primary explanatory variable used in the analysis is indicated by *ACA\$_PSA*. This variable uses the level of funds spent by each athletic department on academic services for student-athletes over the total number of student athletes enrolled at the institution. Although the types of academic services vary from one school to another, it is assumed that the dollar amount spent on these services reflects the level of importance that each school places on academic achievement. The models below also include the squared value of *ACA\$_PSA* to test whether the relationship between spending and the Academic Progress Rate changes at different levels of spending.

In addition to the explanatory variables, independent variables are used in the analysis to control for institutional characteristics and athletic success. The variable *MEAN_SAT* measures the average SAT scores of math and verbal for incoming freshman during the 2007-08 academic

year at each institution. *REM_SER* takes on a value of one if an institution has remedial services for its general student population and zero if it does not. *STSERV\$_PS* measures the dollar amount spent on student services at each institution per student enrolled. *SF_RATIO* measures the student faculty ratio. Finally, *BBALL_SUCCESS* measures a ten year national winning percentage of each institution's basketball team and *FBALL_SUCCESS* measures a nine year national winning percentage of each institution's football team. These variables, their definitions, and their descriptive statistics can be observed in Table 3.

Table 3: Descriptive Statistics

Variable	Description	Mean	Std. Dev.	Min	Max	Obs.
<i>APR_BBALL</i>	Academic Progress Rate Basketball 07-08	938.50	26.03	888	979	22
<i>APR_FBALL</i>	Academic Progress Rate Football 07-08	946.86	19.38	910	984	22
<i>ACA\$_PSA</i>	Athletic Academic Spending on Academic Services per Student Athlete 07-08	2291.74	966.18	928.79	3786.93	16
<i>ACA\$_PSA^2</i>	Athletic Academic Spending on Academic Services per Student Athlete Squared 07-08	6127216	4710930	862655.6	1.43e+07	16
<i>MEAN_SAT</i>	Institutional Mean SAT Scores of Incoming Freshman for Math and Verbal 07-08	595.23	57.06	512.50	722.50	21
<i>REM_SER</i>	Institutional Remedial Services Offered 07-08 1=Yes 0=No	0.591	0.503	0	1	22
<i>STSERV\$_PS</i>	Institutional Spending on Student Services per Student 07-08	1670.62	1658.75	566.85	8190.38	22
<i>SF_RATIO</i>	Institutional Student Faculty Ratio 07-08	11.94	5.71	1.58	28.66	22
<i>BBALL_SUCCESS</i>	Men's Basketball Winning Percentage 2001-2011	0.592	0.080	0.408	0.741	22
<i>FBALL_SUCCESS</i>	Men's Football Winning Percentage 2002-2010	0.566	0.155	0.290	0.846	22

Data Analysis

The empirical analysis examines the argument that there is a relationship between the level of spending on academic services for student-athletes and student-athlete academic progress after accounting for the factors that could predict both the level of spending and student-athlete

progress. This study presents a number of analytical challenges that could affect the results. In measuring the effects of academic services, the expenditure figure per student-athlete may not be the best measure possible. However, for the purposes of this study it is the best measure available as it makes for an easier comparison across schools and allows policymakers to make decisions based on quantitative data. The biggest concern regarding the subsequent models is that in identifying the effect of the expenditure figure it is possible that the spending on academic services for student-athletes is related to other attributes of the universities that may also predict student-athlete academic progress.

The study uses regression analysis to analyze the outcomes of interest, conditional on the other independent variables built into the models. This allows me to consider the relationship between spending and the Academic Progress Rate, net of the influence from the other variables in the models, most notably academic quality. The study is separated into two general models for each sport, each model containing a different dependent variable and the same independent and explanatory variables. However, the squared value on the spending measure is added to the second model in each instance. Furthermore, an additional two models are proposed to adjust for the athletic success of each program as mentioned below.

The models use the mean SAT to measure the core quality of an institution. Measures such as the percentage of students admitted and graduation rates were also considered, but each reflects the same information since the correlation between the two measures and the mean SAT has a higher absolute value than 0.90. Before examining the research questions a factor analysis was conducted, unreported in this study, in an effort to expose any underlying constructs that might matter as a factor of quality. The factor analysis was based on: percentage of students admitted,

mean SAT, percentage of total enrollment that are white non-Hispanics, admissions yield, and the graduation rate of total cohort. However, the results remain unchanged, and I proceed here with mean SAT for ease of interpretation.

Due to these findings, mean SAT should be an adequate measure of quality. However, it could be that the measure really left out is the ‘quality’ of the athletic programs in question. It may be expected that institutions with the best historic and current athletic success may not only spend more per student-athlete, but that success could potentially be reflected in their Academic Progress Rates. If this finding is true, the estimate of the relationship between the levels of spending on academic services per student-athlete is biased. An additional model is proposed that will attempt to overcome this bias by incorporating a success measure that reflects the winning percentages of each institution over time.

Results

Table 4 presents the regression results for a regression analysis examining the effect of the level of spending per student-athlete for academic services on the Academic Progress Rates of both basketball and football. The results indicate that a quadratic relationship was found between per athlete spending changes and academic progress for football. It is evident that low levels of spending are associated with lower APR scores, while high levels of spending are associated with higher APR scores, and this effect appears to be increasing. That is, higher spending has increasing amounts of effect. A test of joint significance using the linear and quadratic terms together is statistically significant at $p < 1\%$. Therefore, going from the very lowest levels of spending to the very highest levels of spending has some marginal impact on the Academic Progress Rate for football. However, the magnitude of this impact is inconclusive. This finding

indicates that there is a negative relationship at low levels of spending, but eventually at higher levels of spending the relationship actually becomes positive.

Additionally, the quality of an institution as measured by the mean SAT variable is significant for football but not basketball. This would suggest that institutions considered to be of greater 'quality' would expect football teams with higher APR scores. Most football teams are allowed to travel with squad sizes of 85 players as outlined by the NCAA, making them significantly larger than basketball teams. Therefore, this finding may imply that because of the size of football teams they cannot escape the quality of an institution, whereas, the small nature of basketball teams may allow them to escape this quality measure.

Neither academic spending nor mean SAT appears to affect APR scores for basketball. However, it appears that the spending on student services per student does affect APR scores for basketball. The effect of this is about 0.0131 per dollar of spending, but a standard deviation in the distribution of spending on student services is \$1658, which would have the effect of raising an APR score by about 20 points. Ultimately, this could have a large affect regarding whether a team faces potential NCAA sanctions concerning academic progress.

Finally, a result found for both sports outlines that the student faculty ratio predicts higher APR scores. This finding is likely to be a result based off general educational trends, rather than specifically for the players on athletic teams, but it is interesting that the same factor that so often enhances student success also predicts success for basketball and football players.

Model	Dependent Variable APR_BBALL				Dependent Variable APR_FBALL			
	1		2		1		2	
Variables	Coef.	t	Coef.	t	Coef.	t	Coef.	t
<i>ACA\$ PSA</i>	-0.0040	-0.50	-0.0439	-0.78	0.0045	1.44	-0.3328	-1.61
<i>ACA\$ PSA^2</i>	---	---	8.00e-06	0.71	---	---	7.59e-06	1.96*
<i>MEAN SAT</i>	-0.0288	-0.23	-0.0697	-0.52	0.3301	3.82**	0.2913	3.01**
<i>REM_SER</i>	16.2141	1.55	14.2893	1.27	5.6636	0.88	3.8384	0.62
<i>STSERV\$ PS</i>	0.0122	3.16**	0.0131	3.05**	0.0006	0.23	0.0015	0.52
<i>SF_RATIO</i>	1.7690	2.09*	2.1579	1.99*	1.0774	1.84*	1.4463	2.51**
<i>R-squared</i>	0.4143		0.4503		0.7222		0.7793	

*Significant at (.05)**(0.10)**

As noted above, it is possible that academic quality of the institution, while related to academic success, may only partially explain any relationship between the level of spending on athletic academic services and the Academic Progress Rate. It is possible, for example, the better a school's competing athletic team, the worse their overall academic performance. Certainly, that story would fit with recent public perceptions of academic outcomes for athletes at major Division I schools. More generally, it is also possible that an athletic department's on-field or on-court success captures something about that program over time that is not reflected in the results in Table 4.

Accordingly, Table 5 presents the model estimated in Table 4, but with an additional measure: the national winning percentages of each team over the past decade. Although this seems positively related to APR for basketball, there is no relationship for football. More importantly for this study, the relationship between the *ACA\$ PSA* variables and APR reported in Table 4 are actually strengthened here for football. After accounting for academic quality and athletic success, there appears to be a negative impact of spending on the APR at low levels of spending, but a positive impact at higher levels of spending.

	Dependent Variable APR_BBALL			Dependent Variable APR_FBALL		
Model	1			1		
Variables	Coef.	t	P> t 	Coef.	t	P> t
<i>ACA\$PSA</i>	-0.0287	-0.54	0.598	-0.0372	-2.09*	0.058
<i>ACA\$PSA^2</i>	4.53e-06	0.43	0.676	8.09e-06	2.38**	0.035
<i>MEAN_SAT</i>	-0.1158	-0.79	0.445	0.2586	3.00	0.011
<i>REM_SER</i>	10.5742	0.89	0.390	4.5467	0.75	0.469
<i>STSERV\$PS</i>	0.0113	2.92**	0.013	0.0029	0.99	0.342
<i>SF_RATIO</i>	1.3782	1.29	0.223	1.4753	2.34**	0.037
<i>BBALL_SUCCESS</i>	110.6068	1.96*	0.073	---	---	---
<i>FBALL_SUCCESS</i>	---	---	---	21.9320	1.11	0.287
<i>R-squared</i>	0.5295			0.7986		
<i>Significant at (.05)**(0.10)*</i>						

IX. Limitations

Due to the nature of this study, there were not many sources of standardized data available to answer the specified research questions. Therefore, there are a number of limitations regarding the model worth mentioning. First, the small sample of schools makes it difficult to determine statistically significant differences; the small sample size also makes the chances of determining these differences much less likely. A larger sample size could allow for more prominent differences in the model, if in fact there are any. Second, although the study primarily focuses on per athlete spending it may be possible that other measures actually determine the differences in the APR scores, and these differences may not be captured by the control variables built into the model. For instance, qualitative characteristics that may be associated with academic support programs might reflect these differences but are hard to quantify and measure. The types of measures could include the quality of staff, the favorability of the learning environment, and the quality of the tutoring sessions available. Third, there may be problems associated with the structure of reporting for each institution as each school may follow different reporting techniques that could skew the data. Schools may follow different financial reporting guidelines regarding their operating budgets, which could include or exclude various components associated

with mandatory academic services. Additionally, the academic services provided by each institution may be defined differently regarding the components of each service. There is not a single structured way to provide an academic support program, allowing services to differ among sample schools. Fourth, the study cannot be generalized beyond the two Division I conferences within the sample. It could be that in other conferences a linear relationship is present regarding the spending measure. This statement can be extended further regarding the classification within the NCAA division structure. Finally, the study only analyses high profile revenue sports. It could be that an effect might be evident for spending on academic services when examining lower-profile teams.

X. Conclusions and Implications

The primary conclusion presented in this analysis supports the claim that spending on academic services for the Division I schools contained within the sample, could have an effect on the NCAA's measure of team academic performance. There is evidence that the relationship between academic spending and the APR could be positive at higher levels of spending but the practical importance of this finding is currently inconclusive. An additional study with more schools and data that tracks changes in spending over time would be needed to allow for an adequate test of this relationship. Furthermore, it is found that other factors such as academic quality, spending on student services, and the student faculty ratio, matter as expected from the review of the literature.

After accounting for the limitations of the study and the possibility that the APR is affected by factors other than spending, the models presented here have two implications for athletic administrators. First, athletic administrators should consider that small increases in spending may

not result in a meaningful improvement in the academic performance of their student-athlete population. Second, once athletic administrators are committed to spending higher levels of funds on academic services, they are likely to see increasing results as the per dollar advantage on the spending increases. That is, if an athletic department is at the lowest end of the spectrum in regard to spending on academic services and they want to see a substantial effect on the APR, they may need to spend much more. However, athletic programs that already allocate large sums of money toward academic services may still see increases in the APR given additional spending.

The results do not signify that athletic administrators should not spend money on academic services as the findings do not discern clear signs of negative spending, which is always reassuring. Furthermore, given the amount of money spent on clearly and by definition non-academic services for student-athletes, it would be difficult to argue that stripping funds from academic services would make strong policy sense for athletic administrators.

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