

THE IMPACT OF MEN'S NCAA BASKETBALL TOURNAMENT SUCCESS ON  
QUALITY AND QUANTITY OF STUDENT APPLICATIONS

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THE IMPACT OF MEN'S NCAA BASKETBALL TOURNAMENT SUCCESS ON  
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**Abstract**

This thesis examines the impact that men's college basketball success has on the quantity and quality of student applications over the two years following the school's basketball success. The quantity of applications as well as SAT and ACT scores sent to the schools following NCAA tournament success serve as dependent variables. By examining how far a team goes in the NCAA tournament and its impact on their schools applicant pool, this thesis will assess whether men's college basketball teams act as an advertising tool for their respective schools.

KEYWORDS: (college basketball, applications, NCAA tournament)



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## CHAPTER 1

### INTRODUCTION

It is the biggest intercollegiate sporting event; it generates incredibly high television ratings and draws a higher level of advertisement spending than both the Super Bowl and the World Series.<sup>1</sup>

The NCAA men's basketball tournament is one of the most viewed and highly anticipated tournaments and sporting events of the year. It represents a stage of epic proportions for schools to put their athletes in front of America for all to see.

The March Madness event attracts about 75% of all of the advertising spent throughout the entire men's basketball season. Compare this to college and pro football where 75-80 percent of the advertising throughout their seasons is done during the regular season.<sup>2</sup> Last year's championship game was seen by over 48 million viewers, which was a 17% increase from the year before and the highest total in thirteen years.

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<sup>1</sup> Richard M. Southall et al., "A Method to March Madness? Institutional Logics and the 2006 National Collegiate Athletic Association Division Men's Basketball Tournament," *Journal of Sport Management* 22, no. 6 (11 2008): 677-700.

<sup>2</sup> "NCAA March Madness Ad Revenue Leads all Sports - Sundog " [cited 2011]. Available from <http://www.sundog.net/sunblog/posts/ncaa-march-madness-ad-revenue-leads-all-sports/>.

The overall viewership of the entire NCAA tournament totaled 134.3 million.<sup>3</sup> The size and stage of the NCAA tournament is only getting larger. In April of 2010 the NCAA announced, “a new 14-year television, Internet and wireless rights agreement with CBS Sports and Turner Broadcasting to present the Division I Men’s Basketball Championship beginning in 2011 and continuing through 2024 for more than \$10.8 billion.”<sup>4</sup> While it seems like an astronomical number, consider the fact that the men’s NCAA tournament drew almost \$500 million dollars in television advertisement revenue in 2007. Compare this to the three prominent male professional sports in America and the NCAA tournament is clearly the highest grossing in terms of television advertisement revenue, as shown in figure 1.1.<sup>5</sup>

While some view the tournament as an incredibly important marketing tool for the schools playing in it, others see it as a visual distortion of school’s spending and allocation of funds between athletics and academics.

Between 1995 and 2001, Division-I schools increased athletic spending by about 25% after inflation, compared to only a 10% increase in academic spending. Only 40 of the hundreds of Division-I schools have self-sufficient athletic departments. This incredible spending means that the money has to come from somewhere, and some of it

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<sup>3</sup> "CBS Corporation | CBS SPORTS' 2010 NCAA MEN'S BASKETBALL NATIONAL CHAMPIONSHIP GAME VIEWERSHIP HIGHEST IN 13 YEARS " [cited 2011]. Available from <http://www.cbscorporation.com/news-article.php?id=630>.

<sup>4</sup> "NCAA Signs New 14-Year TV Deal for DI men’s Basketball - NCAA.Org " [cited 2011]. Available from [http://www.ncaa.org/wps/portal/ncaahome?WCM\\_GLOBAL\\_CONTEXT=/ncaa/NCAA/NCAA+News/NCAA+News+Online/2010/Association-wide/NCAA+signs+new+14year+TV+deal+for+DI+mens+basketball\\_NCAANews\\_04\\_22\\_10](http://www.ncaa.org/wps/portal/ncaahome?WCM_GLOBAL_CONTEXT=/ncaa/NCAA/NCAA+News/NCAA+News+Online/2010/Association-wide/NCAA+signs+new+14year+TV+deal+for+DI+mens+basketball_NCAANews_04_22_10).

<sup>5</sup> "NCAA Men's Basketball Tournament TV Ad Revenue " [cited 2011]. Available from [http://www.data360.org/dsg.aspx?Data\\_Set\\_Group\\_Id=975](http://www.data360.org/dsg.aspx?Data_Set_Group_Id=975).

is coming out of students' pockets. About 60% of Division-I schools rely on student fees to help fund athletics, and these values can be up to \$1,000 annually.<sup>6</sup>

While supporting your school's athletic teams is a large part of being a student, at what point does the amount needed to fund the team become too much? March Madness is one of the largest media events of the year and represents a golden opportunity for the teams to represent the schools and act as running, dunking advertisements.

If success in the tournament leads to a higher quality and quantity of student, then perhaps the incredible amounts of money being given to the program is worth it. If there is no advertising effect and success in the tournament doesn't lead to any positive changes in incoming students to the school then all the funds pouring into the program are rendered somewhat meaningless.

Successful Division-I athletics have always been used as one of the largest advertising tools for colleges across the country. From the thousands of crazy, screaming fans to even just the mascot dancing around, college athletics offer an atmosphere that many prospective students look for and yearn to be a part of. But, with some schools paying as much as \$4 million annually for their basketball head coach, the debate of whether athletics are worth being put over academics, in terms of school spending, has become more important than ever.<sup>7</sup>

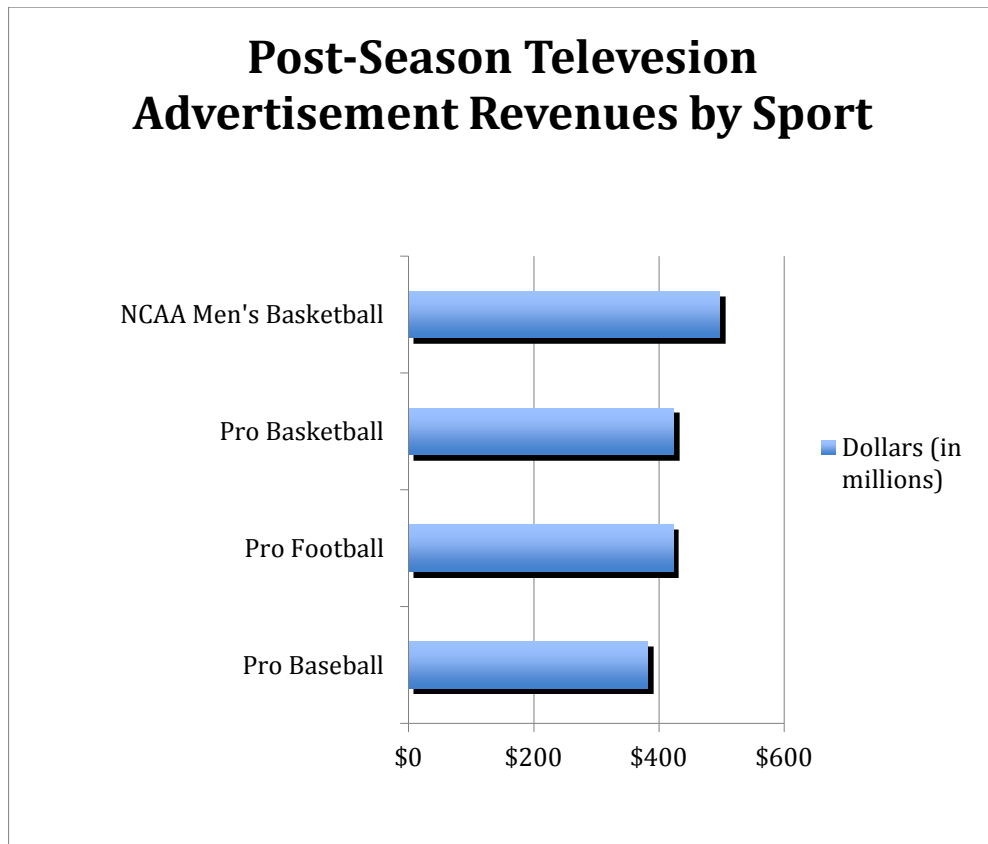
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<sup>6</sup> MaryJo Sylwester and Tom Witosky, "Athletic spending grows as academic funds dry up," *USA Today*

<sup>7</sup> William C. Rhoden, "As the Salaries for Coaches Rise, Questions Follow," *New York Times* (04/05 2009): 3.



FIGURE 1.1  
POST-SEASON SPORT ADVERTISEMNT REVENUE



Has it simply become an arms race, with schools willing to pay any cost to have their coach of choice, or are these investments into Division-I basketball teams being rewarded with a larger choice of students and thus a higher quality of student to choose from? This study will help to shed some light on the significance of success in NCAA men's basketball and the impact it has on the quantity and quality of incoming students.

### Study Outline

In this study I will measure the impact of March Madness success on quantity and quality of student applications. I will measure the success of the schools by examining their ability to advance to the Sweet 16 and the rounds that follow. I will examine the impact of the distance that the teams go in the tournament on quantity of applications by looking at the number of undergraduate applications sent to the schools in the following year as well as two years after their tournament success. I will examine basketball's impact on quality of student applications by examining the percentage of freshman students with verbal and math scores over 600 and also students with an ACT score above 30. I will also use a set of control variables that will be used to control for the quality of the various schools involved in each year of the tournament.

The next chapter of my thesis will review previous studies done on similar topics. These studies look at basketball and football's impact on the application process, the literature surrounding the NCAA tournament itself, and the continual increase in spending when it comes to hiring new division-I head coaches. The literature that surrounds these topics allows us to see all sides of the various arguments. Some studies have found a significant relationship between athletic success and an increase in quantity or quality of student applications. Others conducting similar studies, however,

have found no such correlation and the people on either side of the argument are both convinced that their views are correct.

The debate on head coach's salaries is another debate with two clear-cut sides to the argument. With the average division I head coach making more than 9 times the salary than that of the average professor teaching at a division I school, there are very strong feelings on the two sides. Clearly the academic community sees it as a gross depiction of the values portrayed to society, while presidents of the schools see the athletics as a great marketing tool for the school. Fans see the teams as something that represents them and thus yearn for the best team and coach possible regardless of the price tag associated with it.

In the third chapter I will discuss the theoretical framework and model of my study as well as my hypotheses regarding my regressions and their variables. The framework as well as my hypotheses will be drawn from various previous studies that I've examined.

Chapter 4 will examine the research methodology of my study. In this chapter I will discuss how I found the data that will make up my quantitative statistics. I will discuss not only the variables that I chose to include in my study, but also the sources that I chose to use and why the sources and variables are the right choice for the study. Even more important than where my data came from, is why I chose the data that I chose. This chapter will address my reasoning for choosing not only the data sets that I chose, but also the reasoning behind the timeline of the data that I will be examining. I will use this chapter to justify the years, variables, and sources of my study.

The next chapter of my thesis will consist of the results that I have found after running the necessary tests on my data. I will either find that March Madness success is significantly and positively correlated to quantity and quality of student applications or that it is not. I will examine whether my hypotheses regarding the impact of all of my variables on quantity and quality of student applications had the effect that I previously predicted.

My final chapter will be a conclusion and discussion of what my results mean in regards to my research question. I will start by discussing the aims and findings of my research proposal. I will then move to a discussion of what my findings and overall research contributes to the theory surrounding this topic. The final section of the chapter will speak to the real world implications of my data and results. I will place my thesis in a larger context as I compare it to other studies and find where my results fall in the greater context of the relationship between athletics and academics.

## CHAPTER II

### LITERATURE REVIEW

#### Introduction

In 1993 University of Connecticut's President, Harry Hartley, declared his wishes to turn the university into a prison because he said, "that's the only way I see to get assured funding." After winning the men's 1999 NCAA basketball tournament, the university secured \$1 billion in funding from the legislature, money that allowed the university to lure professors and attract a larger pool of applicants.<sup>1</sup>

The debate between the importance of academics and athletics has been long and inconclusive. Those in favor of large athletic budgets believe that they act as a large advertising tool for the college and help to improve the quality and quantity of the students and professors applying to come to the school.

Those who believe strictly in academics believe that the huge budgets for all the different sports teams detract from the potential funding for supplies, teachers, classrooms, and the overall learning experience. With the budgets for college sports and their coaches seemingly only increasing, it is important to look at whether success in major collegiate sports can lead to a higher quantity and quality of incoming applicants and thus improve the school by reaching people that otherwise wouldn't have had the school on their radar.

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<sup>1</sup> Mike Allen, "UConn Finds Rich Off-Court Gains in Basketball Power," *New York Times* (1999): 1.

In this chapter I will discuss the importance of basketball and football in the application process for colleges, looking at whether or not their success impacts quantity or quality of the applications they receive. The chapter will start with an overview of the monetary argument between higher education and athletics, focusing on the money being put into athletics compared to education and how schools have significantly increased spending on their athletic programs. I will also discuss the two sides of the argument, both studies that find a significant, positive relationship between the two and those that fail to find a relationship between them.

#### Academia vs. Athletics

In 2009 Lee T. Todd Jr., the President of the University of Kentucky, hired John Calipari to be not only the next coach of the basketball team, but the highest paid basketball coach, giving him an eight year, \$31.65 million dollar contract that could increase another \$5 million with bonuses and incentives. Miles Brand, President of the NCAA, expressed his concerns stating, “You have to ask some very hard questions, whether this is really in tune with the academic values, whether we've reached a point already that these high salary and packages for coaches has really extended beyond what's expected within the academic community.”

Todd defended the hiring by stating that the athletic department paid for itself, with \$400,000 of Calipari's salary coming from revenue, and the remaining money coming from media contacts. Todd also defends the contract by explaining that the athletic department contributes \$1.2 million a year for academic scholarships. Todd explains that the decision was in part driven by fans and alumni, with them applying

pressure to get the basketball team back to being elite. Following the hiring, an engineering graduate gave the university \$6 million to help build a new engineering building. The only thing he wanted in return was a courtside seat at Kentucky home basketball games.

The problem, however, is that, according to the NCAA, from 2004 to 2006 of the hundreds of Division I sports programs, only 16 of them made money. Todd defends his decisions by concluding, "There is something to going to a public university where you get the excitement of being able to back a team," Todd said. "There may be too much money in the system, but the enjoyment that people get out of just the competition of the Final Four -- I think it's great for the country."<sup>2</sup>

In her 2007 article, Saranna Thornton echoed the concerns on NCAA President Miles Brand. In January 2007, the University of Alabama hired Nick Saban to coach football, giving him an eight-year \$32 million dollar contract that includes an additional \$700,000 to \$800,000 in annual bowl-game incentives. The \$4 million salary seems even more ridiculous when you compare it to the state of Alabama's \$3.35 million budget for need-based financial aid in 2004-05.<sup>3</sup>

While big-time schools are finding profits through success, most schools are losing money. In 2002-2003 the NCAA stated that only 40 percent of Division I universities reported profits in their athletic programs, with the other 60 percent running average deficits of \$4.4 million. Thornton examined the average salaries for university professors, presidents, and head coaches. On average professors earned \$101,744,

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<sup>2</sup> William C. Rhoden, "As the Salaries for Coaches Rise, Questions Follow," *New York Times* (04/05 2009): 3.

<sup>3</sup> Saranna Thornton, "Financial Inequality in Higher Education. (Cover Story)," *Academe* 93, no. 2 (Mar 2007): 21-34.

presidents earned \$416,719, and head coaches \$918,238. According to these figures head coaches are, on average, 9.4 times more valuable than professors (at the University of Oklahoma coaches are 36 times more valuable).<sup>4</sup>

Between 1995 and 2001, Division-I schools increased athletic spending by about 25% after inflation, compared to only a 10% increase in academic spending. Only 40 of the hundreds of Division-I schools have self-sufficient athletic departments. This incredible spending means that the money has to come from somewhere, and some of it is coming out of students' pockets. About 60% of Division-I schools rely on student fees to help fund athletics, and these values can be up to \$1,000 annually.<sup>5</sup>

In their book, *The Game of Life: College Sports and Educational Values* (2001), Shulman and Bowen discuss the myth of athletics funding educational components of schools. They examined the correlation between winning and alumni donations and found a significant relationship only at co-ed liberal arts colleges, where coaches rarely make six figures. They did find, however, find that successful men's basketball and football teams do lead to profits, "The essential point is that a relatively small number of universities generate significant amounts of net income, almost all of which comes from highly successful football and men's basketball programs."<sup>6</sup>

## Basketball & Football

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<sup>4</sup> Saranna Thornton, "Financial Inequality in Higher Education. (Cover Story)," *Academe* 93, no. 2 (Mar 2007): 21-34.

<sup>5</sup> MaryJo Sylwester and Tom Witosky, "Athletic spending grows as academic funds dry up," *USA Today*

<sup>6</sup> James Lawrence Shulman and William G. Bowen, *The Game of Life : College Sports and Educational Values* (Princeton, N.J.: Princeton University Press, 2001), 447.



When looking at intercollegiate sports and their role in improving incoming student quality and quantity there are two sports that have the largest impact, football and basketball. While college football has always been the distant leader in terms of revenue for collegiate sports, basketball has been catching up.

In 1985 the NCAA men's basketball tournament, which had been steadily expanding, reached 64 teams. Over the next 10 years, postseason college football revenues doubled, while the revenues from the postseason men's college basketball tournaments increased four and a half times. From the late sixties to the mid-nineties, tournament television hours quintupled and television revenues went from \$140,000 in 1966 to \$166.2 million in 1995.<sup>7</sup>

So when the impact of athletics is viewed in relation to academics, it is collegiate football and men's basketball that represents the huge gains in college revenues and has the largest fan bases nationwide.

### The Framework

In a study by McCormick and Tinsley (1987), the framework for the argument of athletics versus academics was established. They first found that being a member of a major-athletic conference increased incoming SAT scores by about 3%. They then looked at conference winning percentage and the effect it had on incoming SAT scores and found that it only marginally increased average incoming SAT scores. They concluded that there is evidence of a symbiotic relationship between academics and athletics and those critics of athletics are misguided if their reason is academic

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<sup>7</sup> Andrew S. Zimbalist, *Unpaid Professionals : Commercialism and Conflict in Big-Time College Sports* (Princeton, N.J.: Princeton University Press, 1999), 252.

improvement of the school. The two authors concluded that while they believed in their statistics, that more work needed to be done.<sup>8</sup> Indeed in the years that followed, this study became the framework that all other models would compare themselves against.

#### Sport's Inability to Create a Better School

After McCormick and Tinsley's (1987) study became public, many studies came out refuting their belief that athletics had a positive relationship with the quality of incoming students. Chressanthis and Grimes (1993) came out with a study that looked solely at Mississippi State University's football and basketball team's winning percentage and first-year enrollment from 1970 to 1991. They found no correlation between winning percentage or postseason play and first-year enrollment. Instead the only significant factor that they found was that NCAA violations and sanctions on the university lead to a decrease in demand for first-year enrollment.<sup>9</sup>

Similarly Frank (2004) reviewed empirical studies and indeed saw mixed findings, but concluded that if indeed athletics generates indirect benefits to schools, the effect is very small and not large enough to make up for the incredible amount of money being poured into athletics in schools across the country. He also stated that alumni donations and applications do sometimes rise following successful seasons at a couple of schools. He concluded, however, that large cutbacks in athletic spending

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<sup>8</sup> Robert E. McCormick and Maurice Tinsley, "Athletics Versus Academics? Evidence from SAT Scores," *The Journal of Political Economy* 95, no. 5 (Oct. 1987): 1103-1116.

<sup>9</sup> George A. Chressanthis and Paul W. Grimes, "Intercollegiate Sports Success and First-Year Student Enrollment Demand," *Sociology of Sport Journal* 10, no. 3 (09 1993): 286-300.

would not significantly hurt donations of alumni or applications of prospective students.<sup>10</sup>

Similarly, Tucker and Amato (2006) investigated big-time basketball success and its role on incoming average SAT scores. They looked at schools finishing in the top 20 of the final poll and the number of NCAA tournament games played between 1993 and 2002. They found that the number of tournament games played was a significant factor on incoming average SAT scores from 1993-1997, but was no longer significant from 1998-2002. This is interesting because this decline in significantly higher average incoming SAT scores coincides with the introduction of the Bowl Championship Series in college football, college football's attempt at a playoff and National Championship format.

They concluded that basketball success was not a significant factor in increasing average SAT scores, but found that affiliation with one of the major Bowl Championship Series (BCS) was significant.<sup>11</sup>

Smith (2007) looked at college basketball's advertising effect and whether the success of a team mattered in attracting a higher-quality incoming student. He found that neither the proportion of incoming students in the top-10 of their class, students with a GPA of 3.0 or better, or National Merit Scholars were significantly related to measures of success in college basketball. Freshman SAT scores, however, were marginally related to basketball performance. He concludes, however, that the

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<sup>10</sup> "Challenging the Myth: A Review of the Links among College Athletic Success, Student Quality, and Donations " [cited 2011]. Available from <http://academic.research.microsoft.com/Paper/5180308>.

<sup>11</sup> Irvin B. Tucker and L. T. Amato, "A Reinvestigation of the Relationship between Big-Time Basketball Success and Average SAT Scores," *Journal of Sports Economics* 7, no. 4 (2006): 428-440.

conditions needed for a college basketball advertising effect appear to be both fleeting and hard to accomplish.<sup>12</sup> In figure 2.1 I have chronologically listed the studies discussed in this review.

### Sports Positively Effecting Quality of Students

While McCormick and Tinsley's study created many doubters and debaters, it created an equal amount of supporters. Mixon (1995) revisited their study and, using the number of NCAA tournament games played by teams, found that athletics enhanced the schools mission statement by enhancing the quality of students attending the school. He concluded, however, that athletics is complimentary to the educational mission of the school when attracting perspective students.<sup>13</sup>

Murphy and Trandel (1994) looked at college football winning percentage and the number of applicants. They found that the winning percentage of a university's football team has a positive, significant relationship to the number of undergraduate applications that the university received in following years. They found that a 25% increase in the teams win percentage resulted in an average of a 1.3% increase in the number of applicants the following year.<sup>14</sup>

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<sup>12</sup> D. R. Smith, "Big-Time College Basketball and the Advertising Effect: Does Success really Matter?" *Journal of Sports Economics* 9, no. 4 (08 2008): 387-406.

<sup>13</sup> Franklin G. Mixon Jr. and Rand W. Ressler, "An Empirical Note on the Impact of College Athletics on Tuition Revenues," *Applied Economics Letters* 2, no. 10 (1995): 383-387.

<sup>14</sup> Robert G. Murphy and Gregory A. Trandel, "The Relation between a University's Football Record and the Size of its Applicant Pool," *Economics of Education Review* 13, no. 3 (09 1994): 265-270.

FIGURE 2.1

LITERATURE SUMMARY

Study	Time Period	Schools	Primary Results
McCormick & Tinsley (1987)	1971  1981-1984	Approximately 150 schools  44 schools in seven major athletic conferences	Schools with large scale athletics have a 3% increase in SAT scores  Increased conference winning percentage marginally increases average incoming SAT scores
Chressanthis & Grimes (1993)	1970-1991	Mississippi State University	Sanctions imposed by NCAA reduce enrollment demand. Football success attracts more students and performance on national television is important for enrollment demand.
Murphy & Trandel (1994)	1978-1987	Schools in 6 BCS conferences	Football teams that increased the conference winning percentage by 25% or more experienced a 1.3% increase in the number of applications the following year.
Mixon & Ressler (1995)	1993	156 Division I schools	Colleges and universities experience tremendous monetary rewards through their practice and price-discrimination in setting resident and non-resident tuition levels. Successful basketball programs attract greater numbers of non-resident applications, leading to increased net tuition revenue.
Mixon (1995)	1993	217 public & private 4-year colleges and universities	Playing more rounds in the NCAA tournament over the past 15 years led to higher average incoming SAT scores.
McClure & Spector (1997)	1990	All schools in the 1990 NCAA men's basketball tournament	The paper indicates the presence of no significant relationship between the rewards and performances of participants in the men's NCAA tournament.

Frank (2004)	2004	All Division I schools	Indirect effect of athletic success is small at best when viewed from the perspective of any individual institution.
Mixon, Trevino & Minto (2004)	1990-2001	Schools in BCS conferences, Independent, and Mountain West	Positive and significant relationship between football success and incoming freshman's SAT scores.
McEvoy (2005)	1994-1998	Schools in 6 BCS conferences	Football winning percentage had a positive, significant relationship with the number of applicants. No such relationship was found for men's basketball, women's basketball or women's volleyball.
Tucker & Amato (2006)	1993-2002	Any team that competed in the men's NCAA tournament during the time period	Positive short-term effect (1993-1995) of basketball on incoming freshmen SAT scores, but no long-term (1998-2002) correlation. Affiliation with a BCS conference leads to a positive impact of SAT scores for incoming freshmen. No relationship between SAT scores and number of NCAA tournament games played.
Goidel & Hamilton (2006)	1994-1995	Louisiana State University	The general public believes in a link between athletic success and academic quality.
Smith (2007)	1994-2005	All division I men's basketball schools	Conditions needed for a basketball advertising effect appear to be fleeting and difficult to accomplish. Being a member of a power conference had no relationship with student quality. Basketball success was trumped school characteristics in decision-making for incoming freshman.
Pope & Pope (2009)	1980-2003	Football: All Division I-A finishing in top-20 in final AP rankings Basketball: All teams that entered NCCA tournament	Football & basketball success increases quantity of applications between 2-8% for football teams in top-20 and basketball teams making it to the Sweet 16. Private schools see higher applications rate increases than public schools. Schools use sports success to increase quantity and quality of students.

Similarly, McEvoy (2005) looked at college football, men's basketball, women's basketball, and women's volleyball and their relationship to the number of applicants the following year. Football was the only sport found to have a positive, significant relationship with number of applications.<sup>15</sup>

Mixon and Trevino (2004) cited survey evidence that showed that athletics ranks relatively low on a list of extracurricular activities taken by perspective college students. They found empirically, however, that an increased football winning percentage positively effected incoming SAT scores.<sup>16</sup>

Mixon and Ressler (1995) looked at athletic success and its impact on a school's decisions. They found that successful athletics increase demand to attend a school and lowers the price-elasticity of demand for non-resident students. They also found that successful basketball programs attract more non-resident student applications, allowing the college to choose them over resident students, leading to higher net tuition revenue.<sup>17</sup>

In a very recent study, Pope and Pope (2009) found that making it the Sweet 16 of the NCAA tournament led to a 2-8% increase in the number of applicants. Also, after sports success, private schools see increases in applications rates 2-4 times as large as public schools. They found that schools are utilizing the increases in the number of

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<sup>15</sup> "The Impact of Elite Individual Athletic Performance on University Applicants for Admission in NCAA Division I-A Football | the Sport Journal " [cited 2011]. Available from <http://www.thesportjournal.org/article/impact-elite-individual-athletic-performance-university-applicants-admission-ncaa-division-i>.

<sup>16</sup> F. G. Mixon J., L. J. Trevino, and T. C. Minto, "Touchdowns and Test Scores: Exploring the Relationship between Athletics and Academics," *Applied Economics Letters* 11, no. 7 (06 2004): 421-424.

<sup>17</sup> Franklin G. Mixon Jr. and Rand W. Ressler, "An Empirical Note on the Impact of College Athletics on Tuition Revenues," *Applied Economics Letters* 2, no. 10 (10 1995): 383-387.

applications to improve both the number and the quality of incoming undergraduate students.<sup>18</sup>

Regardless of numbers used to conduct all of these studies, Goidel and Hamilton (2006) showed that regardless of whether sports success affects academic quality, the public believes that the link does exist. Through their survey they found that 65% of people connected success in college athletics with academic quality and concluded that colleges and universities do gain public relations benefits through their athletic programs.<sup>19</sup>

Toma and Cross (1998) explored football and basketball championships and their impact on undergraduate applications. They looked at the year-to-year changes in undergraduate applications sent to schools that won either a football or basketball championship and compared them to similar schools that did not win a championship. Over their 13-year period they found that 10 of their 13 basketball champions saw increases of over 9% and some champions saw up to 29% increases in applications. They concluded that success, in terms of championships in basketball and football, did significantly increase the number of applications that the schools received each year over a three-year period, but that basketball saw larger gains over three years as compared to just the following year.<sup>20</sup>

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<sup>18</sup> Devin G. Pope and Jaren C. Pope, "The Impact of College Sports Success on the Quantity and Quality of Student Applications," *Southern Economic Journal* 75, no. 3 (01 2009): 750-780.

<sup>19</sup> Robert Kirby Goidel and John Maxwell Hamilton, "Strengthening Higher Education through Gridiron Success? Public Perceptions of the Impact of National Football Championships on Academic Quality," *Social Science Quarterly (Blackwell Publishing Limited)* 87, no. 4 (12 2006): 851-862.

<sup>20</sup> J. D. Toma and Michael E. Cross, "INTERCOLLEGIATE ATHLETICS AND STUDENT COLLEGE CHOICE: Exploring the Impact of Championship Seasons on



There's an endless array of discussion and statistical measures on the impact of athletic success on academic quality. Variables such as acceptance rates, enrollment rates, and endowments are mostly absent from many of the studies done. It's important to look at how these factors change following athletic success because they do impact the quality of the colleges and universities.

In the end, the debate between the effect of athletics and academics is one that has not reached a conclusive ending. Different time periods and different variables have yielded different results from various studies. The importance of studying the relationship continues to grow, however, due to the increases in spending of schools towards their athletic programs.

## CHAPTER III

### RESEARCH METHODOLOGY

#### Introduction

The purpose of this chapter is to describe the methodology used to determine the impact of men's college basketball success on quantity and quality of student applications. The type of research done to determine the impact is quantitative, allowing for the use of regressions to determine the relationships between the variables. This chapter will discuss and justify the reasoning behind the data set, the time frame, the source of the data, and finally the techniques used to analyze the data in the study.

#### Data Sample

This study looks at teams that made it to the Sweet Sixteen and farther in the NCAA men's basketball tournament. The reason for limiting the results to the final sixteen teams in the tournament each year is that after looking at all of the previous research done, none of them found a strong, positive correlation between making the tournament, or even winning the first game, and an increase in quantity or quality of student applications.

The lack of the significant, positive relationship makes sense because many of the teams that lose in the first or second round are very small schools and many of them are not from power conferences.

The NCAA tournament is made up of 64 teams that are broken up into four regions. The teams are distributed through these four regions based on their rankings, i.e. the top four ranked teams nationally make up the four number 1 seeds in the four regions and the teams ranked 5 through 8 nationally make up the 2 seeds in the various regions, etc. First round games pit the best versus the worst, 1seed vs. 16 seed, 2 seed vs. 15, etc and thus many of those early games are lopsided. This does, however, leave the door open for huge upsets, which would gain some sort of national media attention. The problem with this is that the second round games are played one day later and thus teams that win in the first round don't get much time in the spotlight. After winning a second round game, however, teams get multiple days off and thus get much more attention from the media and are a much larger advertising tool for the schools involved. After winning two games teams reach the Sweet Sixteen, which is where my study starts.

We see an example of this in 2001, when Hampton University was a 15 seed and upset a title contender in 2 seed Iowa State. A 15 seed has only beaten a 2 seed four times in the last twenty-five years. While Hampton University got nationally media attention the night and day following their historic upset, the day after they lost and received no real attention after that. So while it generates great immediate attention for the school, it is short lived and thus produces no significant increase in the quality and quantity of student applications.

## Time Frame

The time frame chosen for this study are the years of 2001 to 2005. One reason for this choice of time period relates to NCAA football's Bowl Championship Series, a computer selection system that creates five bowl game matchups following the college football season. It was created to ensure that the two top ranked teams at the end of the year played each other in the last game and it thus created a supposed undisputed champion.

Its creation is important because of a previous study done, Tucker & Amato (2006). They looked at both the number of tournament games played as well as teams that finished in the top 20 of the final Associated Press poll that ranks college basketball teams. They found a significant relationship between tournament games played with incoming SAT scores between 1993-1997. They also found, however, that this relationship was not significant from 1998-2002 and found no significant relationship between NCAA tournament success and the number of applications the following year. What makes these years interesting is that the Bowl Championship Series (BCS), college football's postseason, was introduced in 1998, coinciding with the number of tournament games no longer being significant.<sup>1</sup> By looking at the tournaments from 2001 to 2005 this study will be able to test and see if the creation of the BCS has indeed reduced, or diminished, tournament success on quantity and quality of student applications.

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<sup>1</sup> Irvin B. Tucker and L. T. Amato, "A Reinvestigation of the Relationship between Big-Time Basketball Success and Average SAT Scores," *Journal of Sports Economics* 7, no. 4 (2006): 428-440.

Another reason for the time frame chosen is the increase that the NCAA received in television advertising from 2001 to 2005. During this time period the NCAA men's basketball tournament television ad revenue increased by over \$150 million. This increase is more clearly depicted in the figure 3.1.<sup>2</sup>

This increase in the amount of money spent on television advertising represents the increase in interest in the tournament. It reflects the stage upon which the teams compete and thus represents a good time frame to view, one that reflects the growing spectacle that is the NCAA tournament.

A final reason for the time frame selected relates to the number of viewers of the tournament. The men's NCAA tournament saw its highest amount of viewers during the 1979 tournament, over 35 million. A tournament that saw Magic Johnson and Larry Bird, two of the most iconic players in basketball history, compete in the national championship. From then on, however, the NCAA has seen the number of viewers of their basketball tournament championship decrease, as of 2009 it was around 17 million as seen in figure 3.2.<sup>3</sup>

We see that during the time frame used in this study, viewership fluctuates both up and down. While championship viewership ends up in about the same place over the five tournaments, the viewership through the regional finals and the regional finals increased from 2001 to 2005. This time frame looks like it has about average, maybe slightly above, viewership compared to other five-year periods and thus creates a solid foundation for the study.

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<sup>2</sup> *NCAA Men's Basketball Tournament TV Ad Revenue*

<sup>3</sup> "NCAA Men's Basketball Tournament Nielsen TV Ratings, 1975-2009 " [cited 2011]. Available from <http://tvbythenumbers.zap2it.com/2010/04/05/will-butler-prove-a-cinderella-for-ncaa-finals-ratings-too/47430>.

FIGURE 3.1  
NCAA TOURNAMENT AD REVENUE

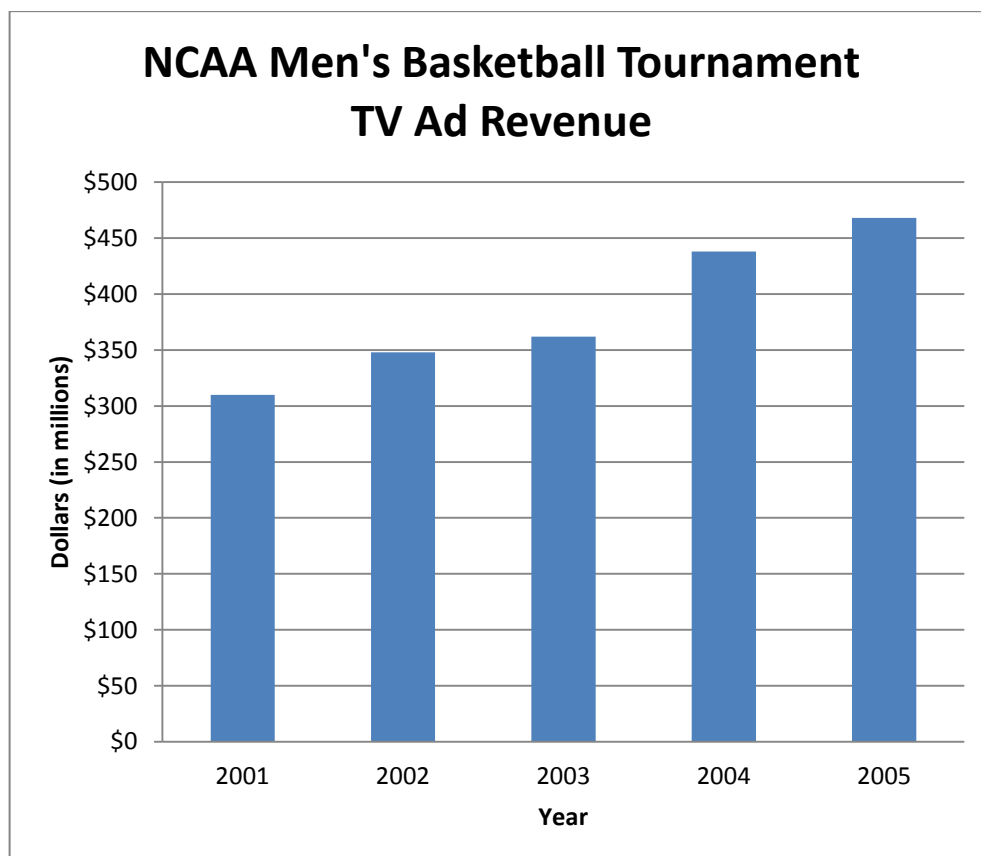
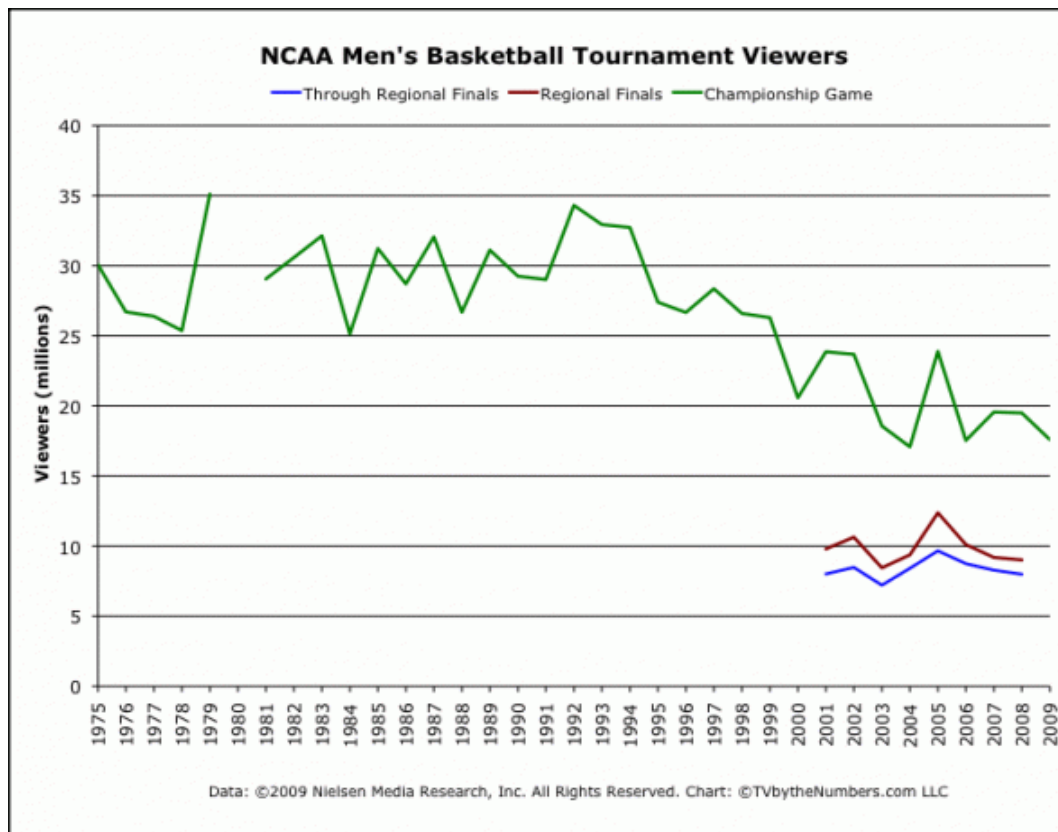


FIGURE 3.2

NCAA TOURNAMENT VIEWERSHIP



## Sources of Data

Every year Thomson Corporation publishes *Peterson's Guide to Four Year Colleges* that compiles detailed college-level data from schools across the country. My study uses their annual outputs of each schools data to compare SAT scores, ACT scores, and quantity of student applications for each year a school made the Sweet 16 as well as the schools information for two years following their tournament success. All of my data in regards to each schools admission statistics will be drawn from these annual published guides to four-year colleges.

*Peterson's Guide* is by no means the only annual college guide printed, after looking through various other options, however, it was clear that this guide constantly included the variables that I needed for my study. Other books would include some statistics some years but then leave them out others, making it impossible to track the progression of the school's admission process.

For the basketball tournament results and data I used databasesports.com. This site tracks the entire tournament results for my time period as well as beyond, going all the way back to 1939, and is known for having the largest sports statistics and history database online.<sup>4</sup>

## Analyzing Data

To analyze this data I will be running multiple regressions with slightly different independent variables as I compare the changes of both quantity and quality of student applications.

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<sup>4</sup> "NCAA Basketball Tournament Bracket and Results - databaseSports.Com " [cited 2011]. Available from <http://www.databasesports.com/ncaab/index.htm>.



### Quantity of Student Applications

To analyze the impact of March Madness success on quantity of student applications I will employ the following regression equation:

$$Y_{i,t} = C_{i,t} + S_{i,t} + S_{i,t+1} + S_{i,t+2} + X_{i,t} + U_{i,t} + E_{i,t}$$

My dependent variable,  $Y_{i,t}$ , for this question is the number of applications sent to each school. I will compare this number to the two application periods that follow the school's success in the college basketball tournament.

The main independent variable that will be used in this model is NCAA tournament success,  $S_{i,t}$ . To measure this success for team  $i$  over time period  $t$ , I employ a dummy variable for each round that the team makes passed the Sweet Sixteen. This variable will include lead, current, and two lag years in order to trace the impact of the success over time. I predict that this variable will be significant and positive, meaning that the farther a team goes in the tournament the larger the impact on the number of student applications. I also believe that the school will see a bigger improvement from the first lag year to the second lag year.

Next, I will use a set of dummy variables to help control for the quality of the school,  $U_{i,t}$ . There are many factors that influence the quality of the school as well as reasons for students to attend the school. The four factors that I chose to include in my model are the cost of attending the school, the school's acceptance rate, the enrollment rate, and a dummy variable for private schools. By accounting for these factors that affect school quality I can control them and hopefully find a more clear relationship between a school's basketball success and their applicants. I think that when looking at

just the number of applications sent to a school, the number of variables needed to control is less compared to looking at the quality of the applications being sent, which will be seen in the regression equation for quality of applications.

When looking at the variables for the number of applications, I believe that the variables will have different correlations. I think that private schools will be significant and positive. This is because these schools tend to be smaller and thus when the schools are in the national spotlight I believe they will see a significant increase in the number of applications.

I believe that acceptance rate will be significant and negative. Because my hypothesis is that basketball success will lead to a higher number of applications, I think that this in turn leads to the school accepting less people and thus having a lower acceptance rate. This has two effects. The first is that the schools undergraduate population remains about the same and also, with a lower acceptance rate, the school appears more prestigious and harder to get into on paper.

I also hypothesize that the enrollment rate of these schools will be negative, because as more people apply I believe that a lower percentage will actually enroll in the school. Finally, I also believe that cost will be insignificant as well. I don't believe that the cost of attending a school effects the number of applicants the school receives.

### Quality of Student Applications

I will employ a similar regression model when analyzing the quality of student applications as I did for the quantity of student applications except for the dependent

variable, which now becomes quality of student applications, and an increase of the number of independent variables.

When examining the quality of student applications, I use three different types of dependent variables. The three different variables that I use to represent the quality of applications in my three regressions are the percentage of students that scored above 600 in math on the SAT, above 600 in verbal (critical reading) on the SAT, and the percentage of applicants that scored above a 30 on the ACT.

When analyzing scores of the SAT an 1800, or 600 on each section of the test (verbal, math, essay) should, “should gain you admittance into many highly regarded American colleges.”<sup>5</sup> These scores aren’t considered astonishing or genius but are clearly high and thus they offer a great yard marker for analyzing shifts in the quality of above average student applications.

Looking at a 30 on the ACT, however, tells a different story. Generally the 90<sup>th</sup> percentile for the ACT is about a 28. Looking at the percentage of applicants with an ACT test score of 30 or above, therefore, we can analyze the top percentage of students as compared to just the above average.<sup>6</sup>

Average high school GPA’s were not included in looking at the quality of student applications due to the inconsistency of grades from school to school and even state to state. Even though standardized tests do not offer a completely fair playing field, due to tutors, classes, and different high school programs offered, it is currently the best baseline we have to compare prospective college students.

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<sup>5</sup> "Interpreting SAT Scores and ACT Scores." (Cited 2011) [universitylanguage.com](http://universitylanguage.com)

<sup>6</sup> Ibid.

When analyzing the quality of student applications I use six independent variables, not including the independent variable for March Madness success. My variables are the schools endowment, the student to faculty ratio, the enrollment rate, the acceptance rate, the undergraduate population, and a dummy variable for private schools.

I believe that endowment will have a positive and significant relationship to the quality of students applying to schools. I believe that a larger endowment signifies a better school with a rich history and thus attracts better students.

I think that the student faculty ratio will be negative because better students are usually attracted to school with a smaller ratio because that correlates to more personal relationships with teachers. Enrollment rate, however, should be positive because better schools attract better students, and thus when I look at the quality of applications it should correlate to a higher enrollment rate because better students will want to attend the schools. I think that acceptance rate should be negative because quality students usually apply to more prestigious schools and acceptance rate is one of the largest factors in analyzing the quality of schools and the difficulty of their admission process.

I predict that the size of the undergraduate population at the schools will be positive because prestigious schools, those that attract a higher quality student, come in all different undergraduate sizes but those that usually advance farther in the tournament tend to have a higher undergraduate population.

Finally, I believe that private schools will be a positive, significant variable. Private schools tend to be harder to get into and thus will attract better students with higher test scores.

## CHAPTER IV

### RESULTS

After running multiple regressions looking at Mach Madness success and its impact on the quantity and quality of prospective student applications, I found mixed results. This study proved many of my hypotheses true, but there were some that were proved incorrect and present many questions. This chapter analyzes the results from the multiple regressions run and how these results relate to my hypotheses stated in the previous chapter. I will state my findings and how they relate to what I had previously predicted and in the next chapter explain the implications of these findings.

#### Quantity of Student Applications

After running regressions on each round of the tournament, lagged one and two years, I come to an interesting conclusion. Table 4.2 shows the results and impact that the various independent variables, listed and explained in Table 4.1, had on the number of applications, lagged two years, on teams that made it to the Elite 8.

FIGURE 4.1  
VARIABLE DEFINITIONS

Variable	Description
Private	Dummy variable for private colleges and universities
Acceptance~e	Acceptance rate: Number of applications/ Number accepted
Enrollrate	Enrollment rate: Number of students accepted/ Number attending
Cost	Cost of undergraduate out-of-state tuition
Endowment	Size of schools endowment
Studentfac	Student to faculty ratio: Number of students/ Number of teachers
Undergrad	Size of undergraduate population
Made8	Schools that advanced to Elite 8
Made4	Schools that advanced to Final 4
Made2	Schools that advanced to the National Championship game
Champion	Won National Championship

FIGURE 4.2

## APPLICATION REGRESSION RESULTS

```
. reg act endowment studentfac enrollrate acceptance rate undergrad private l2.m
> ade2
```

Source	SS	df	MS			
Model	2.12903862	7	.304148375	Number of obs =	80	
Residual	.527961491	72	.007332798	F( 7, 72) =	41.48	
				Prob > F =	0.0000	
				R-squared =	0.8013	
				Adj R-squared =	0.7820	
Total	2.65700012	79	.033632913	Root MSE =	.08563	

act	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
endowment	2.88e-11	1.22e-11	2.36	0.021	4.51e-12	5.31e-11
studentfac	.0009205	.0039615	0.23	0.817	-.0069765	.0088176
enrollrate	.2566271	.1348417	1.90	0.061	-.012175	.5254291
acceptance~e	-.3839653	.0730999	-5.25	0.000	-.5296872	-.2382434
undergrad	1.28e-06	1.62e-06	0.79	0.433	-1.95e-06	4.50e-06
private	.1937393	.044617	4.34	0.000	.104797	.2826816
made2						
l2.	.0371639	.029537	1.26	0.212	-.0217171	.0960449
_cons	.2398961	.0836295	2.87	0.005	.0731837	.4066085

As Figure 4.2 shows, March Madness success did indeed lead to a positive, significant increase in the number of student applications two years following the team making it to the Elite 8.

The table also shows that private schools, acceptance rate, and enrollment rate all had a negative, significant relationship to the quantity of student applications.

I had predicted in my earlier hypothesis that private schools would have a significant relationship, but I thought the relationship would be positive. With the acceptance rate, I correctly predicted that it would be negative and significant. I also correctly predicted that the enrollment rate would be negative and indeed it was significant and negative. Finally, cost was ultimately not a significant variable in this model.

Looking at the regression as a whole, we see that it has an R-squared of 0.63, 0.61 adjusted. I think that this is a good number for a couple of reasons. There are so many schools, in so many different places that there is always going to be a good amount of variability. Also, with the viewership of the tournament changing so much each year, it leaves a lot of room for variability. In the end, 63% of the variability in the data set is accounted for in this model and, while it's not a huge proportion, I believe that's a good amount and that the independent variables do a good job of explaining the changes in the quantity of student applications.

As Figure 4.3 shows, the data set does not have a problem with multicollinearity. By looking at the Variance Inflation Factor, VIF, we see relatively low values, which speaks to the lack of multicollinearity in the data. Also the tolerance



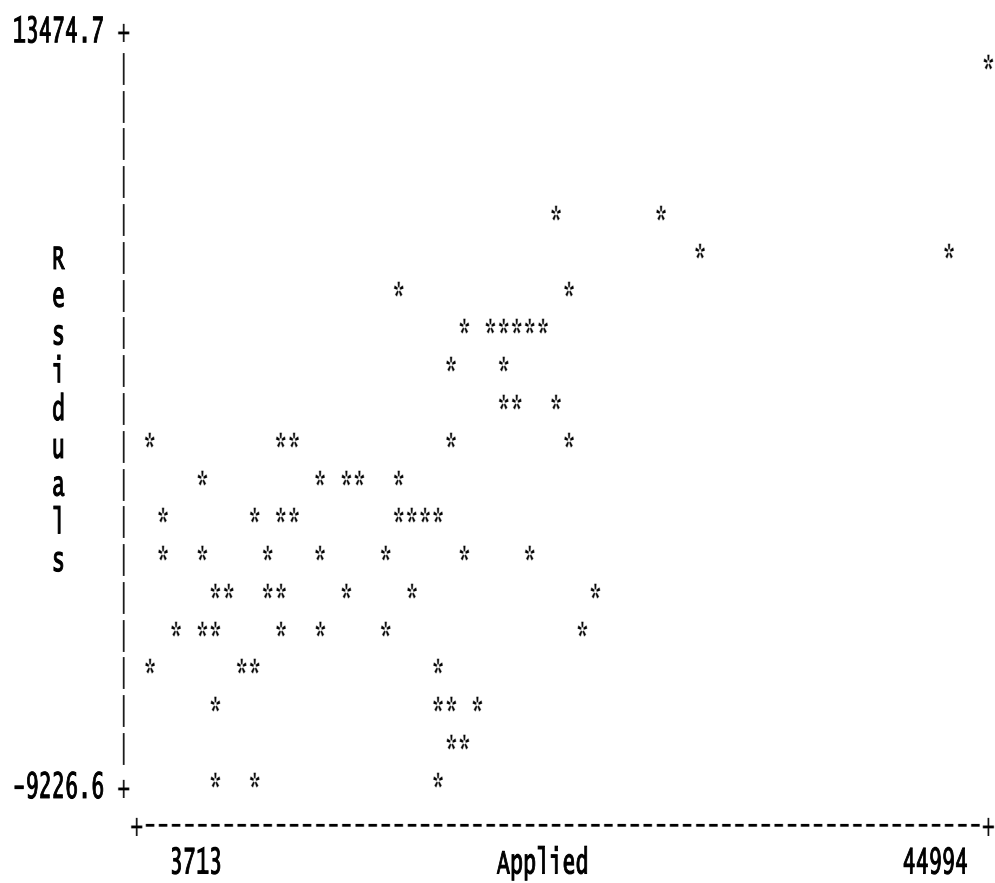
FIGURE 4.3

## APPLICATION MULTICOLLINEARITY TEST

```
. vif
```

Variable	VIF	1/VIF
cost	4.71	0.212186
private	3.37	0.296908
acceptance~e	2.17	0.461139
enrollrate	1.21	0.823777
L2.made8	1.01	0.993738
Mean VIF	2.49	

FIGURE 4.4  
APPLICATION GRAPH OF RESIDUALS



next to it,  $1/VIF$ , are all above .1 and .2, which also shows a lack of multicollinearity in this data set.

Looking at Figure 4.4, we see the quantity of applications graphed with the residuals. We see a relatively linear relationship and, with the lack of a cone shape, we see that heteroscedasticity was not a problem in this data set.

After looking through the schools advancing through each round and there relationship to the quantity of student applications, I found two very interesting facts. The first thing is that, regardless of how far a team went, they always saw a larger, more significant relationship to the quantity of student applications in the second lag year as compared to the first lag year following the teams March Madness success.

Another interesting facet of the data is that making the Elite 8 was more positive and significant than any of the other rounds. This definitely contradicts my hypothesis and I will address what this means in relation to this study in the next chapter.

#### Quality of Students Applications

After running the regression equation, I found that only math scores were significantly effected by March Madness success. Math scores were, however, only significant at the 90% level. Verbal scores were slightly higher than that of ACT, but neither was significant.

Each of the regressions shown in figures 4.5, 4.8, and 4.10 show the highest t-value statistic found as I examined March Madness success on the quality of the prospective applicants. As the tables show, the highest t-values were found two years following the schools advancing to the National Championship

## SAT Math Scores

Looking first at Figure 4.5, we see that acceptance rate, undergraduate population, and private schools were significant variables when looking at math SAT scores. Acceptance rate was significant and negative, which is what I predicted. Clearly a lower acceptance has a negative significance because better students will be attracted to a school with a lower acceptance rate because it is harder to get into and thus more prestigious.

My hypothesis was that undergraduate population would be positive and indeed it was significant and positive. I also thought that private schools would be positive and significant and indeed it was.

Looking at the R-squared for this regression, we see that the value is higher than that of the application quantity regression, .74. This shows that the model is a good fit.

Figure 4.6 shows VIF scores for the variables used in the quality regressions. With low VIF scores and high enough tolerances I can safely say that multicollinearity does not exist in this model or for the other two regressions run to test the basketball success on the quality of students.

Figure 4.7 shows the residuals graphed against the math scores. The graph looks pretty linear and following the Breush-Pagan/Cook-Weisberg test heteroscedasticity is not a problem.

FIGURE 4.5

## SAT MATH REGRESSION RESULTS

```
. reg math endowment studentfac enrollrate acceptance~e undergrad private L2.
> made2
```

Source	SS	df	MS	Number of obs = 80		
Model	3.11422676	7	.444889537	F( 7, 72) = 28.89		
Residual	1.10892825	72	.015401781	Prob > F = 0.0000		
Total	4.223155	79	.053457658	R-squared = 0.7374		
				Adj R-squared = 0.7119		
				Root MSE = .1241		

math	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
endowment	4.81e-12	1.77e-11	0.27	0.786	-3.04e-11	4.01e-11
studentfac	-.0093867	.0057413	-1.63	0.106	-.0208316	.0020583
enrollrate	.1656343	.1954226	0.85	0.399	-.2239336	.5552022
acceptance~e	-.692947	.1059417	-6.54	0.000	-.904138	-.481756
undergrad	6.81e-06	2.34e-06	2.91	0.005	2.14e-06	.0000115
private	.1352036	.0646623	2.09	0.040	.0063017	.2641054
made2						
L2.	.081513	.0428073	1.90	0.061	-.0038217	.1668477
_cons	.8717282	.1212021	7.19	0.000	.6301163	1.11334

FIGURE 4.6

## SAT MATH MULTICOLLINEARITY TEST

. vif

Variable	VIF	1/VIF
private	3.93	0.254259
endowment	2.85	0.351278
studentfac	2.69	0.371634
acceptance~e	2.62	0.381070
undergrad	2.42	0.412597
enrollrate	1.88	0.530559
L2.made2	1.04	0.960568
Mean VIF	2.49	



### SAT Verbal Scores

Looking now at figure 4.8 we see the regression statistics for the SAT verbal test. In this regression, contrary to my hypothesis, college basketball success is no longer significant. Similar to the math SAT regression, the private school variable is again positive and significant and the acceptance rate variable is negative and significant, both of these outcomes were correctly predicted in my hypotheses in the previous chapter.

This regression has an even higher R-squared than the math SAT regression, with a value of about .8. Looking at the graph of the residuals, figure 4.9, we see again a positive linear relationship and can again rule out the problem of heteroscedasticity.

### ACT Scores

Looking now at figure 4.10 we see the regression statistics for the percentage of applicants with ACT scores over 30. Similar to the verbal SAT regression, figure 4.8, college basketball success is again not significant. In this regression the endowment and private school variables were positive and significant. The ACT variable represented a higher academic level than that of the two SAT variables and, in this regression, unlike in the other two, endowment was significant. I think that this represents the tendency of better schools to have higher endowments.

Similar to the SAT variables, acceptance rate was again negative and significant. This shows that higher quality students tend to go to schools with lower acceptance rates because those schools are usually more prestigious.



FIGURE 4.8

## SAT VERBAL REGRESSION RESULTS

```
. reg verbal endowment studentfac enrollrate acceptancerate undergrad private 1
> 2.made2
```

Source	SS	df	MS			
Model	2.83766839	7	.405381198	Number of obs =	80	
Residual	.724570401	72	.010063478	F( 7, 72) =	40.28	
				Prob > F =	0.0000	
				R-squared =	0.7966	
				Adj R-squared =	0.7768	
Total	3.56223879	79	.04509163	Root MSE =	.10032	

verbal	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
endowment	1.20e-11	1.43e-11	0.84	0.404	-1.65e-11	4.05e-11
studentfac	-.0039714	.0046408	-0.86	0.395	-.0132227	.0052799
enrollrate	.2092172	.1579659	1.32	0.190	-.1056821	.5241165
acceptance~e	-.6358345	.0856359	-7.42	0.000	-.8065465	-.4651225
undergrad	1.68e-06	1.89e-06	0.89	0.378	-2.09e-06	5.45e-06
private	.1285901	.0522684	2.46	0.016	.0243949	.2327853
made2						
L2.	.0521475	.0346024	1.51	0.136	-.0168311	.1211261
_cons	.7697595	.0979713	7.86	0.000	.5744573	.9650616

FIGURE 4.9  
SAT VERBAL RESIDUAL GRAPH

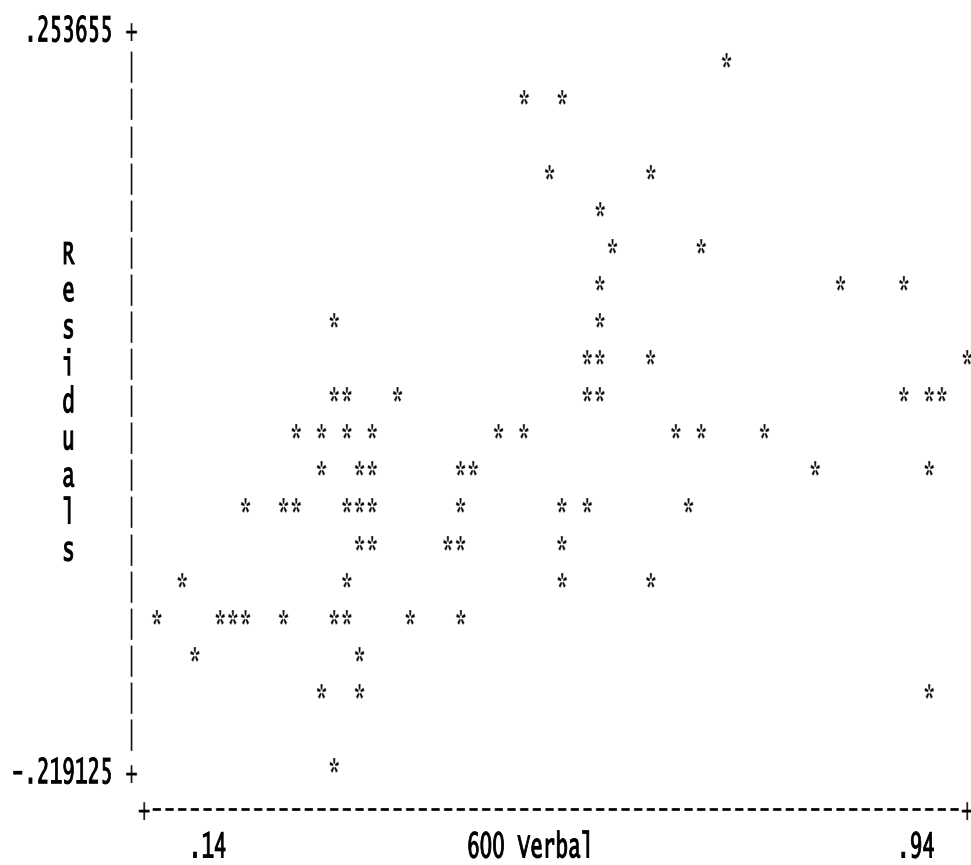


FIGURE 4.10

## ACT REGRESSION RESULTS

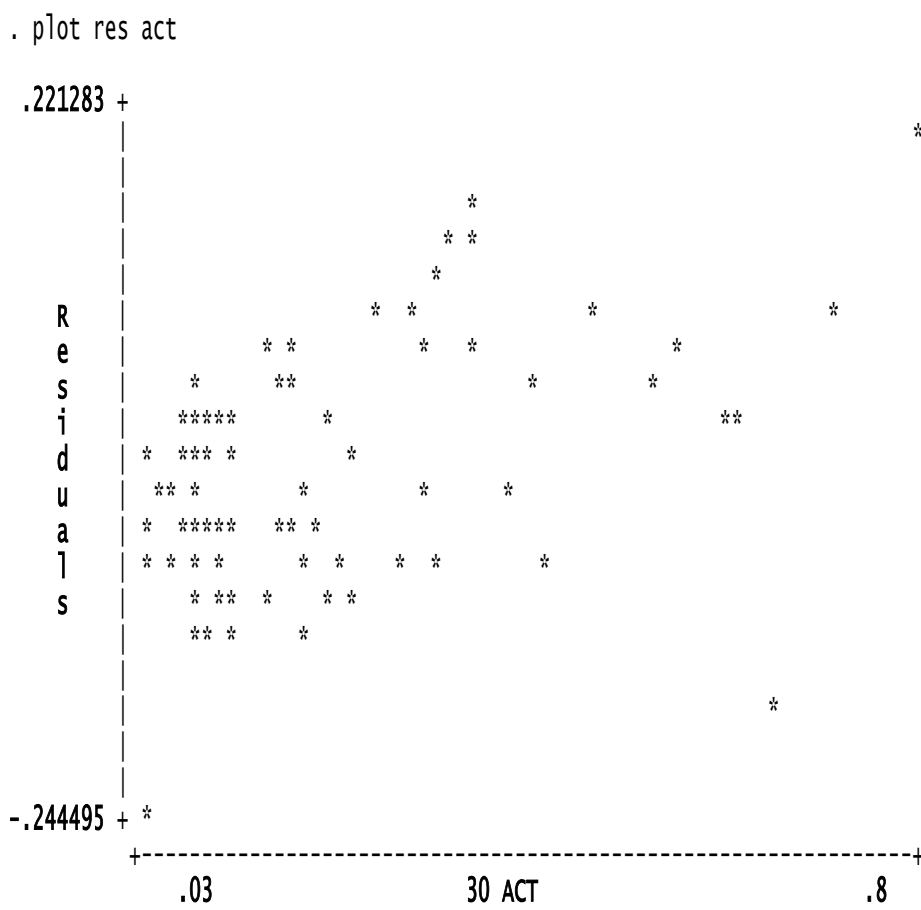
```
. reg act endowment studentfac enrollrate acceptance~e undergrad private l2.m
> ade2
```

Source	SS	df	MS			
Model	2.12903862	7	.304148375	Number of obs =	80	
Residual	.527961491	72	.007332798	F( 7, 72) =	41.48	
Total	2.65700012	79	.033632913	Prob > F =	0.0000	
				R-squared =	0.8013	
				Adj R-squared =	0.7820	
				Root MSE =	.08563	

act	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
endowment	2.88e-11	1.22e-11	2.36	0.021	4.51e-12	5.31e-11
studentfac	.0009205	.0039615	0.23	0.817	-.0069765	.0088176
enrollrate	.2566271	.1348417	1.90	0.061	-.012175	.5254291
acceptance~e	-.3839653	.0730999	-5.25	0.000	-.5296872	-.2382434
undergrad	1.28e-06	1.62e-06	0.79	0.433	-1.95e-06	4.50e-06
private	.1937393	.044617	4.34	0.000	.104797	.2826816
made2						
l2.	.0371639	.029537	1.26	0.212	-.0217171	.0960449
_cons	.2398961	.0836295	2.87	0.005	.0731837	.4066085

FIGURE 4.11  
ACT RESIDUAL GRAPH



In this regression we again see a great R-squared of .8. Looking at figure 4.11 we see that again the residuals look linear and following the Breush-Pagan/Cook-Weisberg test we see that this regression also does not suffer from heteroscedasticity.

## Conclusion

By looking at the other independent variables, not basketball success, we see an expected pattern that explains the various dependent variables in this study.

We see that when looking at the quantity of student applications that making the Elite 8 did have a significant, positive effect on the quantity of student applications, at the 95% confidence level, two years following the athletic success.

Looking at March Madness' success on quality of student applications we see a slightly different outcome. Looking at the percentage of students applying with an SAT math score of above 600, we see that making the championship game significantly and positively effected this number, but only at the 90% confidence level. The percentage of applicants with SAT verbal scores above 600 and ACT scores above 30 applying to schools, however, were not significantly affected by the success the men's basketball team had in the tournament.

## CHAPTER V

### CONCLUSION

With the important findings of the study summarized, it's now time to discuss the importance of the findings. This chapter will begin with a summary of the aims and findings of this study. I will then explain how the findings of this study contribute and fit into the theory behind this topic, described in detail in the first couple of chapters. Finally, I will conclude with the practical implications of the study. Here I will discuss what this study means for colleges and universities across the country and how it fits in the larger context of college academics and athletics.

#### Discussion

As shown in the previous chapter, college basketball success did have an impact on the number of applications of perspective students. Teams that made the Elite 8 saw a significant increase in the number of student applications the following two years. What's interesting, however, is that basketball success was not significant for any of the rounds past the Elite 8, including the final four and the national championship. This is especially interesting because the Championship game over the time period in this study, 2001 to 2005, had anywhere from 7 to 15 million more viewers than Elite 8

games.<sup>1</sup> There are a couple of possible explanations for this and they will be explained in the next section.

The next finding is that college basketball success impacted the percentage of applicants with above a 600 SAT math score, but this was only significant at the 90% confidence level. While basketball was significant for schools that made the Elite 8, schools had to make the National Championship game for their success to effect the quality of student applications, in particular SAT math scores. This is also interesting because college basketball success proved to not be significant in regards to the SAT verbal test scores of student applications.

The final finding is that college basketball success had no impact on the percentage of applications with an ACT score of 30 or above. This variable was included to look at the top percentage of students, top 10% of test takers. March Madness success proved to have the smallest impact on this portion of college applicants.

### Implications

One reason that significance was only found in teams making it to the Elite 8 is that teams that win National Championships are usually schools that have already been reaching high levels of success within the sport. For example in 1986 Duke's men's basketball team made its first National Championship in almost 10 years. The following year the school witnessed a 19% increase in undergraduate applications, its largest

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<sup>1</sup> *CBS Corporation | CBS SPORTS' 2010 NCAA MEN'S BASKETBALL NATIONAL CHAMPIONSHIP GAME VIEWERSHIP HIGHEST IN 13 YEARS*

increase ever at the time. They went on to win back-to-back national championships from 1990-1992 but saw no increase in their applicant pool.<sup>2</sup>

Another even more shocking example of basketball success leading to an immediate growth in applicants is Butler University. Last year Butler University advanced to the National Championship and, with an undergraduate population of only 4,500 students, became the smallest school to ever make it that far.<sup>3</sup> The next year, their number of applicants increased about 41%.<sup>4</sup>

Butler is a perfect example of a team coming from obscurity to reach basketball highest stage and this sudden rise, I believe, is the reason for their huge rise in applicants. A team that sees repeated success in the NCAA tournament is not going to see a significant increase in the number of applicants they receive following another successful season and tournament. Smaller schools, higher seeds, make the Elite 8 more often than they do the National Championship. This is one reason why I found a significant increase only in the Elite 8.

Another possible explanation is that a school is more defined by individual players than they are as a team. After Doug Flutie, quarterback of Boston College, threw a Hail Mary touchdown pass to beat rival Miami in 1984 the school saw its applicant pool increase 16%. The team didn't win a National Championship but Flutie won the Heisman Trophy, given to the most valuable player in college football. Perhaps it's the players that attract fans to schools. Teams that win championships usually don't

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<sup>2</sup> "Duke Mag-Record Number Apply for Class of 2007-Mar/Apr 2003-Gazette " [cited 2011]. Available from <http://www.dukemagazine.duke.edu/dukemag/issues/030403/depgaz2.html>.

<sup>3</sup> Susan S. Neville, *Butler's Big Dance: The Team, the Tournament, and Basketball Fever* Indiana University Press, 2010), 128.

<sup>4</sup> Ibid.



have one dominant player, but rather a bunch of good players that make a great team. Again, a great player can lead his team to three wins, the Elite 8, but six wins, a championship, is far larger task.

Ultimately I think that, looking at the impact of March Madness success on quantity of student applications, success can absolutely play a large role. The problem, however, is that there is no sure formula that explains how much each win correlates in number of applications. While success and distance in the NCAA tournament can correlate to significant increases in the number of applications, it doesn't always because other factors influence how the team and the school is perceived by potential applicants watching their games.

Looking at March Madness success and its impact on the quality of student applications, it is easier to come to a conclusion. A score of 600 on both the verbal (now critical reading) and math sections is above average and neither of these significantly increased, 95% confidence, with March Madness success. What's interesting is looking at the percentage of applicants with an ACT of 30 or above. March Madness success was the least significant in explaining this dependent variable, compared to both SAT variables. A score of 30 or above represents the top 10% of test takers and the lack of any significance in this categories shows that college basketball success does not have an impact in the attraction of top high school students. I think that the 90% confidence attached with the SAT math score and making the National Championship shows that the above average students can be swayed by college basketball success but it is in no way definite.

## Conclusion

I started this study by going over all the different literature that I could find that had a study that related to mine. I found as many studies stating the importance of athletics on applications as I did reporting the opposite. After doing this study I can conclude that I believe that college basketball success does impact the number of applications to schools. Even if it doesn't happen every year or happen with every tournament game, the possibility exists. This study does show, however, that college basketball is not a significant recruiter for increased quality students. It takes more than a Championship or Cinderella run through the NCAA tournament for a school to attain the applications of higher quality prospective students.

The problem that has arisen and is so prominent today is the one that revolves around the salaries of college coaches at prominent athletic colleges and universities. This study has shown that March Madness success positively affects the number of student applications, but at what price. At a big university like Kentucky, is it worth paying a coach \$4 million a year for extra applications. School pride is a large part of the college experience and athletics is a great place to find and display that pride. The fact that athletic success can act as an important recruiting tool, through success and national media, only makes it harder to assess the price tag that it is now associated with. While this study certainly can't find an appropriate price tag for college coaches, it can show that success can lead to direct benefits to the school through increased applications.

## BIBLIOGRAPHY

"CBS Corporation | CBS SPORTS' 2010 NCAA MEN'S BASKETBALL NATIONAL CHAMPIONSHIP GAME VIEWERSHIP HIGHEST IN 13 YEARS " [cited 2011]. Available from <http://www.cbcorporation.com/news-article.php?id=630>.

"Challenging the Myth: A Review of the Links among College Athletic Success, Student Quality, and Donations " [cited 2011]. Available from <http://academic.research.microsoft.com/Paper/5180308>.

"Duke Mag-Record Number Apply for Class of 2007-Mar/Apr 2003-Gazette " [cited 2011]. Available from <http://www.dukemagazine.duke.edu/dukemag/issues/030403/depgaz2.html>.

"The Impact of Elite Individual Athletic Performance on University Applicants for Admission in NCAA Division I-A Football | the Sport Journal " [cited 2011]. Available from <http://www.thesportjournal.org/article/impact-elite-individual-athletic-performance-university-applicants-admission-ncaa-division-i>.

"Interpreting SAT Scores and ACT Scores " [cited 2011]. Available from <http://www.universitylanguage.com/guides/interpreting-sat-scores-and-act-scores/>.

"NCAA Basketball Tournament Bracket and Results - databaseSports.Com " [cited 2011]. Available from <http://www.databasesports.com/ncaab/index.htm>.

"NCAA March Madness Ad Revenue Leads all Sports - Sundog " [cited 2011]. Available from <http://www.sundog.net/sunblog/posts/ncaa-march-madness-ad-revenue-leads-all-sports/>.

"NCAA Men's Basketball Tournament Nielsen TV Ratings, 1975-2009 " [cited 2011]. Available from <http://tvbythenumbers.zap2it.com/2010/04/05/will-butler-prove-a-cinderella-for-ncaa-finals-ratings-too/47430>.

"NCAA Men's Basketball Tournament TV Ad Revenue " [cited 2011]. Available from [http://www.data360.org/dsg.aspx?Data\\_Set\\_Group\\_Id=975](http://www.data360.org/dsg.aspx?Data_Set_Group_Id=975).

- "NCAA Signs New 14-Year TV Deal for DI men's Basketball - NCAA.Org " [cited 2011]. Available from [http://www.ncaa.org/wps/portal/ncaahome?WCM\\_GLOBAL\\_CONTEXT=/ncaa/N55CAA/NCAA+News/NCAA+News+Online/2010/Association-wide/NCAA+signs+new+14year+TV+deal+for+DI+mens+basketball\\_NCAANews\\_04\\_22\\_10](http://www.ncaa.org/wps/portal/ncaahome?WCM_GLOBAL_CONTEXT=/ncaa/N55CAA/NCAA+News/NCAA+News+Online/2010/Association-wide/NCAA+signs+new+14year+TV+deal+for+DI+mens+basketball_NCAANews_04_22_10).
- "Tns-March-Madness-Tv-Ratings-by-Week-2004-2007.Jpg " [cited 2011]. Available from <http://www.marketingcharts.com/television/march-madness-an-advertising-bonanza-worth-545mm-3775/tns-march-madness-tv-ratings-by-week-2004-2007jpg/>.
- Allen, Mike. "UConn Finds Rich Off-Court Gains in Basketball Power." *New York Times* (03/31 1999): 1.
- Baade, Robert A., and Victor A. Matheson. "An Economic Slam Dunk Or March Madness? Assessing the Economic Impact of the NCAA Basketball Tournament." In *Economics of College Sports*. Edited by R. Fort. Studies in Sports Economics; Westport, Conn. and London;; Greenwood, Praeger, 2004, 111-133.
- Bremmer, Dale S., and Randall G. Kesselring. "The Advertising Effect of University Athletic Success: A Reappraisal of the Evidence." In *The Economics of Sport. Volume 2*. Edited by A. Zimbalist. Elgar Reference Collection. International Library of Critical Writings in Economics, vol. 135; Cheltenham, U.K. and Northampton, Mass.;; Elgar; distributed by American International Distribution Corporation, Williston, Vt, 2001, 432-444.
- Calvello, Toni. "March Madness." In Edited by Anonymous Passaic County Community College, 2009, 184-184.
- Chressanthis, George A., and Paul W. Grimes. "Intercollegiate Sports Success and First-Year Student Enrollment Demand." *Sociology of Sport Journal* 10, no. 3 (09 1993): 286-300.
- Coughlin, Cletus C., and O. H. Erikson. "An Examination of Contributions to Support Intercollegiate Athletics." *Southern Economic Journal* 51, no. 1 (07 1984): 180-195.
- Fizel, John, and Rodney Fort eds. *Economics of College Sports*. Studies in Sports Economics; Westport, Conn. and London;; Greenwood, Praeger, 2004.
- Goidel, Robert Kirby, and John Maxwell Hamilton. "Strengthening Higher Education through Gridiron Success? Public Perceptions of the Impact of National Football Championships on Academic Quality." *Social Science Quarterly (Blackwell Publishing Limited)* 87, no. 4 (12 2006): 851-862. 56

Humphreys, Brad R., and Dennis Ramsay Howard. *The Business of Sports*. Westport, Conn.: Praeger, 2008.

McClure, James E., and Lee C. Spector. "Tournament Performance and 'Agency' Problems: An Empirical Investigation of 'March Madness.'." *Journal of Economics and Finance* 21, no. 1 (Spring 1997): 61-68.

McCormick, Robert E., and Maurice Tinsley. "Athletics and Academics: A Model of University Contributions." In *Sportometrics*. Edited by R. D. Tollison. Texas A&M University Economics Series, no. 11; College Station; Texas A&M University Press, 1990, 193-204.

"Athletics Versus Academics? Evidence from SAT Scores." *The Journal of Political Economy* 95, no. 5 (Oct. 1987): 1103-1116.

Mixon, F. G., J., L. J. Trevino, and T. C. Minto. "Touchdowns and Test Scores: Exploring the Relationship between Athletics and Academics." *Applied Economics Letters* 11, no. 7 (06 2004): 421-424.

Mixon, Franklin G. "Athletics Versus Academics? Rejoining the Evidence from.." *Education Economics* 3, no. 3 (12 1995): 277.

Mixon, Franklin G., Jr., and Rand W. Ressler. "An Empirical Note on the Impact of College Athletics on Tuition Revenues." *Applied Economics Letters* 2, no. 10 (10 1995): 383-387.  
Murphy, Robert G., and Gregory A. Trandel. "The Relation between a University's Football Record and the Size of its Applicant Pool." *Economics of Education Review* 13, no. 3 (09 1994): 265-270.

Neville, Susan S. *Butler's Big Dance: The Team, the Tournament, and Basketball Fever*. Indiana University Press, 2010.

Pope, Devin G., and Jaren C. Pope. "The Impact of College Sports Success on the Quantity and Quality of Student Applications." *Southern Economic Journal* 75, no. 3 (01 2009): 750-780.

Shulman, James Lawrence, and William G. Bowen. *The Game of Life : College Sports and Educational Values*. Princeton, N.J.: Princeton University Press, 2001.

Smith, D. R. "Big-Time College Basketball and the Advertising Effect: Does Success really Matter?" *Journal of Sports Economics* 9, no. 4 (08 2008): 387-406.

Southall, Richard M., Mark S. Nagel, John M. Amis, and Crystal Southall. "A Method to March Madness? Institutional Logics and the 2006 National Collegiate Athletic Association Division Men's Basketball Tournament." *Journal of Sport Management* 22, no. 6 (11 2008): 677-700.

Sylwester, MaryJo, and Tom Witosky. "Athletic Spending Grows as Academic Funds Dry Up." *USA Today* (.).

Tucker, Irvin B., and L. T. Amato. "A Reinvestigation of the Relationship between Big-Time Basketball Success and Average SAT Scores." *Journal of Sports Economics* 7, no. 4 (11 2006): 428-440.

Zimbalist, Andrew S. *Unpaid Professionals : Commercialism and Conflict in Big- Time College Sports*. Princeton, N.J.: Princeton University Press, 1999.