

The Effects of Intercollegiate Athletic Success and Spending on Academic Environment  
and Charitable Giving at Institutions of Higher Education

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**Abstract**

The purpose of this synthesis is to discuss the impact of intercollegiate athletic success on institutions of higher education. Specifically, the aim was to gain a better understanding of how commitment to athletics affects institutions of higher education relative to quantity and quality of student applications received, institution ranking, graduation rates and retention, and monetary donations made to educational/general funds and to athletic departments. The studies encompassing the critical mass showed that institutions supporting NCAA Division I-A football and men's basketball programs that routinely participate in high-profile postseason athletic events are often rewarded with increases in quantity and quality of student applications received and institution ranking. It remains unclear how athletic success in other sports and at lower NCAA levels impacts these variables. Charitable giving to major athletic programs at Division I-A institutions appears to be positively impacted by sports success. However, giving to non-athletic programs and departments at the same schools may suffer as a result. In contrast, athletic success at lower NCAA levels appears to have a positive effect on giving to both athletic and educational programs.

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## **Introduction**

Nearly 30 years ago, Boston College quarterback Doug Flutie flung a Hail Mary pass that jumpstarted a debate about how – and to what extent – intercollegiate athletics impacts and supports the welfare and missions of academic institutions. Before a sold-out Orange Bowl Stadium and with millions others watching on national television, Flutie completed a long pass that beat the dominant Miami Hurricanes and vaulted Boston College into national consciousness. From coast to coast, media outlets latched onto the story, and the Flutie pass was broadcast and re-broadcast frequently over the ensuing months (Frank, 2004). The first recorded use of the term “Flutie factor” came in a *Washington Post* article on November 29, 1984, days after the memorable victory that provided Boston College widespread national exposure. As a result of that exposure, various media reports cited significant and contrasting student application increases at Boston College in the succeeding years (McDonald, 2003). Before this incident and especially since, issues related to how athletic success impacts institutions of higher education variables has been a topic of study. The following sections used to introduce

this synthesis of literature to examine the impact of intercollegiate athletics on universities include: spending, nature of synthesis, definitions and a summary.

### **Spending**

The example of Flutie and Boston College supports the notion that high-profile athletics programs serve as the “front porch” of institutions of higher education (Toma & Kramer, 2010). In this sense, intercollegiate athletics is viewed as a chief vehicle to gain extensive publicity that advertises and promotes institutions of higher education in a way academic and other extracurricular programs could not possibly achieve. Humphreys and Mondello (2007) write that successful teams generally make more television appearances and more high-profile postseason appearances, and increases in athletic spending on recruiting, coaching, and facilities are thought to contribute to on-field success.

Supporting that theory, institutions of higher education are spending more on athletic programs than ever and with the aim of achieving the type of sports success that greatly effects their visibility and marketing reach. High profile universities and those at the NCAA Division II and Division III levels spend millions of dollars on athletic coaches, facility upgrades, recruiting and travel with the hopes of receiving healthy returns on their athletic investments. However, USA Today reported that only 22 of 227 major college athletic departments generated enough money to pay for athletics in 2011, marking the fourth time in five years major college athletic departments have added more to their annual operating expenses than to their revenues (Upton & Berkowitz, 2012). It also should be noted that those 227 athletic departments increased their expenditures by \$267 million combined from 2010 to 2011 (Upton & Berkowitz, 2012).

In a survey of over 1,000 higher education-level presidents, three-quarters believed that “college and universities ‘spend way too much money’ on intercollegiate athletic programs” (Green, Jaschik & Lederman, 2012, p. 15). So what entices institutions to continue to make such investments on athletics when financial returns are minimal in most cases? Institutions prescribe to the theory of social exchange, which accounts for the ways resources and rewards are exchanged beyond an economic level (Greenwell, Mahony & Andrews, 2007). In the realm of athletics, prominence and prestige can build national promotion, advertising and curb appeal for colleges and universities, which, in turn, is believed to provide various benefits to institutions of higher education. Such benefits may include: 1) academic and athletic donations made to the institution, 2) national and regional prestige and recognition, 3) changes in perceptions that boost an institution’s academic ranking, 4) pride and morale among alumni, current students, faculty, staff, local community and fan base and 5) enhanced visibility to the general public that extends marketing reach to various constituents and leads to increases in student application quality and quantity, among other gains.

With gigantic expenditures on athletic programs, resistance has come from those who believe athletics fail to align with the academic missions of institutions of higher education. The Knight Commission on Intercollegiate Athletics noted in a recent report that athletics spending increased at twice the rate of academic spending from 2005 to 2008 at nearly 103 schools that supported major college football. Spending per athlete grew by 50% during that time while spending per student only increased by 22%. In response to these figures, members of the Knight Commission recommended that NCAA schools set aside at least 20% of the robust postseason money received from the football Bowl Championship Series for academic use instead of being used to make further investments

in athletic teams (Knight Commission, 2010). Various studies have been conducted in recent years with aims of proving or disproving the idea that athletics provides tangible benefits to higher education.

### **Nature of the Synthesis**

The purpose of this paper is to synthesize the content and results of current studies to develop new conclusions and discussion that advance the way institutional and athletic leaders approach and value athletics, and also to provide insight into whether the millions of dollars invested in hopes of building athletic prominence bring worthy and significant returns to institutions of higher education. Among the most prominently researched effects of intercollegiate athletics commitment on their institutions include the depth and quality of student applications received and monetary donations made to both athletics and academic programs. The following synthesis focuses on those specific potential benefits and analyzes how they may be impacted by athletic success and spending. Additionally, results of relevant studies allow for comparisons to be made, such as donations to academic/general funds versus donations to athletics and donations made at NCAA Division I-A schools versus those made at non-NCAA Division I-A schools. Finally, different levels of athletic prominence and success are defined for differing sports (ranking in national football polls versus bowl game appearances, for example), leading to further conclusions of effects on institutions.

### **Operational Definitions**

***Athletic Prestige.*** An individual's subjective opinions regarding the status of an institution's athletic programs (Porter, Hartman & Johnson, 2011).

**Athletic Success.** Defined by various measurements, including: won-lost records, winning percentages, levels of improvement, Associated Press top 20 college football and men's basketball poll ranking, college football bowl game appearances, NCAA basketball tournament appearances, NCAA basketball tournament advancement, NCAA Director's Cup Standings and all-sports overall conference standings.

**Donations.** Charitable gifts (measured in U.S. dollars) from alumni or others given to an institution's general fund, academic programs and/or athletic programs.

**Student Quality.** Measured by the SAT or ACT scores of applications or enrollees at an institution of higher education in a given year(s).

**Student Quantity.** Measured by the amount of applications or enrollee at an institution of higher education in a given year(s).

## **Summary**

Colleges and universities invest millions of dollars in high-profile athletic teams and programs with the hopes of reaping rewards that extend beyond financial gains. The previous introductory section reveals the various effects athletics may have on sponsoring institutions of higher education. The following sections include inclusion methods used for the critical research mass, synthesized findings from relevant studies, as well as a subsequent discussion that offers conclusions, implications and recommendations for future research related to the impact of intercollegiate athletics on institutions.

## **Methods**

The research for this synthesis project focused on studies that examined the effect of intercollegiate athletic performance and investments on the overall well-being of sponsoring institutions of higher education. Specifically, research was conducted with the aim of uncovering studies that analyzed sport's effect on the quality and quantity of student applications to institution, graduation rates and retention, institutional ranking, monetary donations to athletics, as well as to academic programs and to the institutions' general fund.

The 26 studies analyzed in this synthesis were selected based on two criteria. First, only studies published from 2000 to the present date were selected. The purpose of this condition was to limit the analyzed results to those that provide relevance and insight to the present state of intercollegiate athletics and their effect on higher education. The second condition was to limit selected studies to those that examine intercollegiate athletics at all levels of the NCAA and their impact on: 1) academic, athletic and general donations and 2) academic environment related to student applications received and incoming students, graduation rates and retention and institutional ranking.

The databases used in the collection of data included: Academic Search Complete, Business Source Complete, Education Research Complete, ERIC (EBSCO), SPORTDiscus and SUNY Science Direct Titles. These databases were selected because of their depth of studies related to academics, athletics and the business of athletics and higher education. The keywords used to narrow the focus of the search included: alumni giving, athletic performance, college applications, college enrollment, donations, donors, Flutie effect, higher education, institutional ranking, intercollegiate athletics, SAT scores and sports success. The use of these keywords in various combinations led to search results that varied from as many as a nine or 10 relevant articles to as few as one or two.

The 26 articles are organized in the results section under five main categories, a few of which have overlapping characteristics: 1) student application quantity, 2) student application quality, 3) institution academic rankings, 4) student graduation rates and retention and 5) charitable donations. The analysis of the research shows a disparity of results among the main categories and presents conclusions and implications that outline the value of intercollegiate athletics to their sponsoring institutions.

## **Results**

Twenty-six research studies were synthesized to study the effects of intercollegiate athletics on student admissions, institution academic rankings, graduation and retention rates, and charitable donations received by institutions of higher education. The studies are comprised of recent research that examines the impact of intercollegiate athletic performance and athletic spending on five variables, including: 1) student application quantity, 2) student application quality, 3) institution academic rankings, 4) student graduation rates and retention and 5) charitable donations. Three summary tables of results can be seen on pages 15-17.

### **Student Quantity**

The effect of intercollegiate athletics on the quantity of enrolling students, student applications and SAT scores received at institutions of higher education has been found to be influenced differently depending on types of sports success and expenditures. The following is divided into sections that present findings based on seven independent variables: 1) football and men's basketball winning percentage and improvement, 2) winning percentage and improvement in other sports 3) football poll ranking, 4) NCAA

Tournament men's basketball success, 5) football and men's basketball championship seasons, 6) elite individual athletic performance and 7) athletic spending.

*Football and Men's Basketball Winning Percentage/Improvement.* Athletic success measured by football and men's basketball winning percentage, team record and year-to-year improvement appears to positively impact quantity of student applications received at institutions of higher education, as well as rate of enrolling students at those schools. McEvoy (2005) found that improved football winning percentage had a significant positive effect on rate of applications for 62 schools from the six major NCAA Division I-A conferences. Those institutions that improved their conference winning percentage by .250 saw a 6.1% increase in received applications the following year. When winning percentage did not change, those schools saw a 2.5% increase. When winning percentage declined by .250, those schools received 0.4% less applications (McEvoy, 2005). Similarly, in an examination of 23 California State University schools that supported sports at various NCAA levels, Perez (2012) reported that improvement in football and men's basketball led more high schools students to enroll at nearby universities. One football victory increased enrollment by .051 percentage points, while one basketball win increased enrollment by .018 percentage points (Perez, 2012). In contrast to those two studies, football and men's basketball winning percentages was not found to have a significant effect on enrollment figures of 14 NCAA Division II schools (Castle & Kostelnik, 2011).

*Winning Percentage/Improvement in Other Sports.* Two studies have focused on the overall success of all sports at institutions of higher education, resulting in contrasting

**TABLE 1 – The effects of NCAA Division I-A football and men’s basketball performance on student quantity, student quality, institution ranking and graduation rates/retention:**

	<b>Student Quantity</b> <i>10 Positive 3 Negative</i>	<b>Student Quality</b> <i>8 Positive 2 No Effect 1 Inconclusive</i>	<b>Institution Rank</b> <i>3 Positive 1 No Effect</i>	<b>Grad Rates/Retention</b> <i>3 Positive 2 No Effect 1 Negative Effect</i>
<b>Poll ranking</b>	<b><u>Positive Effect (3)</u></b> Pope & Pope (2012); Pope & Pope (2009); McEvoy (2005)  <b><u>No Effect (2)</u></b> Cox & Roden (2010) Cox & Roden (2010)	<b><u>Positive Effect (2)</u></b> Pope & Pope (2009); Tucker (2005)  <b><u>No Effect (2)</u></b> Cox & Roden (2010) Tucker & Amato (2006)	<b><u>Positive Effect (1)</u></b> Mulholland, Tomic & Sholander (2010)  <b><u>No Effect (1)</u></b> Cox & Roden (2010)	<b><u>No Effect (1)</u></b> Cox & Roden (2010)
<b>Football Bowl Appearances and Basketball NCAA Tournament Appearances/Advancement</b>	<b><u>Positive Effect (2)</u></b> Pope & Pope (2012); Pope & Pope (2009)	<b><u>Positive Effect (2)</u></b> Pope & Pope (2009); Tucker (2005)  <b><u>Inconclusive (1)</u></b> Tucker & Amato (2006)		
<b>Championships</b>	<b><u>Positive Effect (2)</u></b> Cox & Roden (2010) Cox & Roden (2010)	<b><u>Positive Effect (2)</u></b> Cox & Roden (2010) Cox & Roden (2010)	<b><u>Positive Effect (2)</u></b> Cox & Roden (2010) Cox & Roden (2010)	<b><u>Positive Effect (2)</u></b> Cox & Roden (2010) Cox & Roden (2010)
<b>Record, win pct., improvement</b>	<b><u>Positive Effect (3)</u></b> McEvoy (2006) Perez (2012) Perez (2012)  <b><u>No effect (1)</u></b> McEvoy (2005)	<b><u>Positive Effect (2)</u></b> Mixon, Trevino & Minto (2004); Tucker (2005)		<b><u>Positive Effect (1)</u></b> Mixon & Trevino (2005)  <b><u>No Effect (1)</u></b> Mangold, Bean & Adams (2003)  <b><u>Negative Effect</u></b> Mangold, Bean & Adams (2003)

findings. Castle & Kostelnik (2011) found that a significant correlation existed between combined winning percentage of all teams at Division II schools and rate of enrolling freshmen, but found no relationship between position in NCAA Director's Cup standings, which tabulates team records of all sports, and freshman enrollment pool. Similarly, Perez (2012) reported that the improvement in the NCAA Director's Cup standings failed to have a significant positive effect on rate of enrollment of local high school graduates in California. Interestingly, Castle and Kostelnik (2011) reported that the winning percentage of all women's sports had a greater effect on number of enrolling freshmen than men's sports. Specifically, women's cross country was found to be the only sport encompassing both genders that had a significant positive effect on number of incoming freshmen students. Women's sports success was found to have less impact at the Division I level, where Pope and Pope (2012) discovered that success in women's basketball had no effect on the rate of SAT scores sent by females to institutions of higher education.

*Football Poll Ranking.* Two studies that examined football poll ranking as a measure of success revealed positive effects for institutions. In an analysis of data of 332 Division I schools, Pope and Pope (2009) reported that when football teams finished a season in the top 20 of the Associated Press poll, institutions saw an average increase of 3.4% percent in student applications received the same year and a 2.5% increase the following year. The rate of applications increased by 4.4% and 3% the same year and the following year, respectively, after teams finished the season in the top 10. In a similar analysis of 332 Division I schools, those that supported teams that finished among the top 20 in the Associated Press poll were found to receive 2% to 12% more SAT scores from interested students (Pope & Pope, 2012).

**TABLE 2 – The effects of NCAA Division I football success on student Quantity, student Quality, institution ranking and graduation rates/retention**

	<b>Student Quantity</b> <i>6 Positive 1 No Effect</i>	<b>Student Quality</b> <i>6 Positive 1 No Effect</i>	<b>Institution Ranking</b> <i>2 Positive 1 No Effect</i>	<b>Grad Rates/Retention</b> <i>2 Positive 2 No Effect</i>
<b>Football poll ranking</b>	<b><u>Positive Effect (3)</u></b> Pope & Pope (2012); Pope & Pope (2009); McEvoy (2005)  <b><u>No Effect (1)</u></b> Cox & Roden (2010)	<b><u>Positive Effect (2)</u></b> Pope & Pope (2009); Tucker (2005)  <b><u>No Effect (1)</u></b> Cox & Roden (2010)	<b><u>Positive Effect (1)</u></b> Mulholland, Tomic & Sholander (2010)  <b><u>No Effect (1)</u></b> Cox & Roden (2010)	<b><u>No Effect (1)</u></b> Cox & Roden (2010)
<b>Football bowl appearances</b>		<b><u>Positive Effect (1)</u></b> Tucker (2005)		
<b>Football championships</b>	<b><u>Positive Effect (1)</u></b> Cox & Roden (2010)	<b><u>Positive Effect (1)</u></b> Cox & Roden (2010)	<b><u>Positive Effect (1)</u></b> Cox & Roden (2010)	<b><u>Positive Effect (1)</u></b> Cox & Roden (2010)
<b>Football record, win pct., improvement</b>	<b><u>Positive Effect (2)</u></b> McEvoy (2006) Perez (2012)	<b><u>Positive Effect (2)</u></b> Mixon, Trevino & Minto (2004); Tucker (2005)		<b><u>Positive Effect (1)</u></b> Mixon & Trevino (2005)  <b><u>No Effect (1)</u></b> Mangold, Bean & Adams (2003)

**TABLE 3 – The effects of NCAA Division I men’s basketball success on student quantity, student quality, institution ranking and grad rates/retention:**

	<b>Student Quantity</b> <i>4 Positive 1 Negative</i>	<b>Student Quality</b> <i>2 Positive 1 No Effect 1 Inconclusive</i>	<b>Institution Ranking</b> <i>1 Positive</i>	<b>Grad Rates/Retention</b> <i>1 Positive 1 Negative Effect</i>
<b>Basketball poll ranking</b>		<b>No Effect (1)</b> Tucker & Amato (2006)		
<b>Basketball NCAA Tournament Appearances and Advancement</b>	<b>Positive Effect (2)</b> Pope & Pope (2012); Pope & Pope (2009)	<b>Positive Effect (1)</b> Pope & Pope (2009)  <b>Inconclusive (1)</b> Tucker & Amato (2006)		
<b>Basketball championships</b>	<b>Positive Effect (1)</b> Cox & Roden (2010)	<b>Positive Effect (1)</b> Cox & Roden (2010)	<b>Positive Effect (1)</b> Cox & Roden (2010)	<b>Positive Effect (1)</b> Cox & Roden (2010)
<b>Basketball record, win pct., improvement</b>	<b>Positive Effect (1)</b> Perez (2012)  <b>No effect (1)</b> McEvoy (2005)			<b>Negative Effect</b> Mangold, Bean & Adams (2003)

*Football and Men's Basketball Championships Seasons.* After winning a national championship in football or men's basketball, Division I-A schools saw 10.1% rise in applications received the same year of the championship and a 7-8% increase the following year (Pope & Pope, 2009).

*Men's Basketball NCAA Division I Tournament Success.* Much like poll ranking and championship seasons, men's basketball NCAA Tournament appearances and advancement has been found to result in positive effects for schools. Pope and Pope (2009) reported that when an institution's men's basketball team advanced to the NCAA Tournament, the rate of student applications received increased by an average of 1% the following year. Schools saw a 3% increase after teams advanced to the final 16 of the tournament, a 4-5% increase after teams made it to the Final Four and a 7-8% increase after teams won a national championship (Pope & Pope, 2009). Likewise, Pope & Pope (2012) reported that when teams were invited to the NCAA Tournament, the sponsoring institutions saw average increases of 2% to 10% in received SAT scores from interested students.

*Elite Individual Performance.* McEvoy (2006) found that institutions with a Heisman Trophy top five finisher from 1988 to 2002 saw a 6.59% increase in student applications. Institutions that had similar football team success as those possessing a Heisman Trophy finalist, but did not have a Heisman Trophy finalist, saw a 3.33% in applications over the same period.

*Athletic Spending.* A study commissioned by the NCAA that examined several empirical effects of college athletics found that increased spending on intercollegiate athletics was not associated with increased number of student applications received by

institutions (Litan, Orszag & Orszag, 2003). Two subsequent studies commissioned by the NCAA also found no relationship between increased athletic expenditures and increased applications (Orszag & Orszag, 2005; Orszag & Israel, 2009). An independent study by Stinson, Marquardt and Chandley (2012) also found that investments in athletics had no significant influence on undergraduate application rates. Three of the studies that examined the effect of athletic spending on quantity of student applications also analyzed the effect of spending on the quality of applications received (Litan et. al, 2003; Orszag & Orszag, 2005; Orszag & Israel, 2009). Quality and quantity of student applicants related to athletics have been closely tied together in research, which will be evident in the following section.

### **Student Quality**

Evidence suggests that increases in quantity of student applications and SAT scores sent to institutions resulting from athletic success, allows institutions to enhance the quality of their student bodies (Pope & Pope, 2009; Tucker 2005). Consistent with a greater number of students applying to schools after they win football championships, Cox and Roden (2010) reported a decline in acceptance rate of 3.6% was found in those cases. Likewise, after schools won basketball championships, acceptance rates at those institutions declined by 3.62% (Cox & Roden, 2010). Finally, Pope and Pope (2012) reported that a Final Four appearance in men's basketball or a top 10 AP poll football rankings was equal to the positive effect found on the quality and quantity of student applications when a school's *U.S. News & World Report* ranking improves by half (e.g., 20<sup>th</sup> to 10<sup>th</sup> or 8<sup>th</sup> to 4<sup>th</sup>). Similar to the preceding section on student quantity, the following is divided under headings that present findings based on seven independent

variables: 1) football winning percentage/improvement, 2) winning percentage and improvement in other sports 3) football and men's basketball poll ranking, 4) football bowl game appearances, 5) NCAA Tournament men's basketball success, 6) football and men's basketball championship seasons and 7) athletic spending.

*Football Winning Percentage/Improvement.* Three studies showed that football winning percentage positively impacted quality of student applications for institutions. In a study that focused on 78 NCAA Division I-A schools, an increase in winning percentage for a 5-year period was found to increase the SAT scores of student applications sent to those institutions by 14 points (Tucker, 2005). In a similar examination of 68 Division schools, Mixon, Trevino and Minto (2004) concluded that increasing the percentage of faculty whom possess PhD degrees at an institution of higher education did not have a significantly greater impact on quality of applicants than improving football winning percentage. At NCAA Division II schools, Castle and Kostelnik (2011) reported that football success was found to have the greatest effect of all sports at 14 institutions, though the correlation between football winning percentage and student quality was not significant.

*Winning Percentage/Improvement in Other Sports.* In an evaluation of Division II institutions, a significant correlation was found between a school's position in the NCAA Director's Cup standings and student quality. No correlation, however, was seen in relation to all other measures of success (e.g. total win percentage of all teams, total win percentage of men's teams, total win percentage of women's teams and overall conference standings) and average SAT score. The average winning percentage of men's sports had a higher correlation than average winning percentage of women's sports in

relationship to quality of enrolled students, though neither correlation was significant (Castle & Kostelnik, 2011).

*Football and Men's Basketball Poll Ranking.* Of four evaluations, only one revealed positive effects on student quality relative to poll ranking in football and men's basketball. Tucker (2005) reported that an additional appearance in the Associated Press top 20 football poll was found to increase SAT scores of applicants by more than 12 points. Cox and Roden (2010), however, found that improved ranking in the Sagarin USA Today top 20 football national poll failed to have a significant impact on quality of student applications. In men's basketball, neither additional appearances in the Associated Press top 20 poll (Tucker & Amato, 2006) nor improved ranking in the poll (Cox & Roden, 2010) were found to significantly impact student quality.

*Football and Men's Basketball Championships Seasons.* Cox and Roden reported that football and men's basketball championships strongly impacted student application quality. During a four-year span – two years before teams won national championships and two years after – the SAT scores of student applications received by title-winning football schools improve by an average of 26.5 points over those four years. Over the same time period in men's basketball, the average SAT scores of student applicants increased by an average of 19.7 points following a championship (Cox & Roden, 2010).

*Football Bowl Game Appearances.* Tucker revealed that an extra bowl appearance over a 5-year period found was found to increase SAT scores of applicants by more than 12 points (Tucker, 2005).

*Men's Basketball NCAA Division I Tournament Success.* Two studies that examined NCAA Tournament success reported similar, yet differing results. Pope and

Pope (2009) discovered that men's basketball teams that made more appearances and advanced deeper in the NCAA Tournament helped institutions receive 1% to 4% more applications from students who scored above 600 on both the SAT verbal and math portions. For the years 1993-97, Tucker and Amato (2006) found that each additional NCAA Tournament game played one year before students applied to college increased the average SAT scores of those students by 7.45 points, while an additional tournament game played over a 2-year period raised average SAT scores by 4.60 points. In the same analysis, however, it was revealed that the number of NCAA Tournament games played had no effect on SAT scores for the period 1998-2002 (Tucker & Amato, 2006).

*Athletic Spending.* Much like the rate of student applications received by institutions, the quality of student applications has not been found to be influenced by investments made in intercollegiate athletic programs. A study commissioned by the NCAA that examined several empirical effects of college athletics found that increased spending on intercollegiate athletics was not associated with increased average SAT scores of student applicants received by institutions (Litan, Orszag & Orszag, 2003). Two subsequent studies commissioned by the NCAA also found no relationship between increased athletic expenditures and SAT scores (Orszag & Orszag, 2005; Orszag & Israel, 2009).

### **Institution Ranking**

While many studies that have examined the impact of intercollegiate athletics on the rate and quality of student applicants and enrollees to institutions of higher education have been conducted in recent years, little research has been done relating to the effect of athletics on an institution's academic ranking. However, in a study that also analyzed the

relationship between athletic success and student application quality and quantity, Cox and Roden (2010) found that winning an NCAA men's basketball championship increased a school's *U.S. News & World Report* ranking by 7.47 spots on average, while a football championship led to a rise of 6.87 spots on average. However, it was revealed that improvement in the Saragin USA Today top 20 football rankings did not have a significant effect on the *U.S. News* rankings of institutions (Cox & Roden, 2010). Contrasting that finding, Mulholland, Tomic and Sholander (2010) reported a positive effect of football ranking on peer assessment scores that help determine *U.S. News & World Report* rankings for schools. Using number of votes received in the Associated Press poll and USA Today Coaches' poll as a measure of season-long success, a one standard deviation increase (316 votes) in the number of votes received in the AP poll was found to have the same effect on peer assessment score as a 42-point increase in SAT score for institutions at the 75th percentile. In the coaches' poll, 282 more votes was found to have the same effect on peer assessment for a school as a 42-point SAT increase at the 75th percentile (Mulholland et. al, 2010).

### **Graduation Rates and Retention**

Much like academic rankings, a limited number of studies have analyzed the effect of athletics on student graduation rates and retention at institutions of higher education. Similar to their findings related to the *U.S. News & World Report* rankings, Cox and Roden (2010) revealed that football and men's basketball championships had a positive effect on both freshman retention rates and graduation rates. It was found that retention rates increased by .97% and graduation rates by 3.43% from two years preceding a football championship to two years following the championship. Using the

same time span for basketball championships, it was found that retention rates improved by 1.23% and graduation rates by 3% (Cox & Roden, 2010). However, improved football ranking was found to have no effect on freshman retention or graduation rates (Cox & Roden, 2010).

Interestingly, a similar analysis conducted by Mangold, Bean & Adams (2003) found that the number of championships won by all athletic teams and programs at 97 major NCAA Division I-A institutions from 1990-99 actually led to lower graduation rates at those schools. The association between football success (measured by number of wins, poll ranking and bowl appearances, and graduation rates) had a positive effect on graduation rates, yet failed to reach statistical significance. However, men's basketball success (measured by poll ranking, NCAA Tournament appearances and NCAA Tournament regional appearances) was found to have a negative impact on graduation rates (Mangold et. al, 2003). Incongruent to the findings of Mangold et. al (2003), Stinson et. al (2012) reported that for every dollar 124 NCAA Division I-A schools invested in athletics led to a .165% increase in graduation rates at those schools. Interestingly, the study revealed that no other areas of core institutional investments had significant effects on graduation rates (Stinson et. al, 2012).

### **Charitable Donations**

The relationship between athletic success and donations made to both non-athletic programs and athletic programs at institutions of higher education has been found to vary based on conditions, such as level of NCAA membership and donor characteristics. The following sections are divided into three sections according to those conditions: 1)

NCAA Division I-A findings, 2) Lower NCAA level findings and 3) findings encompassing donations made by former student-athletes and non-student-athletes.

*NCAA Division I-A.* Of three studies that evaluated athletic donations compared to academic donations in the aftermath of NCAA Division I-A sports success, each found evidence that suggests athletic success increases donations to athletics at a greater rate than donations to other programs at those schools. A study by Humphreys and Mondello (2007) that analyzed the impact of football bowl game and men's basketball NCAA Tournament appearances on 320 Division I schools, revealed that athletic success increased restricted giving to athletics but failed to enhance unrestricted giving to all institutions the following year. In evaluating athletic donation gains, it was found that bowl game appearances and NCAA Tournament appearances were associated with significant increases in athletic giving at public institutions, whereas only postseason basketball appearances were associated with athletic giving at private schools. At public schools, on average, bowl game appearances led to a 12% increase in athletic giving, while NCAA Tournament appearances led to an 8.5% increase. Private schools, meanwhile, saw a 9.8% increase in athletic donations following an NCAA Tournament appearance (Humphreys & Mondello, 2007). A similar study conducted by Stinson and Howard (2007) that took into account only football success related to donations at all NCAA Division I-A football institutions revealed that an increasing percentage of total donated dollars were being directed to athletics at all schools. Likewise, in a study of donors who made donations of \$1,000 or more to a public university with high-profile and successful NCAA Division I-A athletic programs, Stinson and Howard (2004) reported that football tradition and winning percentage were both found to have a

significant effect on athletic donations. However, tradition, winning percentage, team record and bowl game appearances each had no influence on academic giving.

Illustrating this dynamic, the average alumni donation targeted for athletics jumped from 40.4% in 1994 to 56.7% in 2002, whereas the percentage of alumni making an academic gift fell from 73.2% to 61.3% (Stinson & Howard, 2004). Similarly, Stinson and Howard (2004) reported that the average academic gift made by non-alumni decreased by \$671.35 since 1994, while the average non-alumni gift to athletics increased by \$962.88.

Other researchers have chosen to focus solely on giving to academic programs or athletic programs, instead of making comparisons between the two. In an evaluation of 87 institutions that fielded both Division I football and men's basketball programs, Rhoads and Gerking (2000) reported that bowl game victories had a positive effect on voluntary educational contributions to those schools by both alumni and total donors. Total contributions increased by 7.3% or \$35.55 per student when an institution's football team won one bowl game. However, year-to-success was not found to impact levels of giving by non-alumni only. Among alumni, NCAA Tournament men's basketball success also did not impact donations significantly. Interestingly, football probation caused total donations to increase, though not significantly. In contrast, alumni contributions decreased by 13.6 percent (\$66.23) per student when basketball teams were placed on NCAA probation (Rhoads & Gerking, 2000). In an examination of the effect of athletic tradition, which was measured by the extent of participation in bowl games and NCAA Tournament games prior to 1985, Rhoads and Gerking (2000) found a weak, but positive impact on voluntary support from both alumni and non-alumni. While Rhoads and Gerking (2000) reported that football success, when measured by bowl game wins, had a

significant effect on educational donations, Cohen, Whisenant and Walsh (2011) found no relationship between football winning percentage and donations made to the athletic departments in an evaluation of prestigious football schools. The winning percentage of successful programs failed to have a significant effect on total contributions, average contribution, number of donors and number of contributions. Interestingly, the only relationship Cohen et. al (2011) found was a negative one between winning percentage and average contribution.

Evidence to conclude that increased spending on intercollegiate athletics has an impact on alumni giving is limited. In an examination of 124 Division I-A football schools, Stinson et. al (2012) reported that every dollar spent on athletics led to \$0.24 in total gift revenues for those institutions. In three similar studies of Division I-A schools commissioned by the NCAA, however, there was no evidence found to show increased spending increased alumni giving to athletics (Litan, Orszag & Orszag, 2003; Orszag & Orszag, 2005; Orszag & Israel, 2009), though Orszag and Israel (2009) revealed a statistically significant relationship between changes in athletic spending and alumni giving to athletics in the same year in an examination of data from 2004-07.

*Lower NCAA Levels.* Studies that have analyzed giving to institutions at lower levels of the NCAA, revealed differing results compared to those that examined giving at NCAA Division I-A schools. In a study that analyzed the impact of athletic performance on donations made to academic programs made at 208 lesser known Division I-AA and Division I-AAA (no football) institutions, Stinson and Howard (2008) reported evidence of a symbiotic effect of football and men's basketball success on donations to academics and athletics that enhanced support for both. At I-AA institutions, athletic performance

was found to influence total giving, educational giving and athletic giving, and had a direct impact on academic support. Significant effects reported at I-AA schools included: 1) A men's basketball NCAA Tournament appearance led to a \$400 increase in average total gift, 900 more total donors, a \$0.98 increase in giving to athletics and a \$400 average increase in giving to educational programs; and 2) An NCAA football playoff appearance led to a 10% increase in total number of donors and a \$12.47 (over 30%) increase in giving to athletics. Though no significance was found between Division I-AAA athletic success and donations, an evaluation of I-AAA and I-AA together revealed an \$18 (50%) increase in athletic giving and 658 more total donors. Similarly, an improvement of one spot in the Associated Press top 20 basketball poll brought 85 more total donors for I-AAA and I-AA schools (Stinson & Howard, 2008).

Daughtrey and Stotlar (2000) and Turner, Meserve and Bowen (2001) also conducted studies that included non-NCAA Division I-A institutions, and both reported results similar to Stinson and Howard (2008). In a study of Division I-AA, II and III football champions from 1987 to 1997, Daughtrey and Stotlar (2000) found that, among all schools, donations to the university rose 10.19% during the championship season and 21.89% in the year following the championship, while donations to athletic departments increased by 10.09% during the championship year and 17.34% the year after. At championship Division I-AA institutions, university donations, total number of university donors and total number of athletic department donors increased, while total athletic department donations decreased. For Division II schools, total university donations and university donors decreased, while total athletic department donations and athletic department donors increased. At the Division III level, university and athletic department

donations and athletic department donors were found to have large increases, while total university donors only increased slightly (Daughtrey & Stotlar, 2000). Much like Daughtrey and Stotlar (2000), Turner et. al (2001) reported that football success led to significantly more general giving among alumni at Division III schools. In an analysis of 15 academically selective and private institutions across all NCAA levels, it was revealed that a football winning percentage increase of .5% lifted the general giving rate at Division III institutions by 2.5%. However, improved football winning percentage was not found to lead to more athletic giving at the same schools. Similarly, no relationship was found between football won-lost records and general or athletic giving at Division I-A and Ivy League institutions (Turner et. al, 2001).

*Student-Athlete Donations.* Studies that have examined donations made by former student-athletes have shown that they often respond positively to athletic success. Turner et. al (2001) found that improved football performance “clearly” led to more general giving by student-athletes at Ivy League and Division III schools and to more athletic giving at Division I-A and I-AA schools. No association, however, was found between football success and donations made by non-athletes to general or athletic funds at any NCAA level, even Division III (Turner et. al, 2001). In an evaluation of 18,892 male (7,228 student-athletes) and 11,930 female (3,542 student-athletes) alumni of a selective research university, Meer and Rosen (2008) reported that football and men’s basketball team records and number of conference victories had no effect on donations made by athletes or non-athletes to athletic programs. However, it was found that when a male graduate’s former team won a conference championship in any sport, his general and athletic donations both increased by an average of 7%. When a male alumnus’ team won

a conference championship during his senior, his giving to the athletic department was found to be about 8% percent higher per year, though no effect was found on general giving. General or athletic donations made by former female student-athletes, on the other hand, were not significantly impacted by football and men's basketball performance or past or current success of a female's former team (Meer & Rosen, 2008).

### **Summary of Results**

This section outlined the results of research studies that analyzed the effect of intercollegiate athletic success and spending on: 1) student application quantity, 2) student application quality, 3) institution academic rankings, 4) student graduation rates and retention and 5) charitable donations. The following section consists of a discussion that offer conclusions, implications and recommendations for future research related according to the results revealed in this section.

## **Discussion and Conclusion**

The following discussion offers implications, conclusions and suggestions for future study related to the impact of intercollegiate athletic success and spending on the quantity and quality of student applications, institution ranking, graduation and retention rates and donations made to athletic and non-athletic programs at institutions of higher education. The discussion is divided into two sections that highlight noteworthy themes that resulted from the synthesized critical mass. Those sections are: 1) Impact on Academic Environment, and 2) Impact on Donations Made to Athletic and Educational Programs. A conclusion section follows.

### **Impact on Academic Environment**

The most significant trend resulting from the synthesized findings is that major NCAA Division I intercollegiate athletic performance appears to have a clear positive effect on the overall academic environment at corresponding institutions of higher education. Results of high-profile football and men's basketball success show varying, yet notable increases in quantity and quality of student applications received and institution ranking for those universities (Cox & Roden, 2010; McEvoy, 2005; McEvoy,

2006; Mixon & Trevino, 2005; Mixon et. al, 2004; Mulholland et. al, 2010; Perez, 2012; Pope & Pope, 2009; Pope & Pope, 2012; Tucker, 2005; Tucker, 2005; Tucker & Amato, 2006). Ten studies, including 28 separate analyses, examined the impact of varying measures of football and men's basketball success on one or more the variables of quantity and quality of student applications received and institution ranking. Of the 28 evaluations, 21 resulted in positive effects on at least one of the variables. Of the other seven evaluations, six showed no effect. Another study was inconclusive.

Football and men's basketball success is measured and defined by various independent variables in each of the synthesized studies, including national poll ranking, football bowl appearances, NCAA Tournament basketball appearances and advancement, championships, and record, winning percentage and year-to-year improvement. As presented in the results section, the type of success achieved by athletic teams lead to differing levels of effect on the academic environment variables. Where the results become overwhelmingly positive for institutions of higher education is in the evaluation of the effect of independent success variables of football bowl game appearances, men's basketball NCAA Tournament appearances and advancement and championship seasons. Of the 13 examinations from five studies that used these measures of success as independent variables, all but one showed positive results (Cox & Roden, 2010; Pope & Pope, 2009; Pope & Pope, 2012; Tucker, 2005; Tucker & Amato, 2006). The other was inconclusive (Tucker & Amato, 2006), yet still revealed NCAA Tournament basketball success to have a positive effect on student application quality for first half of the 10-year period the study encompassed. Such results are not entirely surprising when taking into account that the vast majority of football bowl games and men's basketball "March

“Madness” NCAA Tournament games are televised nationally and receive great levels of coverage in the national and even international media. The most popular bowl games and the Final Four games of the NCAA Tournament draw multiple millions of viewers and are often among the most watched and reported sporting events annually in the United States, providing immeasurable degrees of visibility for participating schools.

Results are not as overwhelmingly positive for NCAA Division I-A institutions when top 20 football and basketball poll ranking is used as an independent measure of athletic success. Of seven studies and 11 separate analyses using poll ranking as an independent variable, six showed positive effects (McEvoy, 2005; Pope & Pope, 2009; Pope & Pope, 2012; Mulholland et. al, 2010; Tucker, 2005), while five showed no effect (Cox & Roden, 2010; Tucker & Amato, 2006) on one or more of the dependent variables of student application quantity, student application quality and institution ranking. These results are not entirely surprising, since poll ranking alone does not necessarily guarantee widespread national visibility. A study conducted by Cox and Roden (2010) demonstrates the dynamic effect of poll ranking compared to postseason appearances and championship seasons. In an examination of the effect of football and basketball championships on *U.S. News & World Report* ranking of colleges, it was found that winning a basketball title boosted an institution’s ranking by 7.47 spots, while a football championship led to a 6.87 average rise in the rankings (Cox & Roden, 2010). Those figures are more meaningful when taking into account that *U.S. News & World Report* rankings generally change little from year to year (Grewal, 2008). However, Cox and Roden (2010) found that improvement in football ranking had no impact on *U.S. News & World Report* rankings. Improvement in football ranking was also found to have no effect

on the quality of prospective student SAT scores received by schools, freshmen retention and graduation rates. The only positive impact resulting from poll position improvement was increased student applications received, which allowed schools to cut acceptance rates by 3.6% (Cox & Roden, 2010).

It would seem that the most effective measures of athletic success would be team records, winning percentage and/or year-to-year improvement to evaluate the effect on institutions of higher education that cannot possibly field football and men's basketball teams that are routinely among the best in the country. The synthesized results include 11 such analyses from seven studies that examined the effect of records, winning percentage and improvement on one or more of the variables of student application quantity and quality, and graduation rates and retention (none examined the impact on institution ranking). Six of the analyses (McEvoy, 2006; Mixon & Trevino, 2005; Mixon et. al, 2004; Perez, 2012; Tucker, 2005) resulted in positive effects, four revealed no effects (Castle & Kostelnik, 2001; McEvoy, 2005; Mangold et. al, 2003) and the other found a negative effect between basketball success and graduation rates (Mangold et. al, 2003). Of the six positive studies, five evaluated limited fields of major Division I schools that mostly boast football or men's basketball teams that play in football bowl games and/or NCAA Tournament basketball games on regular basis. Two of the four studies that resulted in no effects examined football and men's basketball success at Division II institutions that are seldom seen on television and gain limited media exposure. If anything, more research is needed to gain a better understanding of how winning games and improving athletic teams impacts student application quantity and quality, institution rankings and graduation rates and retention at those institutions that do not possess

football and men's basketball teams that are consistently in the public's eye. Similarly, additional research is needed to gain a better understanding of how lower-profile non-revenue sports success may impact academic variables, though the research suggests that sports that provide little to no exposure for their schools will likely have little effect on quantity and quality of student applications, institution ranking and graduation and retention rates.

The findings suggest that the greater brand awareness of universities and colleges resulting from prominent athletic teams often lead to increases in number of student applications received by institutions of higher education, allowing schools to increase academic and enrollment standards, thus further strengthening academic reputations for institutions. One can reasonably theorize that prospective students weighing their college options often become exposed to media coverage and pageantry of bowl games and NCAA Tournament "March Madness" games and chose to apply and enroll at schools where they can be closer to popular and exciting sports teams and athletes. Institutions that can achieve distinguishable and consistent football and men's basketball success may be wise to remain committed to those teams because of the rewards they bring. However, it is rare, if not impossible, for the majority of institutions that sponsor intercollegiate athletic programs at the NCAA Division I-A level to reach an elite status that will significantly impact the academic environments at those schools. Each year, only 10 teams out of 120 that are eligible nationally are invited to compete in high-profile Bowl Championship Series (BCS) football games. In men's basketball, only 68 teams out of 340 that are eligible nationally are invited to compete in the "March Madness" NCAA Tournament, and a mere four advance to most high-profile Final Four games. It also

should be noted that the traditionally prestigious athletic schools from the major athletic conferences consistently compete in these biggest and most visible football and men's basketball postseason contests.

With the current state of rapid spending on intercollegiate athletics, more cost-effective methods of boosting the quantity and quality of the student body, institution rankings and graduation rates may exist outside of athletics at institutions of higher education that cannot routinely achieve elite athletic success. These schools may be better suited investing in their academic programs, faculty and facilities before making considerable investments in sports teams that boast slim chances of attaining the kind of success that might benefit their institutions. Additionally, a number of potential dangers exist for those lesser known athletic institutions wishing to enhance their institutions through the visibility that sports success may provide. Besides the requirement of making large financial investments in athletic programs that may take away from academics, school leaders may be enticed to compromise enduring academic, institutional and athletic missions for the sake of achieving the rewards of winning.

### **Impact on Donations to Athletic and Educational Programs**

The synthesized results of studies that analyzed on donations to institutions of higher education revealed that institutions at all NCAA levels benefit from athletic success. However, a key difference was found between the direction of donations to NCAA Division I schools and to all others. Of three studies that examined the effect of Division I sports success and prominence on donations to educational programs compared to athletic programs, two found an increasing amount of donor dollars being directed to athletics, and possibly at the expense of donations to academic programs

(Stinson & Howard, 2004; Stinson & Howard, 2007). Similarly, the other study revealed that football and men's basketball success increased monetary gifts to athletics but failed to have an effect on giving to educational programs (Humphreys & Mondello, 2007). In three evaluations of donations to institutions at lower levels of the NCAA, sports success often played a greater role in increasing donations to non-athletic programs at universities (Daughtrey & Stotlar, 2000; Stinson & Howard, 2008; Turner et. al, 2001).

The findings of Mahony, Gladden and Funk (2003) are important to note when evaluating donations made to athletic programs compared to non-athletic programs. In a survey study of athletic donors who gave monetary gifts to Division I-A schools, it was revealed that a chief motivation behind making donations to athletic departments was to obtain priority seating at high-profile sports contests (Mahony et. al, 2003). Likewise, donations to athletics at the Division I-A level are also often rewarded with priority parking at athletic contests, invitations to special events and personal access to popular teams, players, coaches and other athletic department personnel, among other perks. Donations made to athletics at lower levels of the NCAA and to academic programs at all institutions, on the other hand, are customarily not met with the same degree of tangible benefits for donors. Therein lays the potential danger for institutions wishing to invest in building major athletic programs. While the success and popularity of sports programs may enhance academic environments and increase donations to athletic programs, it may also diminish monetary gifts and support for educational and general programs.

## **Conclusion**

The critical mass used in this synthesis implies that intercollegiate athletic success has a positive impact on the academic environment for institutions of higher education

related to quantity and quality of student applications received and institution ranking. However, the positive effects are mostly limited to those institutions that support elite NCAA Division I-A football and men's basketball teams that consistently gain widespread exposure via national television and other media coverage. The critical mass also suggests that high-achieving Division I-A programs have a strong positive impact on donations to athletics that may come at the expense of donations gifted toward educational and general funds at the those institutions. In contrast, athletic success at lower levels of the NCAA appears to positively impact both athletic and non-athletic giving at those institutions.

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**APPENDIX A**

**Academic Environment Findings**

Pope, D.G. & Pope, J.C. (2012). Understanding college application decisions: Why college sports success matters. *Journal of Sports Economics*. 0(0). 1-25. doi: 10.1177/1527002512445569.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of college sports success on student application decisions.	25% of SAT test-takers nationwide from 1994-2001.  All 332 schools that participated in Division football or basketball from 1991-2001.	Data from College Board's Test Takers Database.  Football success determined by AP ranking, basketball by NCAA tourney success.	A school invited to the NCAA basketball tourney had increases of 2% to 10% in received SAT scores.  Top 20 football teams received 2% to 12% more scores.  Success in women's basketball has no effect on overall scores sent or scores sent from females.  Making it to the Final 4 in basketball or top 10 in football equal to effect found on applications when a school's US News rank improves by half (e.g., 20 <sup>th</sup> to 10 <sup>th</sup> )

Tucker, I.B. & Amato, L.T. (2006). A reinvestigation of the relationship between big-time basketball success and average SAT scores. *Journal of Sports Economics*. 7(4). 428-440.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of college basketball success on SAT scores sent to schools.	78 big-time Division I athletic schools from 1993-2002.	Basketball success measured by AP poll appearances and NCAA tourney success.  Specify 10-, 2- and 1-year lags in relationship	Number of NCAA tourney games played had positive short-term effect on average SAT score from 1993-97 but not 98-2002; effect is significantly larger for the 1-year lag compared to 2-year lag.  AP ranking has no effect.  Being affiliated with a major conference provides a positive impact on scores.

Mixon Jr., F.G. & Trevino, L.J. (2005). From kickoff to commencement: the positive role of intercollegiate athletics in higher education. *Economics of Education Review*. 24. 97-102.

Problem Statement	Subjects	Instruments/Procedures	Findings
The relationship between a school's football success and freshmen retention and graduation rates.	82 Division I football-playing schools from 1990-2000.	Data on football winning percentages.  Academic data from U.S. News & World Report	Football success attributed to greater retention and higher graduation rates.

Cox, S.R. & Roden, D.M. (2010). Quality perception and championship effect: Do collegiate sports influence academic rankings? *Research in Higher Education Journal*. 6. 4-14.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect winning a football or basketball championship on U.S. News & World Report school ranking.	Schools that won a Division I football or basketball championship from 1992-2006.  Schools with football teams ranked in the top 20 from 1998-2006.	Ranking data collected from two years before championship to two years after.  Saragin USA Today top 20 football rankings.	Winning a basketball championship increased a school's U.S. News ranking by 7.47 spots; a football title led to a 6.87 rise in ranking.  Improvement in football ranking does not have a significant effect on ranking.  SAT scores from applicants, freshmen retention and graduation rates improved after a football or basketball championship; number of applicants also improved, leading to lower acceptance rates at those schools.  Improved football rankings had no effect on U.S. News ranking, SAT scores, freshman retention or grad rates; number of applications increased, however.

McEvoy, C. (2006). The impact of elite individual athletic performance on university applicants for admission in NCAA Division I-A football. *The Sport Journal*. 9(1). Retrieved from: <http://www.thesportjournal.org/article/impact-elite-individual-athletic-performance-university-applicants-admission-ncaa-division-i>

Problem Statement	Subjects	Instruments/Procedures	Findings
The impact of Heisman Trophy vote recipients on undergraduate admissions at respective schools.	Schools with players ranking among the top five in Heisman Trophy balloting from 1998-2003.	Data collected from The College Board College Handbook.  Admission data from the year of Heisman voting and the following year.	Having a Heisman Trophy finalist resulted in a 6.59% increase in undergraduate applications the following year.

Castle, J. & Kostelnik, R. (2011). The effects of an institution's athletic success on the future freshmen application pool at NCAA Division II universities. *Journal of Issues in Intercollegiate Athletics*. 4. 411-427.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of athletic success on application pool and quality of first-time enrolled freshmen at Division II schools.	The 14 member schools of the Division II Pennsylvania State Athletic Conference (PSAC).	Sports success determined by final standings, win/loss records and postseason accomplishments.  Applicant data collected through Pennsylvania State System of Higher Education.	Significant correlation between combined winning pct. of all varsity sports and application quantity.  Significant correlation between position in NCAA Director's Cup standings and application quality; those standings had no effect on application pool, though.  Winning percentage in women's sports showed greater effect on quantity; men's win pct. showed great effect on quality.  Neither football nor men's basketball success had significant effect on quantity; football had the highest effect (though not significant) on quality.  Women's XC had significant effect on quantity (no outliers).

Mixon, F.G., Trevino, L.J. & Minto, T.C. (2004). Touchdowns and test scores: exploring the relationship between athletics and academics. *Applied Economics Letters*. 11. 421-424.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of football success on SAT scores of applicants to a university.	68 Division I football-playing schools.	SAT scores taken from U.S. News & World Report for incoming freshman class in 2000-01 (median score used).  Winning pct. taken from 1990-2000.	Positive relationship found between football success and quality of SAT scores.  Improving the number of PhD instructors does not have a significantly greater impact than improving football winning pct.

Perez, S.J. (2012). Does intercollegiate athletics draw local students to a university? *Journal of Sports Economics*. 13(2). 198-206.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of football and men's basketball success on an enrollment of local high school graduates at a university/college.	23 California State University (CSU) institutions participating in Division I sports.	Enrollment data taken from California Post-secondary Education Commission from 1986 to 2009.  Success defined by number of wins and ranking in NCAA Director's Cup standings.	Football and basketball wins found to positively affect pct. of local HS grads attending schools (one FB win improvement increases pct. by .051 pct.; one BB win improvement increases pct. by .018 pct).  Director's Cup standings are statistically insignificant, meaning overall success of all sports has no effect.

Pope, D.G. & Pope, J.C. (2009). The impact of college sports success on the quantity and quality of student applications. *Southern Economic Journal*. 75(3). 750-780.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of sports success on quantity and quality of student applications.	332 schools that participated in either Division I football or basketball from 1980-2003.	Football success measured by AP top 20 poll rankings from 1980 to 2003; basketball success measured by NCAA tournament success from 1980-2003.  School data collected from Peterson's Guide to Four Year Colleges.  SAT data from the College Board's Test-Takers Database.	Football and basketball success significantly increase the quantity (2%-8% for the top 20 football schools and top 16 basketball schools).  Private schools see increases in application rates after success that is 2 to 4 times greater than public.  Extra applications are composed of both high and low scoring students; schools exploit increases by improving both quantity and quality of incoming students.

Tucker, I.B. (2005). Big-time pigskin success: Is there an advertising effect? *Journal of Sports Economics*. 6(2). 222-229.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effects of a high-quality football program on SAT scores of student applicants.	78 schools that compete in major Division I conferences.	SAT data from U.S. News America's Best Colleges from 1990-2002.  Football success measured by final AP top 20 poll ranking from 1990-2002, bowl appearances and winning pct.	Success found to have a significant effect on quality of incoming students starting in 1996.  An increase in winning pct. for a 5-year period found to increase SAT scores by 14 points; an additional appearance in the AP poll or extra bowl appearance over a 5-year period found to increase SAT scores by more than 12 points.  Both lower and higher SAT scoring students found to be influenced by poll rankings, bowl appearances and winning pct.

Mangold, W.D., Bean, L., Adams, D. (2003). The impact of intercollegiate athletics on graduation rates among major NCAA Division I universities. *The Journal of Higher Education*. 74 (5). 540-562.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of athletics on graduation rates.	97 major Division I programs that compete in both Division I basketball and football from 1990-99.	Student and academic data from U.S. News Best Colleges from 1996-99 and US Dept. of Education Integrated Postsecondary Educational Data System.  Athletic program data from CBS Sports and Information Please.	Strong basketball and total sports success led to lower grad rates.  Association between football success and grad rates fails to reach statistical significance.  Sports may not provide a mechanism for academic integration; may weaken it.

Mullholland, S. Tomic, A., Sholander, S. (2010). The faculty Flutie factor: Does football performance affect a university's US News and World Report peer assessment score? *Munich Personal Archive*. 26443. Retrieved from: <http://mpra.ub.uni-muenchen.de/26443/>

Problem Statement	Subjects	Instruments/Procedures	Findings
The effects of football performance on peer assessment scores in the U.S. News rankings.	Major Division I football programs	Data from 2001-07 editions of America's Best Colleges.  Number of votes in AP poll and Coaches' poll used to measure season-long success from 2000-2007	A one standard deviation increase (316 votes) in the number of votes received in the AP poll had the same as a 42-point increase in a school's SAT score at the 75 <sup>th</sup> percentile; 282 more votes in Coaches' poll is the same as a 42-point increase.

McEvoy, C. (2005, Fall). The relationship between dramatic changes in team performance and undergraduate admissions applications. *The Sport Journal*. 2(1). 17-24.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effects of dramatic changes in team performance on student applications.	6 major D-I athletic conferences from 1994-1998 (64 schools).	Football winning percentages and records obtained from NCAA Statistics office.  Application data from the College Board College Handbook.	Football win pct. had significant positive effect; no significance found with men's and women's basketball and women's volleyball  Football teams that improved conference win pct. by .250 saw 6.1 pct. increase following year; 2.5 pct. increase with improvement; 0.4 less when win pct. declines by .250

## **APPENDIX B**

### **Charitable Donations Findings**

Humphreys, B.R. & Mondello, M. (2007). Intercollegiate athletic success and donations at Division I institutions. *Journal of Sport Management*. 21. 265-280.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of athletic success (postseason football bowls and men's basketball tournament appearances) on donations to institutions of higher learning.	Division I schools that sponsored football or men's basketball in at least one season during the study period (320 schools and 6,400 school years).	Integrated Postsecondary Education Database (IPEDS) finance survey conducted by U.S. Department of Education. Data analyzed from 1976-1996.	Success increased restricted, but not unrestricted giving at all institutions.  Public schools had significant increases in restricted giving.

Daughtrey, C. & Stotlar, D. (2000). Donations: Are they affected by a football championship? *Sport Marketing Quarterly*. 9(4). 185-193.

Problem Statement	Subjects	Instruments/Procedures	Findings
Impact of an NCAA football championship on donations to Division I-AA Division II and Division III schools.	NCAA DI-AA (6 schools), DII (7) and DIII (7) national champion football institutions from 1987-1997.	Data collected from Council for Aid to Education's Voluntary Support to Education, and a survey to determine athletic donations and donor.	University donations, total number of university donors and total number of athletic dept. donors increased at Div. I-AA; total athletic dept. donations decreased.  For Div. II, total university donations and university donors decreased; total athletic dept. donations and donors increased.  For Div. III , university and athletic dept. donations and athletic dept. donors had large increases; total university donors only increased slightly

Rhoads, T.A. & Gerking, S. (2000, April). Educational contributions, academic quality, and athletic success. *Western Economic Association International*. 18(2). 248-258.

Problem Statement	Subjects	Instruments/Procedures	Findings
The role of successful Division I football and basketball programs in motivating alumni and other donors to make educational contributions to universities.	87 universities that fielded both Division I football and basketball teams from 1986-1996.	Data collected from Council for Aid to Education's Voluntary Support to Education, and a survey to determine athletic donations and donor.	<p>Positive effect on alumni giving, but no effect on non-alumni giving.</p> <p>Alum contributions increase by 7.3 pct. per student when football team wins bowl game.</p> <p>Bowl wins, NCAA basketball tourney wins and NCAA probation on football had positive effects; NCAA basketball probation had a negative effect.</p> <p>2.4 NCAA basketball appearances have same effect as 1 bowl.</p>

Meer, J., Rosen, H.S. (2008). The impact of athletic performance on alumni giving: An analysis of microdata. *Economics of Education Review*. doi:10.1016/j.econedurev.2008.06.003

Problem Statement	Subjects	Instruments/Procedures	Findings
The impact of athletic success on alumni giving.	18,892 male and 11,930 female alumni from 1972 moving forward. 7228 were former male athletes and 3542 former female athletes.	Data collected from Anon U's Development Office from 1983-2006.	<p>Football and men's basketball success had less effect on giving than success of an alum's own team.</p> <p>Males donated more when their former team had success and/or when the team had success when he was in school.</p>

Turner, S.E., Meserve, L.A. & Bowen, W.G. (2001, December). Winning and giving: Football results and alumni giving at selective private colleges and universities. *Social Science Quarterly*. 82(4). 812-826

Problem Statement	Subjects	Instruments/Procedures	Findings
The impact of an institution's football success on giving behavior.	15 academically selective private colleges and universities.	Micro data from the College and Beyond database between 1988 and 1998.	No relationship between won-lost records and general or athletic giving at Division IA or Ivy League.  Football wins lead to more general giving at Div. III schools, but not athletic giving.  Football success leads to more general giving by former athletes in Ivy League and Div. III; leads to more athletic giving by former athletes in Div. I. and Ivy.  No association between football wins and non-athlete giving at any level, even Div. III.

Stinson, J.L. & Howard, D.R. (2007). Athletic success and private giving to athletic and academic programs at NCAA institutions. *Journal of Sport Management*. 21. 235-264.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of athletic success on private giving to athletic and academic programs at Division I schools.	Institutions competing in NCAA Division I-A football.	Council for Aid to Education Voluntary Support of Education Survey data from 1998-2003.	Team success had significant effect on athletic donations, but had little influence on academic giving.  Alum and non-alum donors respond the same to success.  Higher ranking US News schools with Division I football received significantly more donations than others; and higher ranking US News schools are less susceptible to athletic performance.  Found an increasing pct. of total donation dollars being directed to athletics at all schools.

Cohen, C., Whisenant, W. & Walsh, P. (2011). The relationship between sustained success and donations for an athletic department with a premier football program. *Public Organization Review*. 11. 255-263. doi: 10.1007/s11115-010-0122-7

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of a prestigious football program on gifts and donations to an athletic department.	A nationally prestigious football school.	Data analyzed: winning pct., total money from donors, number of donors, number of contributions and average size of contribution over an 11-year period (1998-2008).	No relationship between winning pct. and money donated.  Only significant relationship found was a negative one between winning pct. and average size of contribution.

Stinson, J.L. & Howard, D.R. (2008). Winning does matter: Patterns in private giving to athletic and academic programs at NCAA Division I-AA and I-AAA institutions. *Sport Management Review*. 11. 1-20.

Problem Statement	Subjects	Instruments/Procedures	Findings
The effect of athletics on donations to academics and athletics at Division I-AA and I-AAA (no football) schools.	208 schools.	Data from Council for Aid to Education Voluntary Support of Education from 1998-2003.	Athletic performance influences total giving, athletic giving and academic giving; athletic success expands donor base to both athletics and academics.  Largest influence on giving is the most prominent sport offered (football or men's basketball).  Successful football and basketball teams found to increase average gift size for academics at a greater rate than athletics.

Stinson, J.L. & Howard, D.R. (2004). Scoreboards vs. mortarboards: Major donor behavior and intercollegiate athletics. *Sport Marketing Quarterly*. 13 (129-140).

Problem Statement	Subjects	Instruments/Procedures	Findings
An analysis of giving at a major public university (alumni vs. non-alumni and athletics vs. academics).	All donors making gifts of \$1,000 or more from 1994-2002	University's Benefactor database.  Data broken down into alumni, non-alumni, athletics, academic and other giving.	Non-alumni allocated a significantly higher pct. of total gifts to athletics; non-alum did not show to give significantly more in average gift amount; both sides give to both academics and athletics.  Increase in athletic success by high-profile programs led to more alum donations; success had a negative impact on alum academic giving.  Both alums and non-alums showed an increasing preference toward directing gifts to athletics at the expense of donations to academic programs.

**APPENDIX C**  
**Spending on Athletics Findings**

Orszag, J. & Israel, M. (2009, February). The empirical effects of collegiate athletics: An update based on 2004-07 data. *Compass Lexecon*. Commissioned by the National Collegiate Athletic Association.

Orszag, J.M. & Orszag, P.R. (2005, April). The empirical effects of collegiate athletics: An update. *Compass*. Commissioned by the National Collegiate Athletic Association.

Litan, R.E., Orszag, J.M. & Orszag, P.R. (2003, August). The empirical effects of collegiate athletics: An interim report. *Sebago Associates*. Commissioned by the National Collegiate Athletic Association.

Problem Statement	Subjects	Instruments/Procedures	Findings
Effects of athletics spending on institutions of higher education.	Division I-A schools.	Integrated Postsecondary Education Data System (IPEDS) and Equity in Athletics database from 2003-08.	<p>An increase of \$1 spent on football or men's BB resulted in a \$1 in additional operating revenue (2003, 2005, 2009)</p> <p>Increased spending not associated with increased medium term win pct. (2003, 2005); travel, recruiting equipment expenditures have significant effect on football team success – extra million spent equals 1.8 pct. gain in win pct. (2009)</p> <p>Coach salaries and scholarships no effect on win pct. (2009)</p> <p>Increased spending not associated with increased SAT scores or pct. of students accepted (2003, 2005, 2009).</p> <p>No proof that increased spending increased alumni giving (2003), though statistically significant in same year (2009).</p>

Stinson, J.L., Marquardt, A. & Chandley, J. (2012). An empirical examination of university of intercollegiate athletic expenditures. *Sport Marketing Quarterly*. 21. 104-114.

Problem Statement	Subjects	Instruments/Procedures	Findings
Effect of athletic investments on institutions' financial returns.	124 Division I-A football schools.	Integrated Postsecondary Education Data System (IPEDS) and Equity in Athletics database from 2003-08.	<p>Every dollar spent per full-time enrollment equaled \$2.12 of core revenues, \$0.24 in gift revenues and .165% increase in grad rates.</p> <p>Athletic expense and public service expenses (.09) were only significant factors for revenues; Academic spending had no significant impact on gift revenues).</p> <p>No significant influence on undergrad application rate.</p> <p>No other areas of core institutional investments have sig. effect on grad rates.</p>