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If You Can't Beat Them, Join Them: A Quantitative Look at  
Conference Realignment and FBS Institutions

Daniel H. Hrdina

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Submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy

in the College of Education and Human Services

Seton Hall University  
2020

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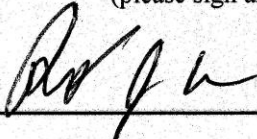
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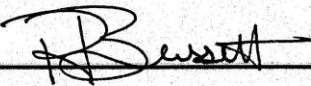
**Daniel Hrdina** has successfully defended and made the required modifications to the text of the doctoral dissertation for the Ph.D. during this **Spring Semester 2020**.

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## **Abstract**

This study took a quantitative look at the statistical effect on admissions of NCAA Division I Football Bowl Subdivision (FBS), formerly Division IA, institutions' moves from one athletic conference to another conference with greater athletic success. This study was unique because although previous research in the area of college athletics had identified number of applications and quality of the applicants as variables associated with athletic success, there has been minimal research on the statistical relationship of changing football conferences while using these variables. This study also provides a clear definition and ranking system for yearly conference prestige. The research question of this study looked at whether schools' moving to more prestigious conferences affected applications, admissions, enrollment, and SAT scores, both immediately and three years after the movement. The study determined that the relationships were not statistically significant across all areas. Implications of the study, limitations, and potential future research are all discussed.

**Keywords:** education, athletics, quantitative, higher education, sports, NCAA, football

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## **Dedication**

To my parents, the first, and best teachers I ever had.

*“Every home is a university and the parents are the teachers.”*

*Mahatma Gandhi*

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## CHAPTER 1

### INTRODUCTION

The first collegiate football game took place in 1869, between Rutgers University and Princeton University. That same year, the first collegiate football conference, which would later be known as the Big Ten, was established. In the over 120 years since, 24 conferences have been formed, and over 130 schools have competed in the highest level of collegiate football. During this time, college athletics, particularly football, has become a major part of American culture (Pettit, 2014). College football is not just a Saturday afternoon event; games are nationally televised three to four days of each week. ESPN and Fox Sports launched networks devoted entirely to college sports in 2004, with specific conferences forming their own networks in the years following. This has enabled younger viewers to be influenced on the perception of a school through their athletic programs (Barkey, 2018). The College Football National Championship and college football postseason bowl games amplify the relationship college sports has with our society, as well as the financial rewards universities reap from these games.

During the growth and expansion of college athletics, the relationship between successful collegiate athletic programs and their impact on academics and admissions rates has become a highly debated topic (Pope & Pope, 2009). Allen and Peters (1982) were the first to examine the influence of athletic success on academics at one institution. They found freshman students at DePaul University were influenced to attend the school based on the success of their men's basketball team. McCormick and Tinsley's (1987) seminal research was the first study to examine a possible connection between successful collegiate athletic programs and academics at more than one institution. The research demonstrated the positive relationship between the success of college athletic programs and academic success of students. The study also found

removal of an athletic program could be detrimental to a school. Tucker and Amato (1993) conducted similar research, within different time frames. They found successful football programs increase the quality of students' SAT scores. Since the studies were conducted more than two decades ago, universities still have trepidation on understanding the relationship between a successful athletic program and their institution's student enrollment and the quality of student enrollment. Recent studies have not been able to provide a complete understanding of the impact athletic success has on an institution's student enrollment, or the quality of student enrollment. Anderson (2017) used data from all of the Division I-A Football Bowl Subdivision games played from 1986 to 2009 and found that success leads to more applications and greater academic reputation. However, Childs (2018) found that unexpected success in the Men's NCAA Basketball tournament did not lead to a greater number of applicants.

### **Background**

Mainly focusing on high level football and men's basketball, the existing literature on the relationship between collegiate athletic programs and college admissions has mixed findings (Mandel, 2013). Athletic success leads to excess media coverage and exposure. The additional attention on schools is thought to have a positive impact on the school's reputation, leading to more applications for the institution, referred to as the "Flutie Effect" (Chung, 2013). However, researchers have also found no increase in admissions following success, including findings of a negative impact on applications following success (Childs, 2018).

In 1984, Doug Flutie, an undersized quarterback, was the play caller and leader for the 12th-ranked Boston College Eagles. During a game against the reigning national champion University of Miami Hurricanes, Flutie threw a 65-yard touchdown pass on the final play of the game. Boston College defeated the University of Miami by two points, 47-45. Two weeks later,

Doug Flutie was awarded the highest and most prominent honor for a collegiate athlete, the Heisman Trophy. The award is given annually to the nation's best college football player (Oslin, 2004). Boston College and Doug Flutie were media darlings. Flutie appeared on countless talk shows and was on the cover of numerous magazines, drawing national attention. The following spring semester, Boston College received a 16% increase in applications, followed by a 12% increase the following academic year. "Flutie Factor," first coined in 1984, by *The Washington Post*, has been used to describe the relationship between collegiate athletic success and increased applications due to media exposure (Bradley, 1984).

Both anecdotal evidence and empirical research have found a relationship between athletic success and increased applications. Many schools have experienced the Flutie Effect, seeing substantial increases in applications in the years following success in the NCAA Men's Division I Basketball Tournament (Chung, 2013). Pope and Pope (2009) found that on average, appearing in the tournament results in a 1% increase in applications, reaching the Sweet Sixteen an increase of 3%, the Final Four a 4% to 5% increase, and an 8% increase for the National Championship game. Gonzaga University men's basketball team reached the Elite Eight or Sweet Sixteen of the tournament from 1997 to 2000, after previously only playing in one tournament game in the school's history. From 1998 to 2001, the school saw over a 50% increase in applications (McEvoy, 2005). Gonzaga also saw an increase in donations during this time period. Donations reached over \$15 million, aiding in the funding for a new \$25 million athletic facility (Johnson, 2000).

Several other institutions have experienced an increase in applications following success. In the 1980s, Georgetown University and Duke University experienced a spike in freshman applications (McDonald, 2003; Saul et al., n.d.). During the 1990s the University of

Massachusetts had a similar experience (Zimbalist, 2001). George Mason University experienced an increase in applications in the 2000s (Carroll, 2008). Butler University, Florida Gulf Coast University, and Virginia Commonwealth University all experienced an increase in applications following athletic success in the 2010s (Conn, 2014; Dosh, 2012).

Several schools have experienced the Flutie Effect not only for basketball but also in the years following success in the NCAA Men's Division I Football Bowl Subdivision (FBS) (McEvoy, 2006). No collegiate institution may be more closely identified with their football program than the University of Notre Dame. Notre Dame saw an increase of 125% in their applications from 1977 to 2007 (Carroll, 2008). In the 1980s, the University of Miami had a 33% increase in applications following their National Championship season (Toma & Cross, 1998). In the 1990s, Northwestern University and the Georgia Institute of Technology had a similar experience (Toma & Cross, 1998; Zimbalist, 2001). In the 2000s, Appalachian State University, Boise State University, and the University of Missouri saw an increase in applications (Dosh, 2012; Cotterell, 2015).

Extending the findings of McCormick and Tinsley (1987), researchers have questioned the validity of the Flutie Effect, the relationship between athletic success and application rates. The increase in applications following athletic success is evident; however, some researchers have questioned the correlation. McDonald (2003) cited that the data are often obtained for a few institutions, following one monumental event. McDonald argued that Flutie did not have the impact on applications the public believes. Ten years prior to Flutie's arrival on campus, Boston College launched an action plan to increase visibility on a national scale, including changing the way they allocated financial aid, market research, and a new alumni networking system. It was asserted that the rise in applications was a result from investment in improvements to the



physical campus and buildings. McDonald pointed to the 9 and 17% increases in applications following two of the worst seasons for Boston College's football team in 1979 and 1998. Sperber (2000) found smaller schools that do not have national recognition are not positively affected by success.

Although scholars are not in complete agreement over the magnitude of the impact collegiate athletic success has on admissions, they agree that there is an effect on the applications of institutions achieving athletic success.

### **Statement of the Problem**

Division I schools spend up to eleven times as much money on their student athletes as their non-student athletes (The Knight Commission, 2010). In 2010, The Knight Commission on Intercollegiate Athletics, a panel of members from academia, athletics, and journalism, focusing on academic policies and values to ensure athletic programs stay true to their university's academic mission, recommended that higher education institutions not increase their spending on intercollegiate athletics. From 2004 to 2014, on average, the schools in the Power Five Conferences, the highest profile divisions in college athletics, doubled their athletic budgets. During this time, half of the schools operated at a deficit, with one quarter of the schools losing more money in 2014 (Hobson & Rich, 2015).

Although universities have concerns about the cost and time of moving to more competitive conferences, schools have forfeited their traditions to join more successful conferences. Schools have realized that they cannot magically create winning programs by allocating resources, what they can do, is create perceived success by association. Schools have attempted to do this by joining more successful athletic conferences. From 2010 to 2013, almost one quarter of major Division I football programs changed conferences ("Tracing the History,"

n.d.). In 1998, the Bowl Championship Series (BCS) was created; this was a turning point in conference realignment. The BCS was created as a system to select eight of the top-ranked schools to play in four bowl games, designating one of the bowl games each year to determine the National Championship game. This marked the first time Division I-A football had a designated game to determine a National Champion. In 2006, a fifth bowl game was added, the National Championship game, and two more teams were added. Following the 1998 creation of the BCS, schools have changed conferences over 80 times in less than 20 years. As a result of the movement and realignment, five conferences emerged as the dominant conferences in FBS, known as the Power Five conferences (Daughters, 2017). Texas Christian University (TCU) is viewed as a model other programs can follow. TCU was a member of the Southwestern Conference (SWC) for over 70 years. When the SWC disbanded in 1996, TCU joined three non-Power 5 conferences, each viewed as more prestigious than the last, until landing in the Big 12, a Power 5 conference, in 2012. Research has been conducted on the effects of athletic success, but there is a lack of literature on the effects of schools changing athletic conferences.

### **Purpose of the Research**

The majority of research pertaining to the association of athletics with admissions focuses on athletic success. There have not been a great number of studies examining the association of athletics with admissions with a focus on institutions changing conferences. Recently, Kramer (2016) conducted a case study involving three FBS institutions, interviewing administrators and faculty at each school, in order to determine why their school changed conferences. This study was vastly different. In particular, this study looked at admissions, both in number of applications and SAT scores of accepted students, for the years preceding and the years following a move to a more prestigious conference. The current body of research looks at these

factors after athletic success, but not after conference movement. Although success and movement have happened concertedly, researchers have not specifically examined movement. Additionally, most of the research fails to uniformly define success. While controlling for athletic achievement, this study does not examine the impact of success; rather, it focuses on the clear movement of an institution to a more prestigious conference. Top-tier Division I collegiate football conferences experienced their greatest changes between 1998 and 2018. In total, 85 times (the same schools changed conferences more than once) schools changed conferences. The Data Source and Sample section in Chapter 3 provides a detailed explanation of how conference prestige was determined. The purpose of this study is to determine if changing conferences to a new conference with greater athletic success benefits schools through an increase in applications, admitted students, enrolled students, and SAT scores of accepted students.

### **Research Question**

This study attempted to determine the statistical relationship, if any, between NCAA Division I Football Bowl Subdivision (FBS) schools changing their football conference and application, admissions, enrollment, and SAT scores. To address the relationship, the following research question guided the data collected and methodology for analysis:

1. Does changing conferences to a new conference, with higher prestige in football, benefit schools through an increase in applications, admitted students, enrolled students, and SAT scores of accepted students?

The institutions changing conferences data for one and three years after they changed conferences will be compared to all other FBS schools that did not change conferences during the same timeframe. The research question will help determine if there is a statistical relationship between schools leaving their FBS conference, the most highly visible college athletic division in

all of collegiate sports, to join a more successful FBS conference and application, admissions, enrollment, and SAT score. The research will look at the schools three full years after they entered the new conference, compared to all other FBS schools that did not change conferences during the same time frame. This will help determine if there is a relationship among applications, admitted students, enrolled students, and SAT scores of accepted students.

### **Significance of Study**

Dating back to the first collegiate athletic competition in 1852, college athletics have influenced and played a major role on the campuses of higher education institutions in the United States. No sport has influenced the perception and perceived prestige of schools more than football. Football is the most visible and influential sport on campus, especially among FBS schools (Won & Chelladurai, 2016). Success in football coincides with admissions, donations, overall reputation, and visibility of a school. In an attempt to garner these effects, institutions have changed their athletic football conferences at an increasingly high rate. Over the past 20 years, schools have changed conferences 85 times. With significant predicted movement in 2023 and 2035, due expiring television contracts of the Power 5 conferences—Big Ten, Pac-12, Big 12 in 2023; and SEC and ACC in 2035 (Rittenberg, 2017)—this study will benefit a multitude of universities as they approach their future decision-making.

Chapter 2 will review the literature pertaining to the history of collegiate athletics, criticisms of intercollegiate athletics, influences of athletic success on higher education institutions, admissions of universities, applications affected by athletic success, and conferences in collegiate football. Chapter 3 will discuss how the data were gathered and the methods used in this study. It will include research question, data source and sample, treatment group, comparison group, variables, and limitations. Chapter 4 will present and interpret the regression

results for applications, admissions, enrollment, and SAT scores, for one year and three years after schools moved to more prestigious conferences. Chapter 5 concludes the findings and provides implications of this study and includes suggestions for further research.

## CHAPTER 2

### REVIEW OF LITERATURE

#### **History of Collegiate Athletics**

Influenced by the University of Oxford and University of Cambridge, the first official collegiate athletic competition in the United States was a two-mile rowing race between Harvard University and Yale University on August 3, 1852 (Thelin, 2004). In 1843, Yale formed the first collegiate boat club in the United States, and one year later Harvard formed the second (Yost, 2010). During the first few years of each school's boating club, competitive races only took place within the same school's team. This changed when the Boston Concord and Montreal Railroad Company realized a sporting event between rival universities would bring guests to the area and create revenue for their new above-ground rail line (Yost, 2010). The railroad company first approached Yale and informed them that if they issued a challenge to Harvard, the company would sponsor the event, paying for all of the expenses, and provide the athletes with luxurious gifts, prizes, and alcohol. Harvard accepted and won the race handily (Betts, 1974). Over the next ten years the race took place sporadically. In 1864, the race became an annual event and is currently still held each year (Suliman, 2018). This inaugural sporting event created the first spillover of academic rivalry into the field of sports. Harvard and Yale are still academic and athletic rivals today. The competition also foreshadowed the interest Americans would have in college sports, as well as established the relationship between collegiate sporting events and corporate sponsorships (Shulman & Bowen, 2002).

Although Yale and Harvard's race was the first official collegiate athletic competition in the United States, there is a history of sporting events taking place at the university level before 1852. The earliest records of competition are of Princeton University students taking part in a

game, similar to current-day hockey, in 1787 (Rudolph, 1990). Due to colleges' strict rules and regulations, students often turned to extracurricular activities for socialization with their peers. This began with debate clubs; students would form teams, conduct research, and argue the current topics of the day with their peers. By the 1840s, fraternity life took the place of debate clubs as the main form of socialization for college students (Smith, 1990). Along with developing the intellect and social skill, fraternities also fostered the growth of physical attributes. Although athletic competitions were popular among fraternities, informal contests between academic classes became prevalent. To counteract the hazing and fighting amongst academic classes, sporting events would take place. Wrestling matches and football games were contested. The games did not resemble the current sports today; there was a great deal more brutality among the students. The football games were often played with freshmen and juniors against sophomores and seniors, on the first Monday of the fall semester. The games were so barbarous that on some campuses the day was known as "Bloody Monday." Although uncivilized, these activities would be the foundation for the current collegiate athletic programs (Rudolph, 1990).

A number of universities promoted physical fitness activities and exercises as early as the 1820s. Some universities felt physical activities would lessen a student's abilities to properly focus on their formal education. However, gymnasiums and fitness programs became popular on college campuses in the 1840s. Students were returning from studying in Germany, where physical fitness was a major part of a student's daily activities. In response to students' interest, several American universities had new state-of-the-art gymnasiums built (Rudolph, 1990). This led to an increase in interest in baseball, running, football, fishing, swimming, bowling, and boxing on college campuses (Smith, 1990). In 1860, universities were establishing Departments

of Hygiene and Physical Education to ensure the health of their students. Universities began to believe if a student was in good physical condition, it would help them perform better academically (Rudolph, 1990). Outside of the university setting, private athletic clubs aided in the national growth of physical education and fitness for future college students. By the 1850s the New York Athletic Club (NYAC) and the Young Men's Christian Association (YMCA) opened gyms in most major cities (Betts, 1974).

Several sports grew in popularity by the end of the 19th century. Baseball was among the most popular sports at this time. The first college baseball game was played on July 1, 1859, in Massachusetts. With the growth of professional baseball throughout most American cities, universities began forming teams (Betts, 1974). Baseball was thought to be a sport for "every man." The equipment was inexpensive and an athletic physique was not required to be successful (Rudolph, 1990). The inexpensiveness of track and field also attracted the interest of college students. Although rowing, baseball, and track and field overshadowed most sports, lacrosse, polo, and boxing also became popular in the Northeast at the end of the century (US Lacrosse, n.d.). Due to the popularity of sports, universities began to allocate more resources to their athletic programs. This was not only done to meet the needs of their students but also to help promote their school. Successful sports programs were beginning to have an association with the perception of universities. No sport would have as big of an influence on a university's perception as football. For example, Massachusetts Agricultural College, now known as UMass Amherst, did not see themselves as a "real college" until they defeated the University of Harvard in an 1870 football game (Rudolph, 1990).

The first college football game took place between Rutgers University and Princeton University on November 6, 1869, in New Brunswick, New Jersey. The game did not resemble



the football of today; rather, it was similar to rugby or soccer. Each university had a specific set of rules, and games were played under the rules of the school hosting the game (Shulman & Bowen, 2002). With the popularity of the sport growing, college football games were being played in front of 40,000 people in the late 19th century (Fleisher et al., 1992).

The increased popularity of football led to the formation of athletic conferences, and schools formed conferences based on their geographical location. In 1876, there was a meeting on how to make the game safer for the student athletes. During this meeting, Harvard, Yale, Princeton, and Columbia formed the Intercollegiate Football Association (IFA). The association lasted until 1896, and later became the Ivy League (Fleisher et al., 1992). In 1895, a group of Midwest schools met to discuss the rules pertaining to amateur athletes. They called themselves the Intercollegiate Conference of Faculty Representatives. Some members of the group would subsequently form the Big Ten. In 1890, Nebraska, Missouri, Kansas, and Iowa formed the Western Intercollegiate Football Association. These schools later formed the Big 8, now known as the Big 12 (Betts, 1974).

Collegiate football gained popularity, not only forming conference associations but also bringing about an atmosphere of fun and excitement. In order for fans to display their support for the school they were cheering for, schools began to have school colors, banners, and posters at games (Rudolph, 1990). Players and coaches became stars. Local newspapers would follow players and coaches around campus, often featuring cover stories on them. Not only did students and alumni have a connection to their university, now people that did not have the ability to attend college were able to feel part of the school by cheering for a particular university, with everyone in a certain region rooting for the same team (Rudolph, 1990).

With the rising popularity, college football garnered the attention of mainstream America, the pressure to win from fans and alumni became evident for universities. However, the mounting burden to win games resulted in negative consequences (Rudolph, 1990). Universities realized having a successful football team was a way to make money for their school. This led schools to have non-students on their football teams, and to hire professional players. At the end of the 19th century, the corruption was so evident that rather than attempting to stop schools from hiring professionals, the Intercollegiate Conference of Faculty Representatives agreed to only allow two professional athletes per team (Shulman & Bowen, 2002).

By 1900, schools also began to offer potential players large amounts of money to attend their school. Wealthy alumni would pay students and their families. Players were not only offered money by their schools and alumni, but also were given bribes by gamblers to intentionally lose games. During this time, coaches' salaries and positions in the university were rising. Some coaches were given full tenure if they had a successful season (Rudolph, 1990).

Although college football gave universities financial gains and acclaim, the corruption and brutality of the sport had a negative impact. One major area of concern was the number of deaths in college football games (Bok, 2009). During the end of the 19th century and the beginning of the 20th century, there was a lack of adequate rules to ensure the safety of the players. In 1904 and 1905 there were almost 40 deaths of players occurring during games (Fleisher et al., 1992). As a result, universities attempted to have the sport eradicated. Columbia, Stanford, Northwestern, Union, and University of California all suspended the sport for at least one year, and some schools did not play games for an entire decade (Rudolph, 1990).

The negative effects of college football were not just topics discussed by college governing boards. President Roosevelt, whose son was playing for Harvard, was troubled by the violence taking place in the game. In 1905, he called for a meeting with representatives from Harvard, Yale, and Princeton to converse on ways to lessen the savagery in college football. They agreed something needed to be changed, and President Roosevelt informed them if they did not arrive at a solution he would use his presidential executive order to abolish football (Fleisher et al., 1992). Later that year, 13 colleges in the East created a historic conference for their football teams, the Intercollegiate Athletic Association of the United States (IAAUS). The IAAUS voted not to dissolve college football; however, they did agree that a new rules committee needed to be created. By the end of 1905, the IAAUS's second meeting was attended by 62 colleges. The rules committee succeeded in their attempt to decrease the number of deaths and life-threatening injuries for their players. Five years later, the IAAUS changed their name to the National Collegiate Athletic Association (NCAA) (Rudolph, 1990). The NCAA had a standard set of rules for eligibility, college admission standards, and transfer procedures and regulations. They also regulated off-the-field activities. More than 100 years since the formation of the NCAA, their main responsibilities are still enforcing the rules of the game and eligibility requirements for their school members (Crowley, 2006).

The formation of the NCAA and its standard set of rules and regulations gave universities a greater assurance it would be beneficial to invest more money and resources in their football programs. In 1923, Dartmouth College was the first school to construct an immense stadium for their games. The stadium was capable of holding more spectators than the number of people living in the town of Hanover, New Hampshire, where the college was located (Thomas & Cross, 1998). Harvard also built a new stadium which held almost 40,000 visitors. In response,

Harvard's biggest rival, Yale, designed the Yale Bowl, with almost 70,000 seats. In 1925, Michigan created an 87,000-seat stadium (Rooney & Davidson, 1995).

Although new, larger stadiums enabled more fans to view games, the majority of fans still followed their favorite teams through the newspapers (Crowley, 2006). Overall, television had the greatest influence and profits from the relationship. In 1939, the first two collegiate athletic games were televised. On May 17, Columbia played Princeton in a baseball game, and on September 30, Waynesburg played Fordham in a football game (Crowley, 2006). At first, the increasing popularity of televised games was a concern for the NCAA. They assumed televised games would result in a vast decline in the number of spectators at their stadiums. In 1952, the NCAA determined televised games did not have a negative impact on their attendance and signed a \$1.14 million deal with NBC to air 51 teams' games (Crowley, 2006).

As a result of the growing popularity of college football, NBC paid the NCAA \$6.6 million in 1965, \$24 million in 1971, and \$75 million in 1983 (Sandomir, 2001). While the NCAA was benefiting from lucrative television contracts, not all of its members were satisfied with the way the money was distributed. The NCAA split the money between themselves and the schools whose games were televised. As a result of the unrest, three major changes took place within the NCAA.

First, in 1973, the NCAA created a three-tiered divisional system, Division I, Division II, and Division III. Division I was mainly comprised of the larger schools in the NCAA. Division I and Division II schools were able to offer athletic scholarships to their student athletes, Division III schools were not. In 1978, Division I football was divided into two divisions: I-A and I-AA, eventually being renamed the Football Bowl Subdivision and the Football Championship Subdivision (FCS) in 2006. In 1977, the College Football Association (CFA) was formed. The

CFA was created to enable its 63 members to negotiate their own television contracts, rather than the NCAA. In 1981, the CFA signed its own television contract and was sued by the NCAA. Eventually, the Supreme Court ruled in the CFA's favor, allowing them to negotiate their own television contracts (Toma & Cross, 1998).

Although they were receiving more revenue from their CFA deal, the University of Notre Dame did not believe they were being fairly compensated and broke away from the CFA. In 1991, Notre Dame signed a \$38 million deal with NBC to broadcast all of their home football games (Sandomir, 2001). The contract between Notre Dame and NBC has been renewed numerous times, and currently runs until the 2025 season (Arnold, 2013). Notre Dame's relationship with NBC not only gained them national notoriety, it has also impacted their campus and non-student athletes. Notre Dame has been able to provide over 3,000 students with over \$30 million in scholarships and aid since 1991, and over \$20 million has been allocated to academic programs (Notre Dame renewing, 2008).

Football may bring in large revenue for conferences and individual schools, but nothing has provided the NCAA with as much money as its television contracts for their men's basketball tournament. In 1979, CBS paid the NCAA \$5.2 million to broadcast the tournament for three years; in 1982, CBS paid \$48 million for 11 years; in 1994, \$1.43 billion for four years; and in 1999, \$6 billion for 10 years. In 2010, the NCAA signed a contract with CBS and Turner Sports to nationally broadcast all 65 of the men's tournament games for \$10.8 billion until 2024 (Sherman, 2016). In 2016, The NCAA had revenue of \$1.06 billion; 72% came from this television contract. Schools have been compensated not only through television contracts, teams are also provided with equipment, uniforms, and sneakers to use during the tournament. Many

schools receive millions of dollars annually from apparel companies to wear their products (Kirshner, 2018).

### **Criticisms of Intercollegiate Athletics**

Literature on the effects of college athletic programs on higher education institutions has been both positive and critical. There was a lack of empirical literature found on the criticism of college athletics. This section addresses the criticisms of higher education institutions and their relationship with athletics. The majority of these writings are not based on research with empirical evidence; data-driven research includes student enrollment, graduation rates, SAT scores, and revenue and expenses. The negative literature targets college athletics as money hungry big businesses, exploiting college athletes (Ridpath, 2017). The critiques of college athletics are as old as college athletics itself (Zimbalist, 2001).

In the book *College Sports, Inc.* (1990), Sperber described collegiate athletics as mismanaged, poorly run corporations. He argued that athletic directors are incompetent, ill-trained financial managers, who are able to allocate disproportionate amounts of monies to their programs, forcing college presidents to underfund academic programs to cover the overages from the athletic programs. Sperber (1990) did not place the blame solely on the athletic directors. He referred to the NCAA as franchisers and described each athletic program as a franchise. This arrangement allows the NCAA to keep control over marketing and the image of college athletics as a whole, while several coaches continue to earn immense compensation packages.

Zimbalist (2001) allied with Sperber and proposed a 10-point improvement plan designed to combat the cheating, commercialization, and lack of academic standards associated with college athletics. His proposal included reducing the number of athletic scholarships, forcing

first-year students to sit out from athletic competition for one year, and shortening the length of the seasons for all sports. The criticism of college sports also comes from within the university community. Four years after last being the president of the University of Michigan, James Duderstadt questioned why college athletics existed at all. Duderstadt (2003) pointed to the average cost a non-student athlete spends on their tuition, in comparison to an athlete who is unlikely to graduate from their institution. Duderstadt cited the less than 45% graduation rate of college basketball players. Smith (2001) argued that the media is the major factor contributing to the negative issues surrounding college athletics. According to Smith, the major television broadcasting companies have a monopoly on the form and way college athletics is presented to the public.

In response to the growth in revenue of collegiate athletic programs, university leaders began to view their athletic departments as businesses. This has influenced universities' selections of athletic directors, which can be seen as both a positive and negative response. University of Alabama President Judy Bonner believed Mal Moore's strong business background makes him a successful Athletic Director. University of Colorado's chancellor Philip DiStefano had similar feelings towards their new hiring of Rick George (Wong, 2014).

The greatest criticism of college athletics is the debate over whether college athletes are amateur athletes and whether they should be paid. The NCAA has a 39-page handbook describing the requirements of a student athlete. Student athletes are defined as amateur students who have not played or tried out for a professional team, have not accepted salary or prize money for competing in athletics, have not agreed to be represented by an agent or received benefits from an agent, and/or have not delayed their college enrollment to participate in organized sports competition (NCAA, 2017). Some argue college athletes were never truly

amateurs, dating back to the gifts and monetary awards received in 1852 by the Harvard rowing team (Zimbalist, 2001). Due to the long hours of practice and travel, and the large amounts of money generated by college athletes, Huma and Staurwosky (1998) have contended that it is inappropriate and demeaning to refer to student-athletes as amateurs. Shaffer (2015) argued student athletes are directly responsible for the lucrative television contracts, the apparel licensing contracts, and the merchandise sold with the players' likeness. Schools are often accused of profiting from the likeness of a college athlete, which is a violation of the NCAA bylaws (NCAA, 2017). In 2013, the NCAA was negligent of its own regulations. The NCAA's website sold jerseys with players' teams' names and numbers. ESPN reported the story and pointed out the violation. The NCAA quickly removed the jerseys from their website and released a statement admitting their wrongdoing (Shaffer, 2015).

Criticism and discontent have not been exclusive to scholars, university presidents, and media outlets. College athletes have voiced their disdain for their current relationship with their schools. Perhaps no two college athletes attempted to disrupt and change the landscape of college athletics more than former UCLA men's basketball player Ed O'Bannon and Northwestern University's football player Kain Colter (Nocera & Strauss, 2016). In 2009, Ed O'Bannon filed a class action lawsuit against the NCAA over the rights to likeness and images of players upon their graduation or exit of their former schools. One aspect of the lawsuit accused the NCAA of using the likeness of former players in video games produced by Electronic Arts Sports (EA Sports) (Green, 2018). O'Bannon won the case, with the judge citing antitrust laws, which are unlawful mergers, containing deceptive acts or practices. As a result, the NCAA and EA Sports have not released collegiate video games since 2013. A \$60 million settlement between the NCAA, EA Sports, and players named in the lawsuit was reached in 2015. Former



collegiate athletes were eligible to receive up to \$7,026 (O'Bannon, 2018). Colter did not have the same success as O'Bannon. Colter and his Northwestern teammates attempted to form a College Athletes Players Association (CAPA), in order for college athletes to be viewed as university employees, allowing them to receive monetary rewards during their college years. CAPA filed a lawsuit against Northwestern and was seeking to have the National Labor Relations Board (NLRB) recognize them as a union. The NLRB rejected CAPA and dismissed their union petition (Shaffer, 2015).

With the increased popularity, exposure, and monetary gains higher education institutions have experienced as a result of college athletics, there has been a movement to compensate college athletes. In 2012, the Institute of Sports Law and Ethics (ISLE) released a nine-point plan for why college athletes should not be seen as amateurs and should be paid. The ISLE cited similarities to a 2007 agreement between Google and Stanford University students, which was later adopted by over 90 institutions, the majority of which are members of the NCAA; students received payments for technology they created while attending school. The ISLE's plan called for the concept of amateurism to be re-assessed continuously; collegiate athletic programs to be treated as businesses; and treating athletes as employees of the school, awarding them all of the benefits of full-time employment (Gilleran et al., 2013). Others have argued for the idea of student athletes being compensated. Athletes indirectly receive compensation through tuition, room, meals, books, tutoring, medical insurance, rehabilitation services, and athletic apparel (Russo, 2018). In 2015, in addition to scholarships covering the expenses of tuition, fees, and room and board, the NCAA gave all Division I athletic programs the ability to award scholarships, covering all costs associated with attending their school, including transportation, personal expenses, and incidentals (Berkowitz, 2015).

## **Influence of Athletic Success on Higher Education Institutions**

Research has looked at how athletic success has affected colleges in various ways. Two of the more commonly examined areas are academic outcomes and donations. These areas play significant roles in higher education institutions. Colleges often mention students' progress as an indicator of success (Morphew & Taylor, 2009). In 2017, over \$40 billion was donated to institutions of higher education (Seltzer, 2018). This section will cover the influence of athletic success on academic outcomes and donations.

### *Academic Outcomes*

College athletes participating in major athletic programs are sometimes viewed as athletes in college, rather than student athletes. However, student athletes benefit from college athletics. There is strong, research based, empirical evidence demonstrating a positive correlation, not causal, between graduation rates of student athletes and non-student athletes. When student athletes have higher graduation rates, their non-athlete peers also tend to have higher graduation rates (Thelin, 2004). Rishe (2003) conducted extensive research to determine if athletic success and graduation rates have a positive correlation. One aspect of the study looked at graduation rates for student athletes compared to non-student athletes at 252 Division I schools. Overall, he found graduation rates for athletes were higher than rates for non-athletes. The study also compared student athletes and non-student athletes within athletic divisions (I-A, I-AA, and I-AAA), race, sport, and level of athletic success. Overall, Division I-A (currently known as FBS, made up of the top-tier college football programs) student athletes and non-student athletes had no statistical difference in their graduation rates. Graduation rates of athletes at Division I-AA (currently known as FCS, made up of second tier college football programs) and Division I-AAA (made up of schools without football programs) were significantly higher

than of their non-athlete peers. Across all three divisions, African-American athletes' graduation rates were higher than their non-athlete counterparts. Among all of the athletic groups, men's basketball and football players had the lowest graduation rates. They also had lower graduation rates than the non-athletes attending their school. Students participating in non-revenue sports had higher graduation rates than their peers. Successful athletic programs, which were determined by Sears's Directors' Cup points, showed a higher graduation rate among all students when compared to all non-successful athletic programs.

Using the propensity score matching (PSM) technique, Routon and Walker (2015) conducted a study of over 444,000 student athletes and found there is a small negative impact on their overall Grade Point Average (GPA), compared to their peers not participating in athletics, with the greatest impact among football and men's basketball. The study suggests this may occur because of the lack of academic preparedness of these athletes. When comparing SAT scores, ACT scores, and high school GPAs, football and men's basketball had the lowest scores on these assessments among all student athletes. Routon and Walker found that when compared to their non-athlete peers with similar SAT scores, ACT scores, and collegiate GPAs, football and men's basketball players had a higher graduation rate than their non-athlete peers.

Childs (2018) looked at the influence unexpected success in the Men's NCAA Division I Basketball Tournament had on donations and admissions. The study used data both immediately and three years after the unexpected success. Although there was an increase in applications and the percent of students admitted three years after success, there was no statistical significance with regard to donations and admissions.

The Art and Science Group of Baltimore ("College-Bound," 2001) surveyed 500 students prior to their first year of college. The students ranked potential employment, available

internships, clubs, and community involvement as more determining factors than athletics when selecting an institution to which to apply. More than one half of the respondents were unable to name the school which won the NCAA men's basketball tournament less than one month prior. Males and females differed on the impact of athletics as a determining factor in selecting a college; 52 percent of males and 38 percent of females considered some aspect of athletics when deciding where to apply. Students who performed better on the SAT, from higher income households, were less likely to place value on intercollegiate athletics. While these findings provide some insight on motivating factors for students when applying for college, the study did not control for whether the students had any interest in sports. Even though most students were unable to correctly identify the most recent national champion, this does not mean the students did not watch the NCAA tournament, where they may have been exposed to commercials for successful athletic programs, promoting their potential employment, available internships, clubs, and community involvement at their institution. Therefore, the athletic success on its own may not have been a determining factor in where to apply, but the success resulted in exposure for the school.

Basten (2002) surveyed 536 students to determine if athletics influenced their decision to enroll at the University of Michigan. The result showed both in-state and out-of-state students were influenced by athletic reputation, with out-of-state residents being more influenced by athletic reputation than in-state residents. However, the study was unable to convey the true role athletic reputation played in the enrollment decisions of these students, because the University of Michigan has historically had an equally strong academic and athletic reputation. This study may not have captured the true impact of athletic success on college selection.

### *Donations*

Stinson and Howard (2008) used a linear mixed model to find that donations regularly increase when a school takes part in major college athletics, Division I-A football or basketball, with an increase in donations when teams are successful, defined as appearing in a postseason game. They found that schools realize an approximate increase of 0.50% for initial success, and 0.22% for repeated success. They also found private institutions experience a greater increase of donations than public institutions as a result of success. Schools defined as having less academic prestige were also found to have a greater increase of donations based on athletic success.

Humphreys and Mondello (2007) used Integrated Postsecondary Education Data System (IPEDS) to review 320 schools over a 20-year period, from 1976 to 1996. Using a reduced form econometric model, they found donations specifically earmarked for athletics increased by over 40% when a school played in a prestigious bowl game or the men's Final Four. From 2002 to 2012, Koo and Dittmore (2012) examined 155 Divisions I, II, and III universities. They used a purposive sample of 155 universities with a balanced panel dataset. They found that the majority of increased donations earmarked for athletics, which were a result of athletic success, defined as increased winning in football and basketball, came at the expense of donations earmarked for academic purposes. Therefore, when donors reported contributing more as a result of athletic success, the funds went to the athletic department rather than for academics. The athletic success did have an association with academics, but the effect was of lessening donations for academic purposes. Rhoads and Gerking (2000) looked at 87 higher education institutions over a 10-year period, from 1986 to 1996. They found an overall increase in alumni donations following bowl appearances in football bowl games and the men's NCAA tournament.

Although studies show a connection between an increase of donations and athletic success, Shulman and Bowen (2002) found that donors contributing the top 5% of donations tend

to not care about athletic success or athletics. They found that these donors look to help aid in the success of as many students as possible. They tend to care more about undergraduate studies, intellectual freedom, and extracurricular activities. However, Shulman and Bowen only looked at 30 historically prestigious schools. Many of the schools, such as Duke University and The Pennsylvania State University, had traditionally successful athletic programs; however, their research also included schools from the Ivy League.

For the most part, institutions of higher education are associated with successful athletic programs. Students, both athletes and non-athletes, experience increased graduation rates as a result of athletic success at their schools. Although not always continuous, for the most part schools experience an immediate increase in application rates. Donations are also associated with athletic success, with specific departments receiving the monetary increases.

### **Admissions**

Admissions has always played a pivotal role in higher education. Its role expanded throughout the 20th century when federal legislation created more opportunities for nontraditional individuals to attend college. Institutions began to rely on research to determine the characteristics commonly found in successful students and the attributes displayed in individuals who normally would not complete a degree. These findings forced universities to not only focus on enrolling students, but also to aid them to pay for school; graduate; and, what the university viewed most as most important, become donating alumni. This approach of finding qualified applicants and fostering their growth is referred to as enrollment management (Johnson, 2000).

## **Enrollment Management**

Enrollment management has played an integral role in the growth of American universities throughout their existence (Rudolph, 1990). The beginning of the 1900s saw two major changes to enrollment management in higher education. Due to the continued growth of the student population, schools needed to designate someone to facilitate the changing campus. The position of dean of admissions was created to aid in screening applicants, ensuring they were fully prepared for their school (Swail & Wilkinson, 2007). The second change was the formation of the office of financial aid. The bursar's office was formally in charge of distributing funds and scholarships; however with colleges beginning to offer aid and scholarships as ways to attract students who were unable to pay for college, a separate office needed to be created (Coomes, 2000).

During the 20th century, increased federal aid and financial support helped schools attract more students than they had envisioned. These changes made the dean of admissions and the office of financial aid more important than ever before. In 1944, the United States passed what is commonly referred to as the GI Bill. The Servicemen's Readjustment Act helped returning war veterans fund their education (Heller, 2002). The Truman Commission of 1947 advocated for the doubling of college enrollment in the United States by 1960. As a result, community colleges were established and scholarship programs for non-veterans were created. The National Defense Act of 1958 helped fund higher education programs geared toward strengthening the math and science departments in K-12 schools. Guaranteed student loans were a result of the Higher Education Act of 1965 (Johnson, 2000). As a result of continuous increased enrollment, the competitiveness of potential students grew, making the office of admissions the main deciding factor of who enrolled at their school. In an attempt to have the best class enter each year,

admissions offices began to partner with familiar high schools that had produced successful students in the past. Due to the additional options for payment for college, financial aid offices needed to determine which potential students were most in need of available money (Heller, 2002).

Financial aid, new screening methods, Vietnam War avoidance, and the growth of America's population led to a 120% increase in enrollment from 1960 to 1970. However, the 1970s would not experience this same growth throughout the decade (Johnson, 2000). During the 1970s, high school graduation rates declined, resulting in a college enrollment decrease. As a result, colleges began to lower their entrance requirements, and the federal government began to allocate more aid to middle class families (Hoxby, 2009). Notwithstanding these actions, enrollment numbers continued to decline, and underqualified students with lower SAT and ACT scores continued to enroll (Hoxby, 2009). Due to lower than expected enrollment, tuition rose at a greater rate than anticipated and forced students to stop attending before graduating (Coomes, 2000). Hoxby (2000) found that because of the increased tuition students not only were unable to afford school, they were working more hours in an attempt to finance their education, resulting in increased college dropout rates. This research helped schools focus more on retaining and supporting their students who were already enrolled (Coomes, 2000).

As the percentage of high school students graduating continued to decline in the 1980s and 1990s, institutions started to market to nontraditional students and women, which made up the majority of undergraduate students by the 1980s (Johnson, 2000). As community colleges, vocational schools, for-profit schools, and online schools grew, the enrollment management became more involved in the marketing of higher education institutions. Towards the end of the 1980s and into the 1990s students changed the way they paid for college. The federal



government passed legislation, such as the reauthorization in 1986 of the Higher Education Amendments (HEA), which slowed the growth of student aid programs. Pell Grants generally kept up with inflation during this period, but not necessarily with the price of college. This decreased the amount of grants and increased the amount of student loans (Heller, 2002). High school graduation rates increased towards the end of the 20th century and continued to increase at the turn of the century. As a result, the college population increased in the 1990s and 2000s. This forced universities to establish divisions of enrollment management, to aid in long-term strategic planning and financial formulations. They also focused on combining departments: admissions, financial aid, student affairs, and academic affairs (Johnson, 2000). Today, enrollment management offices identify qualified potential students, transition these students to applicants, enroll these students, assist them in the process of graduating, and help mold them into contributing alumni (Jovell et al., 2006).

Enrollment management has grown from its inception to become a major and necessary part of higher education institutions. In 1940, 10% of Americans over the age of 25 had some level of higher education; by 2015 that number had increased by over 300% for Americans over 25 holding at least a bachelor's degree (Ryan & Bauman, 2016). The early passive approach of the admissions office has drastically changed and has been replaced with an eager, calculated function of enrollment management. As the costs and competitiveness of college continue to grow, so will the function of enrollment management. It will increasingly become more important in identifying potential students in the growing applicant pool (Swail & Wilkinson, 2007).

## **Applications Affected by Athletic Success**

Several schools have experienced notable increases in applications in the years following athletic success. Scholars have argued over the importance of increased applications; studies differ over the impact of athletics on a larger application pool (Chung, 2013). The increase of applications is most apparent when a school performs well in men's basketball and football. Gonzaga University men's basketball team reached the Elite Eight or Sweet Sixteen of the tournament from 1997 to 2000, after previously only playing in one tournament game in the school's history. From 1998 to 2001, the school saw an over 50% increase in applications (McEvoy, 2005). Georgetown University reached the NCAA Championship game three times in four years from 1982 to 1985. During this time frame, they saw a 45% increase in college applications (McDonald, 2003). Duke University also had a spike in applications following athletic success. In 1978 and 1986, the men's basketball team reached the finals of the NCAA tournament. On both occurrences, Duke saw a nearly 20% increase in applications (Saul et al., n.d.). George Mason University experienced a 24% increase in applications, following an unexpected 2006 trip to the Final Four. *The Wall Street Journal* estimated that George Mason University would have had to spend \$100 million to receive similar media publicity and exposure garnered during the NCAA tournament (Johnson, 2000). The University of Massachusetts experienced a double-digit increase in out-of-state applications in 1997, after their men's basketball team experienced unexpected success in back-to-back years (Zimbalist, 2001). Butler University experienced a 41% increase in applications following their back-to-back

National Championship game appearances in 2010 and 2011 (Dosh, 2012). In 2013, Florida Gulf Coast University made their first NCAA tournament appearance, advancing to the Sweet Sixteen, resulting in a 36% increase in applications (Conn, 2014). Virginia Commonwealth University and Butler University both reached the Final Four in 2011 and each saw a 20% increase in applications (Dosh, 2012).

Schools' success in the NCAA Men's Division I FBS has resulted in similar application increases (McEvoy, 2006). The most well publicized example of this took place in the years following the success of the 1984 Boston College football team, led by Doug Flutie. Boston College experienced a 30% increase in applications over the next two years. The increase in applications following athletic success is commonly referred to as the "Flutie Effect" (Oslin, 2004). The University of Notre Dame's success from 1977 to 2007 saw an increase of 125% in their applications over that time period (Carroll, 2008). The University of Missouri had a 20% increase in applications following their 2007 top five national finish (Dosh, 2012). After competing in the 1995 Rose Bowl, Northwestern University saw a 30% increase in applications (Zimbalist, 2001). In 1987, the University of Miami had a 33% increase in applications following their National Championship season (Toma & Cross, 1998). Georgia Institute of Technology saw a 21% increase in applications after their 1990 National Championship season (Toma & Cross, 1998). Following their 2010 National Championship season, Auburn University saw a 15% increase in applications (Dosh, 2012). In 2007, Appalachian State University was the

first Division I FCS school to defeat an FBS ranked school. They experienced a 14% increase in 2008 and 24% increase in 2009 in applications (Pope & Pope, 2009).

Traditionally, research on the increased number of applications tended to look only at schools' application rates directly prior to and after success. Winning a national championship tended to provide a short-term increase (one-year spike) in applications to an institution, when compared to similar institutions. At most, schools experienced a three-year increase in applications when their victory was unexpected or was highlighted by a unique story garnering national media coverage. Toma and Cross (1998) compared the number of applications three years before and three years after NCAA national championships in both basketball and football. They found a one-year increase, rather than a sustainable increase in applications in the year following championships in both football and basketball, with a greater increase for football. Although there is a relationship with applications, Toma and Cross do not believe it is sustainable over several years, because of the one-year spike in applications following success. Their study only used data from a ten-year time period and did not take continued success into account.

Rather than examining team success, McEvoy (2006) looked at the association of individual athletic success with application rates. His study looked at athletes finishing within the top 5 voting for the Heisman Trophy award, and the application rates of their schools the following year, compared to the previous year. McEvoy found an almost 7% increase in applications. McEvoy attempted to examine individual success, rather than team success;

however, during the time periods used, each Heisman Trophy winner competed on a successful football team.

Allen and Peters (1982) used an open-ended questionnaire to determine if incoming freshmen made their decision to attend DePaul University based on the previous success of their men's basketball team. The researchers determined the additional media exposure, specifically televised games, influenced the students' decision to attend the university. They also found almost 80% of respondents expressed that when discussing their college choice with family and friends, the men's basketball team was the most frequent topic discussed pertaining to the university. This study presented a substantial case for the influence of successful athletic programs on college choice; however, the study used a small sample size of 88 students, and the vast majority of them ( $n = 81$ ) were from the Chicago area, near DePaul. Collecting data from students from outside of the area or state may have provided a more accurate description of the true influence the basketball team's success had on the students. The research was also conducted over 35 years ago.

Chressanthis and Grimes (1993) studied the effect of football and men's basketball teams' winning, and televised games, on first-year students at Mississippi State University (MSU) over a 21-year period. The research found a winning football team resulted in an increase of applicants, while a winning basketball team had no effect. Televised football games overall did not have an effect on applications, while winning televised football games did have a positive effect. Televised men's basketball games only had an effect when MSU lost, resulting in a negative impact. Although the research found a positive relationship between success in football and applications over two decades, the findings of this study are limited in that it was conducted on a single institution from one of the major athletic conferences, the Southeastern Conference

(SEC). SEC teams traditionally have high attendance and national media coverage. This may have resulted in a favorable view towards institutions with highly visible football programs.

In analyzing the impact of success in men's basketball on application rates at 51 Division I non-football institutions, there was an increase in application rates (Petit, 1997). However, there was a disparity of defining characteristics among these schools, making it difficult to determine if the increase in application rates, over this short period of time, was due to success. The sample size included schools in large, major conferences, such as the Big East, and smaller schools in mid-major conferences, like the Atlantic 10.

Anderson (2017) used data from all of the Division I-A FBS games played from 1986 to 2009 to determine if winning and allocating more money and resources affect acceptance rates, donations, applications, academic reputation, in- and out-of-state enrollment, and SAT scores. Anderson found success in college football, decreased acceptance rates, increased donations, applications, academic reputation, in-state enrollment, and SAT scores. There was no effect on out-of-state applications. Anderson's work provided insight on several effects of the success of college football teams, but it did not determine if allocating more resources and money had an impact.

Although there are findings on the relationship between athletic success and increased applications, there is a lack of research on whether the additional applicants are out-of-state or international applicants. Out-of-state and international students are often highly coveted by schools due to the out-of-state tuition, cachet brought to the university's reputation, and cultural diversity displayed in the classroom (Ryman, 2013). Perez (2012) conducted a study of the California State University system and found successful football and men's basketball programs led to more in-state applicants and did not change the out-of-state or international numbers.

Mixon and Hsing (1994) suggested that successful athletic programs would not have an impact on international students. They found international students were mostly interested in being in largely populated areas, with several colleges around them.

Studies have also examined the quality of the applicants, in terms of standardized test scores. Overall, research on the correlation between quality applicants and success is inconclusive. Pope and Pope (2009) found an increase in standardized test scores for accepted students, but concluded the universities were more selective as a result of a larger application pool, not a more qualified application pool, displaying a positive effect from athletic success. Using data over a 15-year period, 1978 to 1992, Mixon (1995) examined 217 schools and found a relationship between long-term success in men's basketball and higher test scores. In a case study, Cigilano (2006) concluded that schools with successful athletic programs are often ranked among the highest academic programs, and therefore higher achieving applicants are more attracted to these schools regardless of their athletic success.

Tucker and Amato (1993) examined whether successful football and men's basketball programs increased both application pools and SAT scores. They looked strictly at schools with high levels of success over a three-year span, schools finishing in the Top 20 national rankings. Their research found that successful football programs led to an increase in SAT scores, but successful men's basketball programs did not have the same outcome. However, Mixon (1995) conducted research examining successful men's basketball programs over a 15-year period and found a significant positive effect on SAT scores.

As research demonstrates that athletic success is often used as a means of increased marketing and exposure, many institutions with successful athletic programs continue to receive more applications. Without changing their traditional entrance standards, the institutions can be

more selective with whom they accept, increasing the quality of their students (McCormick & Tinsley, 1987). McCormick and Tinsley (1987) examined 150 institutions to determine if consistent success over several years had an impact on applications and SAT scores. They found that consistent success was strongly associated with increased application rates and high SAT scores, and they found that schools in elite conferences saw a 3% increase in scores following success, defined as winning percentage within their conference. They also discovered that schools with major athletic programs had scores three percentage points higher than schools that did not have major programs.

Bremmer and Kesselring (1993) criticized McCormick and Tinsley's (1987) theory, stating that increased applications does not guarantee a higher quality of applicants, and schools may be selecting similar students, but from a larger pool of similar students. Bremmer and Kesselring re-evaluated McCormick and Tinsley's work by analyzing 119 schools based on the number of football bowl games and participation in the NCAA men's basketball tournament. While athletic success led to more applications, it had a small and significantly negative effect on SAT scores, at a 0.10 level.

Examining all Division I schools, Smith (2008) found success in men's basketball had a marginal increase in SAT scores for one year. Despite the fact that schools benefit from athletic success with increased applicants, minimal studies have shown an increase in the quality of applicants. Chung (2013) argued that this is the result of students with low SAT scores being more influenced by non-academic factors, such as sports, associated with potential schools. Chung measured the long-term effect of athletic success on the quantity and quality of applicants. His findings showed athletic success has a long-term impact on the number of applicants. Applicants with lower SAT scores are impacted more than students with higher SAT



scores. Students with higher SAT scores tend to be more interested in academic reputation than athletic reputation. Chung found public, state schools to be more influenced than private schools by athletic success over a longer period of time.

Although research differs on the level of the impact collegiate success has on an institution's number, and quality, of applicants, the research does show there is a positive impact on the number of applicants a school receives after achieving success in college athletics.

### **Athletic Conferences in Collegiate Football**

The Intercollegiate Athletic Association of the United States (IAAUS) was established in 1906. In 1910, The IAAUS renamed themselves the National Collegiate Athletic Association (NCAA.) However, ten years prior to the creation of the IAAUS, the first athletic conference was formed, the Western Conference, which would later be known as the Big Ten Conference (Shulman & Bowen, 2002). The conference's initial intent was to monitor the schools' athletic programs and protect the academic standards (Covell & Barr, 2010). As the popularity of college athletics grew throughout the country, greater monitoring was needed. Athletic conferences were created as a consolidated voice to oversee and institute rules and guidelines for their members. Conferences were made up of voluntary schools with similar academic standards, and profiles, from the same geographical regions (Thelin, 2004). Over time, conferences' responsibilities expanded and grew, and now work directly with the NCAA to oversee several aspects involving student athletes, including eligibility, recruitment, scheduling, and travel (Covell & Barr, 2010).

#### *Collegiate Football Conferences*

There are currently 11 conferences in the highest level of collegiate football, the FBS. Although the Big Ten is widely recognized as the first football conference (Dennie, 2012), the NCAA recognizes the Independent Conference's origin in 1869, the first year the NCAA

recognized a National Champion. Conferences such as Western Interstate University Football Association, Maryland Intercollegiate Football Association, and Indiana Intercollegiate Athletic Association all had members of their associations in the 1890s; however, they are not recognized by the NCAA as official conferences. From 1869 to 2018, the NCAA recognized 24 conferences as competing at the highest level of collegiate football for at least one season (“NCAA Football,” n.d.)

In the 75 years following the formation of the Big Ten Conference, 14 new conferences would emerge, in what is known as Division I. Many of these conferences were active for many years. The Big Eight Conference was active from 1907 to 1995, the Western Athletic Conference from 1962 until 2012, and the Big West Conference from 1969 until 2000. Four of the conferences, Pac-12, Southeastern Conference, Atlantic Coast Conference (ACC), and Mid-American Conference, are still active conferences today. From 1971 to 2012, eight conferences were formed, five of which are still active today: Conference USA, Big 12 Conference, Mountain West Conference, Sun Belt Conference, and American Athletic Conference (“NCAA Football,” n.d.). Table 1 displays college football conference formation and history at the highest football division from its origin in 1869 to the 2018 season.

**Table 1***Conference Formation and Deactivation*

Conference (Most Recent Title)	First Year in Highest Level of College Football	Last Year in Highest Level of College Football
Independent	1869	current
Big Ten Conference	1896	current
Big Eight Conference	1907	1995
Rocky Mountain Conference	1910	1937*
Southwest Conference	1915	1995
Pacific 12 Conference	1916	current
Southern Conference	1921	1981*
Missouri Valley Conference	1928	1985*
Border Intercollegiate Athletic Association	1931	1961
Southeastern Conference	1933	current
Skyline Conference	1938	1961
Atlantic Coast Conference	1953	current
Ivy Group	1956	1981*
Western Athletic Conference	1962	2012*
Mid-American Conference	1962	current
Big West Conference	1969	2000*
Southland Conference	1975	1981*
Southwestern Athletic Conference	1977	1977*
Big East Conference	1991	2012*
Conference USA	1996	current
Big 12 Conference	1996	current
Mountain West Conference	1999	current
Sun Belt Conference	2001	current
American Athletic Conference	2013	current

\* Denotes the year the conference no longer competed in FBS, or highest level of college football.

### **NCAA Divisions and Creation of National Championship Game**

In 1973, the NCAA formed three separate divisions for football: Division I, Division II, and Division III. Division I was the highest level of collegiate football, mostly made up of larger schools. Division I and II schools were able to offer student athletes athletic scholarships, while Division III was not. In 1977, the College Football Association (CFA) was formed. The CFA was not created for athletic competition; 63 teams, from most of the major conferences and prominent independent schools, came together to negotiate their own television contracts, rather than having the NCAA formulate their deals. The NCAA and the CFA legal battle was eventually decided in 1981 by a Supreme Court Ruling. They found the NCAA's television plan imposed a restraint on free market (Toma & Cross, 1998). In 1978, Division I would separate into two divisions: I-A and I-AA. In 1981, there was a failed attempt by several larger historically competitive institutions to create a fourth division.

Two changes to college football in 1992 would impact the following two decades. The first was the formation of the Bowl Coalition. The Bowl Coalition was formed by college football bowl games, to remove controversy following back-to-back years with two schools claiming they were the National Champions. The Bowl Coalition had the schools from five conferences and Notre Dame agree to forgo their traditional bowl appearances in order to compete against the top-ranked schools from one of the other five conferences. The Bowl Coalition received some criticism because it did not include the Big Ten and Pac-10 (now Pac-12) conference champions, who were committed to send their top teams to the Rose Bowl. The other change was the first conference championship in Division I-A (Himmelsbach, 2012). The SEC added the University of Arkansas and the University of South Carolina. This increased the

schools in the conference to 12, enabling the SEC to split in two subdivisions and have a conference championship game (Suggs, 2000).

The next year to bring major changes to college football was 1995. With the success of their conference championship game, the SEC would leave the CFA and negotiate their television contract on its own. New television contracts also brought the end of two historic football conferences: the Big 8, founded in 1907, and the Southwest Conference, founded in 1915 (Simplicio, 2011). This would result in the formation of the Big 12 Conference in 1996. 1995 was the first year of the Bowl Alliance. The Bowl Alliance was similar to the Bowl Coalition, as it was an agreement between college bowl games; however, since the Big 8 and Southwest Conference were no longer active, the Big 12 took one of their places, and another team from one of the other conferences took the other. Criticism was still received, because the Bowl Coalition did not include the Big Ten and Pac-10 (now Pac-12) conference champions either (Mandel, 2012).

In 1998, the BCS was created by college bowl games. The BCS was similar to the Bowl Coalition and Bowl Alliance; however, the Big Ten and Pac-12 (then Pac-10) champions were able to play in any bowl game. In 2006, an additional game was added to the BCS, the BCS National Championship Game. Starting in 2006, Division I would be known as the FBS and Division I-AA would be known as Division I FCS (Simplicio, 2011).

The BCS would last until 2013; in 2014, the College Football Playoff (CFP) was created. The CFP also had all of the schools in the FBS participating, with no bowl commitments overwriting the CFP games. The CFP consists of four schools playing in two semifinal games and a championship game. As with its predecessors, the Bowl Coalition, Bowl Alliance, and BCS, the CFP has an agreement among participating bowl games. The NCAA does not award

their National Championship to the winner of a specific bowl game. The NCAA awards their National title based on polls, which have separate agreements with the bowl systems to vote for the winner of the bowl systems' championship game in their final poll as their National Champion. This makes FBS the only NCAA sport without a yearly official national champion determined by an NCAA game event (Mandel, 2012).

### **Conference Realignment**

University officials have cited several factors for conference movement when asked, such as enhancing the school's academic profile, increasing visibility, overall growth, increased applicants, and broadening their institutional brand and reach (Kramer, 2016). Kogan and Greyser (2014) believed monetary incentives are at the forefront of the movement. After changing conferences, schools receive increased media exposure and have the opportunity to compete against more recognized competition. These benefits lead to greater postseason bowl games and increased ticket sales.

Conferences experienced impactful realignment changes in college football between 1990 and 2013. The Big East Conference, founded in 1979, historically known as a basketball conference, would begin one of the initial trends of college football conference realignment. In 1991, the conference would realign and establish itself as a top-tier Division I football conference (Dennie, 2012). The Big East added five schools who played football: Rutgers University, the University of Miami, Florida, Temple University, Virginia Tech, and West Virginia (Dennie, 2012). In 1990, The Pennsylvania State University, a football powerhouse, left the independents and became the eleventh team in the Big Ten Conference. In 1991, the University of Arkansas and the University of South Carolina both joined the SEC, while Florida

State University joined the ACC. In 1996, schools from the Big Eight Conference and Southwest Conference formed a new conference, the Big 12 conference (Groza, 2010).

After the announcement of the formation of the BCS, there was a great deal of conference realignment starting in 1999. Table 2 shows the conference movement from 1998 to 2018, in total 85 times (the same schools moved more than once) schools changed conferences during this timeframe. The most prominent years were: 1999, when 10 schools joined a new conference; 2001, when 11 schools changed conferences; 2005, when 16 schools changed conferences; 2012, with eight conference changes; and 2013, when 17 schools changed conferences. As a result of all of the movement and realignment, 10 conferences compete in the FBS, and five conferences—the ACC, the Big Ten Conference, the Big 12 conference, the Pac-12 Conference, and the SEC—are known as the Power 5 Conferences. These five conferences are viewed as the elite football conferences in FBS. The history and name recognition are valued by these conferences, which is shown by the Big Ten Conference having 14 schools, and the Big 12 Conference having ten schools (Daughters, 2017).

### **Reasons for Conference Movement**

Kramer (2016) found institutions' paramount reason for changing conferences was increased revenue. Kramer conducted a case study, interviewing athletic administrators, academic leaders, faculty members, and board of trustees members, from three different schools changing conferences from 2011 to 2013. The schools were all Division I-AA colleges, and were identified as State University, Private University, and Regional University. Kramer (2016) found although universities cited other reasons for movement, such as new exciting opportunities and partnering with universities with distinguished academic programs. Increased revenue was the underlying factor in each of their movements. One administrator mentioned a fear of being left

behind and eventually divorced from the Power 5 conferences. Another administrator echoed the same fears and stated that if they do not take the opportunity to move up to a new conference, someone else will take their spot. An educational leader expressed their rationale for increased revenue through conference movement by addressing the needs of each university. They stated the goals of each school are to increase academic quality, and increase academic impact, and to do so requires revenue.

Kogan and Greyser (2014) found that although changing conferences may result in increased revenue, the process of changing conferences does come with a cost. The timeline, approval process, and fees to exit a conference vary from conference to conference and change over time based on a conference's bylaws. Normally, two to three years need to be given to a current conference before exiting, and a majority vote of the current members of the potential new conference is needed. Generally, members of conferences do not object to new members; however, when a current member of their conference leaves, the conference wants to be compensated financially. In 2011, Boise State University agreed to join the Big East conference, who at the time held an automatic bid to a Bowl Championship Series bowl game. However, when schools began to leave the Big East Conference, Boise State University decided not to join The Big East. Although Boise State never officially joined the Big East, the conference still filed a lawsuit against them for their \$5 million exit fee. As a result of this, the ACC voted to increase their exit fee to \$50 million. The University of Maryland lost an attempt to circumvent the \$50 million fee when they left the ACC. Rutgers University also lost their multimillion-dollar lawsuit against their former conference when they joined the Big Ten (Kogan & Greyser, 2014).



**Table 2***Conference Movement from 1998 to 2018*

Year	FBS schools	Conferences	Schools changing conferences	School	Previous Conference to New Conference
1998	112	10	1	Army	(Independent) to (C-USA)
1999	112	11	10	Air Force	(WAC) to (MWC)
				BYU	(WAC) to (MWC)
				Colorado State	(WAC) to (MWC)
				New Mexico	(WAC) to (MWC)
				San Diego State	(WAC) to (MWC)
				UNLV	(WAC) to (MWC)
				Utah	(WAC) to (MWC)
				Wyoming	(WAC) to (MWC)
				Arkansas State	(Independent) to (Big West)
				UAB	(Independent) to (C-USA)
2000	114	11	1	Nevada	(Big West to WAC)
2001	116	11	11	Arkansas State	(Big West) to (Sun Belt)
				Idaho	(Big West) to (Sun Belt)
				New Mexico State	(Big West) to (Sun Belt)
				North Texas	(Big West) to (Sun Belt)
				Louisiana-Lafayette	(Independent) to (Sun Belt)
				Louisiana-Monroe	(Independent) to (Sun Belt)
				Middle Tennessee State	(Independent) to (Sun Belt)
				Boise State	(Big West) to (WAC)
				Utah State	(Big West) to (Independent)
				TCU	(WAC) to (C-USA)
				Louisiana Tech	(Independent) to (WAC)
2002	117	11	1	UCF	(Independent) to (MAC)

Year	FBS schools	Conferences	Schools changing conferences	School	Previous Conference to New Conference
2003	117	11	2	USF	(Independent) to (C-USA)
				Utah State	(Independent) to (Sun Belt)
2004	120	11	4	Miami	(Big East) to (ACC)
				Virginia Tech	(Big East) to (ACC)
				Troy	(Independent) to (Sun Belt)
				UConn	(Independent) to (Big East)
2005	119	11	16	Army	(C-USA) to (Independent)
				Cincinnati	(C-USA) to (Big East)
				Louisville	(C-USA) to (Big East)
				USF	(C-USA) to (Big East)
				TCU	(C-USA) to (Mountain West)
				Marshall	(MAC) to (C-USA)
				UCF	(MAC) to (C-USA)
				Tulsa	(WAC) to (C-USA)
				UTEP	(WAC) to (C-USA)
				Rice	(WAC) to (C-USA)
				SMU	(WAC) to (C-USA)
				Boston College	(Big East) to (ACC)
				Temple	(Big East) to (Independent)
				Idaho	(Sun Belt) to (WAC)
				New Mexico State	(Sun Belt) to (WAC)
				Utah State	(Sun Belt) to (WAC)
2006	119	11	0		
2007	119	11	1	Temple	(Independent) to (MAC)
2008	120	11	1	Western Kentucky	(Independent) to (Sun Belt)
2009	120	11	0		

Year	FBS schools	Conferences	Schools changing conferences	School	Previous Conference to New Conference
2010	120	11	0		
2011	120	11	5	Colorado	(Big 12) to (Pac-12)
				Nebraska	(Big 12) to (Big Ten)
				Utah	(MWC) to (Pac-12)
				BYU	(MWC) to (Independent)
				Boise State	(WAC) to (MWC)
2012	124	11	8	Texas A&M	(Big 12) to (SEC)
				Missouri	(Big 12) to (SEC)
				West Virginia	(Big East) to (Big 12)
				TCU	(MWC) to (Big 12)
				Temple	(MAC) to (Big East)
				Fresno State	(WAC) to (MWC)
				Hawaii	(WAC) to (MWC)
				Nevada	(WAC) to (MWC)
2013	125	10	17	Syracuse	(Big East) to (ACC)
				Pitt	(Big East) to (ACC)
				UCF	(C-USA) to (American)
				Houston	(C-USA) to (American)
				Memphis	(C-USA) to (American)
				SMU	(C-USA) to (American)
				Middle Tennessee	(Sun Belt) to (C-USA)
				FAU	(Sun Belt) to (C-USA)
				FIU	(Sun Belt) to (C-USA)
				North Texas	(Sun Belt) to (C-USA)
				Texas-San Antonio	(WAC) to (C-USA)
				Louisiana Tech	(WAC) to (C-USA)
				Utah State	(WAC) to (MWC)

Year	FBS schools	Conferences	Schools changing conferences	School	Previous Conference to New Conference
2013 (continued)				San Jose State	(WAC) to (MWC)
				Texas State	(WAC) to (Sun Belt)
				Idaho	(WAC) to (Independent)
				New Mexico State	(WAC) to (Independent)
2014	128	10	7	Maryland	(ACC to Big Ten)
				Rutgers	(American to Big Ten)
				Louisville	(American to ACC)
				East Carolina	(American to C-USA)
				Tulsa	(American to C-USA)
				Tulane	(American to C-USA)
				Western Kentucky	(Sun Belt to American)
2015	128	10	1	Navy	(Independent to American)
2016	128	10	1	UMass	(MAC to Independent)
2017	130	10	0		
2018	130	10	1	UAB	(Independent to C-USA)

### Conclusion

Researchers have paid attention to the direct results of athletic success on college outcomes, commonly known as “The Flutie Effect.” Studies have shown schools have a statistical relationship with successful athletic programs, in areas including acceptance rates, application rates, the quality and location of applications, and donations. As collegiate athletics grows in popularity, prospective students and families often identify with universities through their sports teams. With increased media exposure, several institutions have generated a significant amount of revenue from their athletic teams. As universities have grown and altered their mission, enrollment management departments have been developed.

While scholars and institutions are in agreement about an effect on admissions as a result of athletic success, universities have come to realize athletic success cannot merely be generated by allocating resources. Spending more on coaches and athletics facilities does not guarantee victories on the field. Universities have, however, attempted to create the implication of success and prestige by aligning themselves with traditionally successful athletic programs (Rittenberg, 2017). In the past 20 years, there have been over 80 conference changes among FBS schools. Schools have forgone years of tradition to align themselves with more distinguished football conferences.

Over the past 35 years, Allen and Peters' study spawned a great deal of research in the area of successful athletic programs' influence on admissions, donations, and perception. Despite the immense amount of research, one area has been overlooked: conference realignment. This study will attempt to determine if there is a positive connection between FBS schools moving to a more prestigious conferences and their applicants. The research will compare schools changing conferences one and three years after they changed conferences to schools that did not change conferences during the same time frame. The methodology for this study is outlined in Chapter 3.

## CHAPTER 3

### DATA AND METHODS

The purpose of this study was to examine the statistical relationship between application, admissions, enrollment, and SAT scores of NCAA Division I FBS, formerly Division I-A, institutions' move from one athletic conference to another conference with greater athletic success. This study was quantitative, using data primarily from the IPEDS and the NCAA website and associated athletics resources.

Previous research in the area of college athletics has identified the number of applications and quality of the applicants, as variables affected by athletic success (Chung, 2013). However, there has been minimal research on the statistical relationship of changing football conferences while using these variables. Institutions have changed conferences with the hope of having greater athletic success, academic success, and financial success, in a larger, more well-known conference; however, there has been a lack of research to determine if this is the case (Kogan & Greyser, 2014). From 1998 to 2018, schools have changed their football conference 88 times. This study looked at schools that moved to a conference with greater athletic success from 1998 to 2014.

#### **Research Question**

This study attempted to determine the statistical relationship, if any, between NCAA Division I Football Bowl Subdivision (FBS) schools changing their football conference and application, admissions, enrollment, and SAT scores. To address the relationship, the following research question guides the data collected and methodology for analysis:

1. Does changing conferences to a new conference, with higher prestige in football, benefit schools through an increase in applications, admitted students, enrolled students, and SAT scores of accepted students?

The institutions' changing conferences data for one and three years after they changed conferences were compared to all other FBS schools that did not change conferences during the same timeframe and were competing in the FBS for at least three years.

The timeframes being used in this study are based on previous research. Toma and Cross (1998) and Pope and Pope (2014) found applications are impacted immediately, one and three years after a school's success. Chung (2013) and Pope and Pope (2009) had similar findings in relation to SAT scores. This study is examining if changing conferences has a statistical relationship, one and three years later, on applicants following a school's conference change.

### **Data Source and Sample**

The sample for this study came from the NCAA Division I FBS, formerly Division I-A. Data from 1998 to 2014 were used for this research. 1998 was selected as a starting point to gather data, since this was the first year of the BCS. The BCS awarded six of the ten spots in their bowl series to conference winners in the Power 5 conferences and the Big East. The other four spots, or at-large bids, also frequently were awarded to non-conference winners in the Power 5 conferences and the Big East. The BCS was the beginning of schools changing conferences and conference realignment. Seven of the eight teams in the Big East would eventually move to Power 5 conferences, ending the Big East as a football conference. 2014 was the last year used for data, because the data were needed three years after conference movement. 2014 was also the last year used because only three total teams, two to more successful

conferences, moved from 2015 to 2018. For the complete list of schools, their previous conferences, and the conferences they moved to, please see Appendix A.

From 1998 to 2014, between 112 and 130 schools competed in the FBS each year, totaling 2,022 observations. Between zero and 17 schools changed conferences each year, totaling 85 changes, during this same time period. From the 130 schools, 58 schools changed conferences, totaling 85 conference changes. Each of the 85 changes was examined to determine if the movement was to a more or less successful conference, or to a newly formed conference. Success was determined by a ranking system from [www.sports-reference.com](http://www.sports-reference.com), and the system was calculated by using three factors: the overall winning percentage against non-conference opponents, Associated Press (AP) final Poll, and Simple Rating System (SRS) during the previous football season (College Football Statistics and History, n.d.). The overall winning percentage against non-conference opponents uses the win and loss record of each school's game against teams not in their conference. The AP Poll is a weekly ranking system of the top 25 NCAA teams in Division I. The polls are voted on by 65 sportswriters and broadcasters from the entire nation (College Football Statistics and History, n.d.). SRS is a rating system that uses the average point differential and strength of a team's schedule (College Football Statistics and History, n.d.). Overall conference ranking from 1997 to 2013 can be found in Appendix B.

A conference move in 1998 was determined to be a more successful conference based on their 1997 conference ranking, and so on until 2014. If a school changed conferences to a less successful conference, they were removed from the data set. The 2004 movement of the University of Miami and Virginia Tech from the Big East Conference to the more prestigious ACC provides an example of schools moving to a more prestigious conference. Conversely, in 2011 Nebraska moved from the more prestigious Big 12 Conference to the less prestigious Big



Ten Conference. Schools were also included in the study if their move was to a newly formed conference, if the newly formed conference was made up of teams which would have had a higher ranking the previous year, according to the criteria used by [www.sports-reference.com](http://www.sports-reference.com). This resulted in the schools entering the Mountain West Conference from the Western Athletic Conference in 1999, schools entering the Sun Belt Conference in 2001 from the Big West of Independent Conferences, and schools entering the American Conference in 2013 from Conference USA, to remain in the study. Schools in conferences that disbanded and no longer competed in the FBS were included, if they entered an existing conference with a higher SRS from the previous season, or if the schools competing in their new conference would have had a higher conference ranking. As a result of this, the entire Big West Conference, six schools, in 2001 remained in the data set, while five schools leaving the Western Athletic Conference 2013 were removed from the data set. Twenty-one schools were not included in the study, because they entered the FBS from the FCS. The study focuses on change of schools within the FBS changing conferences, not the possible association of schools moving from FCS to FBS. After removing schools based on this criterion, 43 teams remained in the data set. The 1,986 remaining observations were also examined to determine if there was a statistical relationship for schools remaining in their conference.

### **Treatment Group**

The treatment group for this study is the 43 FBS schools that changed conferences to more successful conferences from 1998 to 2014. The schools, at one and three full years after they entered the new conference, will be compared to all other FBS schools that did not change conferences during the same timeframe. This will help determine if there is a positive statistical relationship to applicants, and SAT scores of accepted students. Schools whose conference

movement was to a more successful conference can be found in Appendix C. The full list of all schools changing conferences for each year can also be found in Appendix C. From 1998 to 2014, 14 total conferences competed in the FBS, with either 10 or 11 total conferences competing each year. The full list of each conference and the years they were active in the FBS can be found in Appendix D. The 43 schools used in this study entered eleven of the fourteen conferences that competed in FBS from 1998 to 2014: American Athletic Conference, ACC, Big East, Big Ten, Big 12, Conference USA, Independent, Mountain West Conference, Pac-12, Sun Belt, and Western Athletic Conference. The only conferences that did not have teams leave (to any other conference) during this time period were Big Ten Conference, Pac12 Conference, and SEC; these conferences are generally viewed as the three most prestigious conferences. Although all 14 conferences competing in FBS from 1998 to 2014 had new members enter, three of the 14 conferences only received new schools who were in more successful conferences the previous year: Big West Conference, Mid-American Conference, and SEC; this affected 5 colleges.

Ten schools moved to more prestigious conferences more than once between 1998 and 2014. Seven schools changed conferences twice: BYU (1999, 2011), Utah (1999, 2011), Nevada (2000, 2012), Louisiana Tech (2001, 2013), Louisville (2005, 2014), UCF (2005, 2014), and Utah State (2005, 2013). Three schools changed conferences three times: Idaho (2001, 2005, 2013), TCU (2001, 2005, 2012), and New Mexico State (2001, 2005, 2013).

### **Comparison Group**

Because the study focused on what, if any, effect changing football conferences has on a school, a comparison group is needed to determine if there is any statistical relationship to applicants after the conference change takes place. It is necessary to compare these trends in order to establish causality. The schools in the control group came from the 128 schools, varying

from 112 to 128 each season, in the 14 FBS conferences in the FBS from 1998 to 2014, that did not move in that given year. This group was created by removing the 43 schools that changed conferences, for the three years after they changed conferences. Schools were also removed for three years from the data set if they entered the FBS between 1998 and 2017. This included 17 schools. The full list of each FBS school and the years they were active between 1998 and 2014 can be found in Appendix D.

## **Variables**

### **Dependent**

In order to determine the statistical relationship between FBS schools changing conferences and application, admissions, enrollment, and SAT scores, the following variables were selected from IPEDS: applications, admitted students, enrolled students, and SAT scores, for each year from 1998 to 2014.

**Applications** - This variable measured the total number of applicants: first-time, first-year incoming students, not including transfer students, for the year prior to a school changing conferences, and then one and three years after the school changed conferences. This time frame was used to obtain a better understanding of the school's applicant pool, and allows for change to develop over time. The prior year was used as a control to show that schools changing conferences were more successful in obtaining applicants than those that did not change.

**Admitted Students**- This variable measured the total number of students accepted the year prior to changing conferences, and then one and three years after they changed conferences.

**Enrolled students**- This variable measured class size of first-time, first-year incoming students, not including transfer students, one year prior, and one and three years after a conference change.

**ACT/SAT Scores-** The ACT and SAT have been considered the primary determining factor of college readiness for students entering higher education. The majority of graduating high school students from 1998 to 2014 took either the ACT or SAT (Zwick, 2017). This variable measured the scores of the ACT and SAT of the incoming students one and three years after a conference change compared to the ACT and SAT scores of incoming students in all other FBS schools not changing conferences. The variables were continuous, and they were converted into a single measurement by the higher percentage of students taking either assessment. If the same percentage of first-time degree/certificate seeking students took the ACT and SAT, the SAT score was used because it is taken by a greater number of students nationally (Zwick, 2017). The variable was generated by using each year of scores separately. If a higher number of first-time degree/certificate seeking students submitted SAT scores, an “average” score was found. To obtain an “average” SAT score, the mean was found for the 25th and 75th percentile score for mathematics, and the 25th and 75th percentile for reading. The sum of the mathematics and reading scores was then used for the SAT score. If a higher number of first-time degree/certificate seeking students submitted ACT scores, the scores were converted to SAT equivalent scores using the ACT official website (ACT, 2019). The data were generated for all schools in the same way, for the years 1998 to 2014.

### **Descriptive Statistics**

The 85 total conference changes of FBS schools from 1998 to 2014 were completed by 58 different schools. Of the 58 schools changing conferences, 43 of those schools moved to more prestigious conferences. Twenty-seven of the 58 schools moved to both more prestigious and less prestigious conferences, and 15 schools moved to only less prestigious conferences. Tables 3, 4, 5, and 6 provide descriptive data for the year 2014 for each of these six subgroups, using the

variables applicants, admissions, enrollment, and SAT scores. The charts show the total number (N), of schools for each group; the mean, the overall average for each group; the standard deviation (SD), the quantity calculated to indicate the extent of deviation for each group; and median, the middle number of each group when ordered from least to greatest, of each of the four variables.

**Table 3**

*Applications 2014*

	N	Mean	SD	Median
All schools	121	21596.92	13552.39	18320
Ever changed	57	16608.67	10356.25	14933
Never changed	64	26039.58	14558.29	21616
Moved up	43	16604.53	10886.01	12835
Moved down	14	16621.36	8896.39	14938.5
Moved up and down	26	15799.88	8796.97	14578

The difference between the mean and median for All schools, Ever changed, Never changed, and Moved up indicated the skewness was a large number. This is discussed further below.

**Table 4***Admissions 2014*

	N	Mean	SD	Median
All schools	121	11413.32	5853.48	11265
Ever changed	57	9633.37	5495.8	8293
Never changed	64	12998.59	5744.22	12698.5
Moved up	43	9586.07	5403.96	7897
Moved down	14	9778.64	5977.54	9080
Moved up and down	26	9331.31	5475.77	8185.5

Schools that did not change conferences between 1998 and 2014 admitted 12.12% more students than any other group for the 2014 year.

**Table 5***Enrollment 2014*

	N	Mean	SD	Median
All schools	121	3979.56	1879.22	3811
Ever changed	57	3392.51	1783.05	3254
Never changed	64	4502.41	1819.36	4169.5
Moved up	43	3215.88	1434.71	3158
Moved down	14	3750.71	2619.53	3370
Moved up and down	26	3494.81	2179.68	3195

The admissions of increase in admissions was similar to the percentage of increase in enrollment. Schools that did not change conferences between 1998 and 2014 enrolled 11.61% more students than any other group for the 2014 year.

**Table 6***SAT Score 2014*

	N	Mean	SD	Median
All schools	117	1178.89	123.82	1170
Ever changed	55	1152.45	119.29	1130
Never changed	62	1202.34	123.96	1197.5
Moved up	42	1151.67	114	1147.5
Moved down	13	1155	140.09	1110
Moved up and down	25	1153	124.24	1110

Schools that did not change conferences between 1998 and 2014 had a slightly higher (47.34 points) mean SAT score than any other group for the 2014 year.

In each of the four categories, schools that did not change conferences had the greatest mean score. Schools not changing conferences had 20% more incoming students than any other group. In general, the schools in the Never Changed group are from the Power 5 conferences. Teams in Power 5 conferences traditionally do not leave their conferences. Of the 85 total changes from 1998 to 2014, only five were moves leaving the Power 5 conferences, these five moves were to all to other Power 5 conferences. The difference between the mean and median for applicants and enrollment among All schools, Ever changed, Never changed, and Moved up indicated the skewness was a large number. Each group had a skew score  $>1.20$  for applicants. Moved up, Moved down, and Moved up and down each had a skew  $> 1.30$  for enrollment. With a skewness greater than 1, the distribution is highly skewed. This also suggests the mean of the data value is larger than the median (Sullivan, 2008). This confirms the variables needed to be logged when running regressions. The descriptive statistics for applications, admissions, enrollment, and SAT scores appeared to have a skewed distribution. The skewness was checked

for each group for all years in the data set. Since the applicants and admissions were skewed, yield rates and admittance rates (admit rate) were used. Admissions rates were found by dividing the number of applicants by the admissions and multiplying by 100. Yield rates were found by dividing the number of enrollments by the number of admissions and multiplying by 100. Using the admission rates and yield rates will break any collinearity issues. The histograms in Appendices E, F, and G display skewness for applications, admissions, and enrollment. As a result of this, the variables were logged.

Table 7 displays the correlations between applications, admissions, enrollment, and SAT scores. The correlation between admissions and applicants, admissions and enrolled, and applicants and enrolled, were all greater than 0.5.

**Table 7**

*The Correlations Between Admissions, Applicants, SAT Scores, and Enrollment*

	Admissions	Applicants	SAT	Enrolled	Yield Rate	Admit Rate
Admissions	1.000	0.668	0.001	0.857	-0.530	0.150
Applicants	0.668	1.000	0.398	0.519	-.0381	-0.512
SAT	0.001	0.398	1.000	-0.016	-0.049	-0.604
Enrolled	0.857	0.519	-0.016	1.000	-0.134	0.201
Yield Rate	-0.530	-0.381	-0.0492	-0.134	1.000	-0.081
Admit Rate	0.150	-0.512	-0.604	0.201	-0.081	1.000



**Table 8***Yield Rate 2014*

	N	Mean	SD	Median
All schools	121	38.45	13.57	36.37
Ever changed	57	39.81	16.03	35.51
Never changed	64	37.25	10.92	35.91
Moved up	43	39.85	16.51	36.46
Moved down	14	39.67	15.06	38.67
Moved up and down	26	40.42	15.04	39.07

**Table 9***Admittance Rate 2014*

	N	Mean	SD	Median
All schools	121	60.1	22.61	62.99
Ever changed	57	62.8	20.64	65.38
Never changed	64	57.68	24.13	59.58
Moved up	43	63.17	19.98	65.03
Moved down	14	61.68	23.32	67.96
Moved up and down	26	62.8	22.68	65.71

Tables 7 through 9 show there are no major collinearity issues. The correlations are more modest.

## **Methods**

The study looked at the schools one and three full years after they entered the new conference, compared to all other FBS schools that did not change conferences during the same timeframe. This helped determine if conference change has a positive impact on applicants, admitted students, enrolled students, and ACT/SAT scores of accepted students. This time frame was used to obtain a better understanding of the school's applicant pool and allows for change to develop over time. The schools not changing conferences were used as a control to show that schools changing conferences were more successful in obtaining applicants than those that did not change. Admitted students were measured by the total number of students accepted compared the number of students accepted to all schools that did not change conferences. Enrolled students were measured by the class size of the incoming students compared to the class size of the incoming students at all schools that did not change conferences. SAT scores were measured by the average of the 25th and 75th percentile scores. When running generalized linear regressions, control variables were used for the prior year's values of the dependent variables: applications, admitted rates, yield rates, and ACT and SAT scores. This process was repeated for the years of the study, 1999-2017. Generalized linear regressions were used because the samples in this study were either teams that moved to a more prestigious conference or teams that did not move to a more prestigious conference. Nelder and Wedderburn (1972) established generalized linear regressions as an addition to linear regression models. This study includes multiple variables over several years; therefore, this analysis fits as it models repeated measures.

## **Limitations**

Potential limitations of this study include the notion that this study only examined institutions competing in the FBS. Therefore, this study may not be applied to schools in the

FCS, Division II, or Division III. By only including schools taking part in the FBS, this study only looks at the effects of conference movement on schools with major college football programs. However, schools not competing in the FBS have less visibility and are not impacted in the same way as FBS schools are (Pope & Pope, 2009).

Kramer (2016) found that schools attempted to move conferences to increase visibility and increase the quality of academics through incoming students. Although Kramer's research was thorough, the case study involved only three schools. Of the 58 schools changing conferences, we are unaware of the reason for each school's movement. Perhaps they were not interested in an increase in applications, admittance rate, enrollment, and SAT scores. Another limitation could involve the reason for movement. Not all conference changes were initiated by each specific school. Some schools changed conferences because their conference was disbanded. An example would be the Western Athletic Conference after the 2013 season. For a complete list of conferences for each season, please see Appendix B.

Another limitation could be the potential financial restrictions from each institution. Students may have been more likely to apply; however, the lack of financial aid, or lack of information about possible financial aid available to each student at each potential school, may have hindered their application process, which in turn could have affected admissions and enrollment.

Although in the majority of cases universities' other athletic programs also changed conferences, the study focused on the movement in relation to football. Schools generally changed conferences to reap the benefits of their new football affiliation. The University of Maryland and Syracuse University both recently won National Championships in men's basketball; however, their basketball teams were an afterthought when they both left their

conferences for more prestigious football conferences (McMurphy, 2019). Therefore, if a school's applications, admitted students, enrollment, or SAT score was increasing, it may have been a result of their success in other athletics.

Conferences' prestige was determined by using the following factors: the overall winning percentage against non-conference opponents, Associated Press (AP) final poll, and Simple Rating System (SRS), from the previous year. Not taking several previous years into account to determine prestige could have been a possible limitation. In 2011, Nebraska moved from the Big 12 Conference to the historically more prestigious Big Ten Conference; however, the Big 12 Conference had a higher ranking in 2010, so the move was deemed as a move to a less prestigious conference in this study.

Although controlled for in regard to football, in addition to conference change, an institution may have experienced unexpected success in another sport, which may have affected their application pool. Schools have experienced an increase in applications following the unexpected success of their men's basketball team in the NCAA tournament; these schools are referred to as Cinderella schools (Childs, 2018).

Another limitation was the length of time used. Although the years used in the study were chosen based on previous research, the study only examined one and three years after the conference movement. Along with one year, three years was also used, because unlike unexpected success on the field, schools would need a longer amount of time to obtain the perceived prestige from their new conference affiliation. Toma and Cross (1998) found that most schools experienced a three-year increase in applications when their victory was unexpected or was highlighted by a unique story garnering national media coverage. Pope and Pope (2014) found that applications are mostly impacted three years after a school's success. Chung (2013)

and Pope and Pope (2008) found that applicants' SAT scores are impacted three years following a school's conference change.

In previous research, the increase or decrease of donations was used as a variable, but this study did not use donations as a variable. Donations were not used as a variable in this study because the majority of previous research found that increased donations as a result of athletic success normally occur immediately following athletic success, while this study looked at a statistical relationship after one and three years (Seltzer, 2018).

Although the vast majority of schools reported data for each category in each year, some schools did not report data for each category for each year. For example, Duke University did not report applications for 2001, and Wake Forest University, the University of Arizona, and Kansas State University did not report SAT or ACT scores for several years. Schools not reporting data were excluded from the study during the years they did not report.

## CHAPTER 4

### RESULTS

The research question focuses on if the movement between athletic conferences of FBS schools has an association with their applications, enrollment, admissions, and SAT scores. The results of this study are presented in this chapter to show the changes an institution experiences one and three years after moving to a more prestigious conference. Additionally, a comparison group of all FBS schools that did not move to more prestigious conferences during this time provides a better understanding of the relationship of moving to a more prestigious conference has on a school versus not moving to a more prestigious conference.

#### **Regression Results**

The research question which guided this study was: Does changing conferences to a new conference, with higher prestige in football, benefit schools through a statistical increase in applications, admitted students, enrollment, and SAT scores of accepted students? In order to answer this question, the dependent variables were analyzed while controlling for logged applicants, admittance rate, yield rates, and SAT scores. Generalized linear regressions were run for schools moving to more prestigious conferences looking one and three years after a team's move.

The tables are presented in the order of applications, admissions, enrollment, and SAT scores, based on the likelihood of a statistical relationship to each area. Research has found that an increase in applications is the most likely area to be affected by athletic success (Chung, 2013). Potential students, no matter their past academic achievement, are exposed to a school through their athletic programs, and apply to the school. In turn, admissions is the next potential category to be affected. If there are more applicants, the school can admit more students. If more

students are admitted, more students can be enrolled. SAT is thought to be the last category affected; as numbers increase, there is potential for students with higher academic achievement to enroll.

**Table 10**

*One-Year Lagged Outcome: Applications*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	0.019	0.021	0.906	0.365
Log Applications	0.931	0.022	41.833	<0.001
Admit rate	0.002	0.001	3.976	<0.001
Yield Rate	0.002	0.001	2.844	0.0045
SATs	0.001	0.000	5.227	<0.001

**Table 11**

*Three-Year Lagged Outcome: Applications*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	0.016	0.0389	0.415	0.678
Log Applications	0.694	0.038	18.356	<0.001
Admit rate	0.002	0.001	2.567	0.010
Yield Rate	0.000	0.001	0.510	0.610
SATs	0.002	0.002	6.602	<0.001

In Tables 10 and 11, I examined the effect of changing conferences one and three years later on the number of applications, after controlling for the number of logged applications, the admittance rate, the yield rate, and SAT scores in the prior year. Schools moving to more prestigious conferences experienced a 0.019 change after one year, and a 0.016 change after three years, showing an increase of 1.9% and 1.6%. After accounting for the previous year's characteristics, a one-unit increase in each coefficient gives an increase in applicants. Logged applicants gives 93.1%, admittance rate gives 0.2%, yield rate gives 0.2%, and SAT scores gives 0.1%. After accounting for the prior year's characteristics, a one-unit increase in each coefficient is associated with an increase in the number of applicants three years later. Logged applicants gives 69.4%, admittance rate gives 0.2%, yield rate gives less than 0.001%, and SAT scores gives 0.2%. If any area was thought to have a significant increase, it was applications. However, no significant increase in applications one year or three years after a move was found for schools moving to a more prestigious conference. In the one-year model, the previous year's logged applications, admittance rate, yield rate, and SATs were all found to be significant. After three years, yield rate was not found to be significant, but logged applications, admittance rate, and SATs were found to be significant. The majority of research on the association between collegiate athletics and academics pertains to applications. Going back to the 1980s the idea of the Flutie Effect was thought to have the greatest association with applications (Chung, 2013). However, there was no significant statistical relationship found with applicants in this study.



**Table 12***One-Year Lagged Outcome: Admissions*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	0.019	0.021	0.906	0.365
Log Applications	0.931	0.022	41.833	<0.001
Admit rate	0.002	0.001	3.976	<0.001
Yield Rate	0.002	0.001	2.844	0.004
SATs	0.001	0.000	5.227	<0.001

**Table 13***Three-Year Lagged Outcome: Admissions*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	-0.022	0.035	-0.643	0.520
Log Applications	0.384	0.034	11.224	<0.001
Admit rate	0.001	0.001	1.104	0.270
Yield Rate	-0.002	0.001	-2.624	0.009
SATs	0.001	0.000	6.251	<0.001

In Tables 12 and 13, I examined the effect of changing conferences one and three years later on the number of admissions, after controlling for the number of logged applications, the admittance rate, the yield rate, and SAT scores in the prior year. Schools moving to more prestigious conferences experienced a 0.019 change after one year, and a -0.022 change after three years, showing an increase of 1.9% and decrease of 2.2%. After accounting for the

previous year's characteristics, a one-unit increase in each coefficient gives an increase in admissions. Logged applicants gives 93.1%, admittance rate gives 0.2%, yield rate gives 0.2%, and SAT scores gives 0.1%. After accounting for the prior year's characteristics, a one-unit increase in each coefficient is associated with an increase in the number of admissions three years later. Logged applicants gives 38.4%, admittance rate gives 0.1%, yield rate gives -0.2%, and SAT scores gives 0.1%.

The results indicate moving to a more prestigious conference does not significantly increase admission rates one or three years after a move. In the one-year model, the previous year's logged applications, admittance rate, yield rate, and SATs were all found to be significant. After three years, admittance rate was not found to be significant, but logged applications, yield rate, and SATs were found to be significant.

The findings of no significance on the increase of applications suggested there would not be an increase in admissions. Without an increase in applicants, it would be difficult for a school to increase their accepted students.

**Table 14**

*One-Year Lagged Outcome: Enrollment*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	0.006	0.018	0.031	0.976
Log Applications	0.461	0.019	24.353	<0.001
Admit rate	0.007	0.001	13.069	<0.001
Yield Rate	0.007	0.001	11.835	<0.001
SATs	-0.000	0.000	-1.177	0.239

**Table 15***Three-Year Lagged Outcome: Enrollment*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	0.001	0.024	0.044	0.965
Log Applications	0.218	0.023	9.367	<0.001
Admit rate	0.002	0.001	2.732	0.007
Yield Rate	0.001	0.001	1.609	0.108
SATs	0.000	0.000	1.865	0.062

In Tables 14 and 15, I examined the effect of changing conferences one and three years later on the number of enrollments, after controlling for the number of logged applications, the admittance rate, the yield rate, and SAT scores in the prior year. Schools moving to more prestigious conferences experienced a 0.006 change after one year, and 0.001 change after three years, showing an increase of 0.6% and decrease of 0.1%. After accounting for the previous year's characteristics, a one-unit increase in each coefficient gives an increase in enrollment. Logged applicants gives 46.1%, admittance rate gives 0.7%, yield rate gives 0.7%, and SAT scores gives a negative percent greater than -0.01%. After accounting for the prior year's characteristics, a one-unit increase in each coefficient is associated with an increase in the number of enrollments three years later. Logged applicants gives 21.8%, admittance rate gives 0.2%, yield rate gives 0.1%, and SAT scores gives less than 0.01%.

Moving to a more prestigious conference was not found to have a statistically significant association with student enrollment. In the one-year model, the previous year's logged applications, admittance rate, and SATs were found to be significant, and yield rate was not.

After three years, logged applications and admittance rate were found to be significant, while yield rate and SAT were not found to be significant.

The results indicate that the enrollment of the freshman class is not changing one year after conference movement. Previous research has found success leads to greater enrollment within the first year (Anderson, 2017). Three years following movement did not result in any statistically significant findings. This could suggest that potential incoming students are not aware of and have no association with conference change; however, the lack of significance within one or three years after movements suggests that potential students may not be influenced for up to three years. Theoretically, there could be an effect even if the number of students admitted did not change. Schools can have a fixed number of students admitted for a particular year, regardless of the number of applications they receive. However, the 1.9% increase in applicants after one year and 1.6% increase after three years could suggest that students may have been more likely to attend but were not admitted.

**Table 16**

*One-Year Lagged Outcome: SAT*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	2.323	3.083	0.753	0.451
Log Applications	21.284	2.298	6.459	<0.001
Admit rate	-0.014	0.093	-0.154	0.878
Yield Rate	-0.032	0.091	-0.346	0.729
SATs	0.625	0.022	28.002	<0.001

**Table 17***Three-Year Lagged Outcome: SAT*

Controls	Estimate	Standard Error	T-Value	Sig.
Moved to more prestigious	1.296	4.606	0.281	0.779
Log Applications	41.315	4.527	9.127	<0.001
Admit rate	0.118	0.120	0.980	0.327
Yield Rate	0.145	0.117	1.242	0.214
SATs	0.322	0.031	10.5527	<0.001

In Tables 16 and 17, I examined the effect of changing conferences one and three years later on the SAT scores, after controlling for the number of logged applications, The admittance rate, the yield rate, and SAT scores in the prior year. Unlike in Tables 10 through 15, for the variables applications, admissions, and enrollment, the results in Tables 16 and 17 are points, not percentages. SAT scores moving to more prestigious conferences experienced an increase of 2.323 points after one year, and a 1.296-point change after three years. After accounting for the previous year's characteristics, a one-unit increase in each coefficient gives an increase in SAT scores. Logged applicants gives a 21.284-point change, admittance rate gives a -0.014-point change, yield rate gives a -0.32-point change, and SAT scores gives a 0.625-point change. After accounting for the prior year's characteristics, a one-unit increase in each coefficient is associated with an increase in the SAT scores three years later. Logged applicants gives a 41.315-point change, admittance rate gives a 0.118-point change, yield rate gives a 0.145-point change, and SAT scores gives a 0.322-point change.

The results indicate that FBS schools moving to more prestigious conferences do not see a significant increase in SAT score one year after a move. In the one-year model, the previous year's logged applications and SAT scores were found to be significant, and admittance and yield rates were not found to be significant. After three years, logged applications and SAT scores were found to be significant, while admittance rates and yield rates were not found to be significant.

Based on previous research, these results differed from what was expected. Although the study took place over 25 years ago, and arguably examined more events, Tucker and Amato (1993) found that SAT scores increase immediately after a school's athletic success, defined as finishing in the Top 10 in the final football rankings. As with one year later, there was no significance found three years following movement for SAT scores. Research also suggested there would be a statistical relationship within three years of movement. Pope and Pope (2009) found success in basketball, reaching the Final Four, was associated with an increase in SAT scores within the first three years.

### **Summary**

The purpose of this study was to try to determine what academic factors are associated with the movement of FBS schools to more prestigious conferences. The outcomes for these schools were not found to be statistically significant when measuring for a school's movement one and three years after their move. This chapter attempted to answer the research question guiding this study. The findings presented in this chapter gave a statistical analysis of applications, admitted students, enrolled students, and SAT scores, for FBS schools one and three years after their movement to a more prestigious conference. The results proved that none of these areas has a significant statistical relationship. This suggests that changing to a more

prestigious conference is not associated with a school's incoming students one or three years after their move. Chapter 5 concludes these findings and provides implications of this study and suggestions for further research.

## CHAPTER 5

### CONCLUSION

The purpose of this study was to determine the statistical relationship, if any, between NCAA Division I Football Bowl Subdivision (FBS) schools changing their football conference and application, admissions, enrollment, and SAT scores, and the majority of research has been qualitative. Most recently, Kramer (2016) conducted a case study involving FBS institutions, interviewing administrators and faculty members, in order to determine why their school changed conferences. This study was vastly different; this study used a quantitative approach to look at admissions, both in number of applications and SAT scores of accepted students. This study is even more innovative in design as it used a ranking system to determine conference prestige. The system was calculated by using three factors: the overall winning percentage against non-conference opponents, Associated Press (AP) final poll, and Simple Rating System (SRS) during the previous football season. Lastly, most studies analyzing the association of conference movement center on immediate results. This study focuses on the results one and three years after a school's move to a more prestigious conference, allowing for a more pragmatic look at the long-term relationship moving to a more prestigious conference has on application, admissions, enrollment, and SAT scores at FBS schools.

#### **Summary of Results**

The sample in this study came from the NCAA Division I FBS, formerly Division I-A, specifically, from the years 1998 to 2014. During this time frame, between 112 and 130 schools competed in the FBS each year, totaling 2,022 observations. From the 130 schools, there were between zero and 17 school conference changes each year; 58 schools changed conferences, totaling 85 overall conference changes. All of the 85 changes were examined to determine if



their movement was to a more or less successful conference. Forty-three of these moves were to more successful conferences. While Kramer (2016) found one of the reasons for changing conferences was to increase visibility and the quality of academics, through incoming students, this study did not find any statistical relationship between schools moving to a more prestigious football conference and applications, admittance, enrollment, and SAT scores. Based on previous research, if at least one area was thought to have a statistical relationship, it was admissions (Chung, 2013; Conn, 2014; Dosh, 2012; McDonald, 2003; McEvoy, 2005). This was not the case.

### **Implications of the Study**

The intention of this study was to determine if moving to a more prestigious FBS conference had a positive relationship to a school's incoming applicants, accepted students, enrollment, or SAT scores. Although no effect was found, this study was significant due to the popularity of college football and the impact it has on institutions. Football, especially among FBS schools, is the most visible and influential sport on college campuses (Won & Chelladurai, 2016). Success in football has impacted admissions, donations, and overall reputation. Institutions have changed their athletic football conferences to obtain these positive effects. Due to expiring television contracts with Fox and ESPN, it is predicted that there will be significant and profound movement of FBS schools to different conferences in 2023 and 2035 (Rittenberg, 2017). The findings in this study will benefit a multitude of universities as they approach their future decision-making.

Recent studies have found that goals for schools changing conferences include increasing and impacting the quality of academics (Kogan & Greyser, 2014; Kramer, 2016). This study has found that changing conferences does not have a statistical relationship with either of these

issues within the first three years of moving. Institutional leaders should take this into account when planning future movement and when setting their expectations following their movement.

### **Suggestions for Future Research**

As previously mentioned, one possible reason for not finding a statistical relationship is the length of time used in the study. The literature supports using one and three years after movement to obtain an understanding of the relationship; however, one or three years may not be a sufficient amount of time when looking at conference movement. Changing athletic conferences is a recent phenomenon; therefore, the long-term effects of changing conferences have not been fully examined.

Future research could examine student retention and graduation rates. After changing conferences to a more prestigious conference, are schools more or less likely to have a higher student retention and/or graduation rate?

One reason for wanting to move to a new, more prestigious conference is to be viewed and regarded in the same manner as the schools in the conference the school is joining. However, one of the attractive characteristics of the historically more prestigious and well-known conferences is their history. If we look at the University of Nebraska and the University of Maryland, they joined The Big Ten Conference in 2011 and 2014 respectively, nine and six years ago, three times and twice as long as the amount of time used in this study. After six and nine years, is either school viewed by the public as a “Big Ten school?” Are they still viewed as schools from the Big 12 and the ACC? The Big Ten was founded in the 1800s. Is three years, six years, or even nine years a long enough time period to determine the relationship of changing conferences? Perhaps the greater effect is more likely to be among universities that may not have been as well-known and associated with their previous conference. Future research can examine

and attempt to determine if schools that changed conferences are viewed as members of their new conference. Also, future research could investigate whether public perception sees schools in the same way as their conference partners, or at least as being more prestigious than the conference they left.

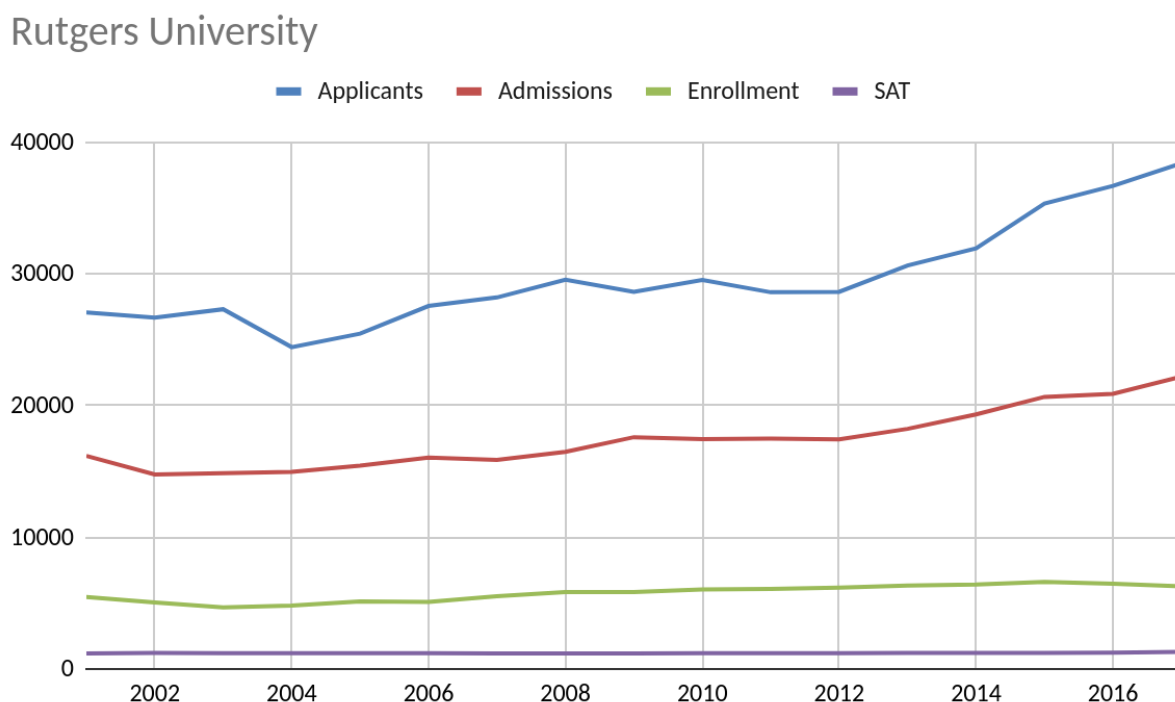
With the outcomes of this study not finding statistical significance when measuring for a school's movement, it raises the question: why are schools leaving their conferences, paying multi-million-dollar exiting fees, and dismissing years of traditions in their former conferences, to join new conferences? Future research should examine if there are other outcomes of changing conferences, including changes in athletic program revenue and athletics-specific donations.

For the purpose of this study, the focus was how conference movements are associated with academics. However, Kramer (2016) found that when changing conferences, the area of greatest importance to institutions was increased revenue. In 2019, Rutgers University, who joined the Big Ten in 2014, rehired their former head coach, Greg Schiano, to a \$32 million contract. Rutgers and Mr. Schiano came to an agreement on their new football facilities, which are estimated to cost over \$150 million. If Mr. Schiano can raise one half of the \$150 million, Rutgers will provide the other half of the money. Rutgers has not financially benefited from their move to the Big Ten; they are ranked last in revenue in their conferences, and they did not see the increase in donations they expected. Rutgers will not receive the full Big Ten revenue sharing until 2027. Rutgers has reported that their lack of success in the Big Ten has negatively affected them among alumni (O'Neill, 2019). Rutgers has a combined record of four wins and 40 losses in Big Ten play since joining the conference in 2014. The university's move to the historically prestigious Big Ten Conference did not appear to result in a change to the trends within their university in the areas of applications, accepted students, enrollment, or SAT scores (see Figure

1). However, it would be hard to argue the change did not impact the hiring of a new coach and allotment of funds to their football program. Potential future research could examine the impact on schools' athletic budgets after conference movement. Future studies could also examine if a school has performed well enough to be viewed as a legitimate member of the new conference.

**Figure 1**

*Rutgers University SAT Scores, Applications, Admissions, and Enrollment*



## Conclusion

The study has attempted to show the academic factors that change due to conference movement among NCAA Division I FBS schools. The model used in this study can be beneficial to the majority of influencers in higher education, and by the leaders on campuses throughout the country, as they seek to better determine and understand the possible association, or lack of association, changing conferences can have on a school's academics. Institutions may decide to lessen their expectations, or increase the time in which they are expecting change, after

conference movement. They may also look to examine the financial outcomes of changing conferences of other schools before setting their own potential outlooks. This study suggests that if a school is interested in changing FBS conferences, they should temper their expectations within the first three years. It also suggests they should focus on potential financial impacts. This study adds to existing literature on the relationship collegiate athletics, especially football, has to its school. The relationship to academics of the school that changes conferences may not have been seen within three years, but this study opened the door for future research on the topic.

## References

- ACT. (2019). *ACT-SAT Concordance Tables*. <http://www.act.org/content/dam/act/unsecured/documents/ACTCollegeBoardJointStatement.pdf>
- Allen, B. H., & Peters, J. I. (1982). The influence of a winning basketball program upon undergraduate student enrollment decisions at DePaul University. In M. J. Etzel & J. F. Gaski (Eds.), *Applying marketing technology to spectator sports* (pp. 136-148). Department of Marketing, College of Business Administration, University of Notre Dame.
- Anderson, M. L. (2017). The benefits of college athletic success: An application of the propensity score design. *The MIT Press Journal*. Retrieved from: [https://www.mitpressjournals.org/doi/suppl/10.1162/REST\\_a\\_00589](https://www.mitpressjournals.org/doi/suppl/10.1162/REST_a_00589)
- Arnold, K. (2013, April 09). *Report: Florida State to host Notre Dame in '14*. NBCSports. <http://irish.nbcsports.com/2013/04/09/report-florida-state-to-host-notre-dame-in-14/#/2013/04/18/notre-dame-nbc-sports-renew-partnership>
- Barkey, P. (2018, September 21). *Economic contribution of Grizzly Athletics*. Montana Business Quarterly. <http://www.montanabusinessquarterly.com/economic-contribution-grizzly-athletics/>
- Basten, J. H. (2002). *The influence of institutional success in intercollegiate athletics on college choice: An organizational identity theory-based study of students' enrollment decisions* (Order No. 3057893). [Doctoral dissertation, University of Michigan.] ProQuest Dissertations & Theses Global. (276276328). <https://search-proquest-com.ezproxy.shu.edu/docview/276276328?accountid=13793>
- Berkowitz, S. (2015, January 18). *NCAA increases value of scholarships in historic vote*. ISA Today. <http://www.usatoday.com/story/sports/college/2015/01/17/ncaaconvention-cost-of-attendance-student-athletes-scholarships/21921073/>
- Betts, J. R. (1974). *America's sporting heritage: 1850-1950*. Addison-Wesley.
- Bok, D. (2009). *Universities in the marketplace: The commercialization of higher education*. Princeton University Press.
- Bradley, J. E. (1984, September 14). Sold short, Flutie's stock is rising. *The Washington Post*. <https://www.washingtonpost.com>
- Bremmer, D. S., & Kesselring, R. G. (1993). The advertising effect of university athletic success: A reappraisal of the evidence. *The Quarterly Review of Economics and Finance*, 33(4), 409–421. [http://doi.org/10.1016/1062-9769\(93\)90006-6](http://doi.org/10.1016/1062-9769(93)90006-6)

- Carroll, J. (2008, February 24). 'Flutie effect' in final four. *South Bend Tribune*.  
<https://southbendtribune.com>
- Childs, K. A. (2018). *If the slipper fits: The relationship between a Cinderella appearance in the NCAA Division I Men's Basketball Tournament and institutional financial and admissions factors* (Publication no. 2553) [Doctoral dissertation, Seton Hall University]. Seton Hall University Dissertations and Theses (ETDs).
- Chressanthis, G. A., & Grimes, P. W. (1993). Intercollegiate sports success and first-year student enrollment demand. *Sociology of Sport Journal*, 10(3), 286–300.  
<https://doi.org/10.1123/ssj.10.3.286>
- Chung, D. J. (2013). The dynamic advertising effect on collegiate athletics. *Marketing Science*, 32(5), 679–678.
- Chung, D. J. (2013, February 08). *The dynamic advertising effect of collegiate athletics*. Harvard Business School. <https://hbswk.hbs.edu/item/the-dynamic-advertising-effect-of-collegiate-athletics>
- Cigliano, L. M. (2006). *A perceptual study of the impact of athletic programs in selected community colleges in the State of Tennessee*. [Doctoral dissertation, East Tennessee State University]. Electronic Theses and Dissertations. <http://dc.etsu.edu/etd/2184>
- College Football Statistics and History. (n.d.). Sports Reference. <https://www.sports-reference.com/cfb>
- College-bound students' strong interest in international education contrasts with actual college experiences. (2001). *Student Poll*, 4(3). [https://static1.squarespace.com/static/5810fea5e58c62bd729121cc/t/58bf20b82e69cfc931151511/1488920761645/studentPOL\\_L\\_V4.3\\_2000-2001.pdf](https://static1.squarespace.com/static/5810fea5e58c62bd729121cc/t/58bf20b82e69cfc931151511/1488920761645/studentPOL_L_V4.3_2000-2001.pdf)
- Conn, R. (2014, February 19). *Life after dunk city*. Grantland. <http://grantland.com/features/fgcu-eagles-ncaa-basketball-dunk-city-no-more/?scrlybrkr=c189e93e>
- Coomes, M. D. (2000). The historical roots of enrollment management. *New Directions for Student Services*, 2000(89), 5–18. <https://doi.org/10.1002/ss.8901>
- Cotterell, A. (2015). *How winning football games can impact academics at Boise State*. Boise State Public Radio. <http://boisestatepublicradio.org/post/how-winning-football-games-can-impact-academics-boise-state#stream/0>
- Covell, D., & Barr, C. A. (2010). *Managing intercollegiate athletics*. Holcomb Hathaway.
- Crowley, J. N. (2006). *In the arena: The NCAA's first century*. The National Collegiate Athletic Association.

- Daughters, A. (2017, October 3). *A timeline of college football conference realignment over the BCS era*. Bleacher Report. <https://bleacherreport.com/articles/2115606-a-timeline-of-college-football-conference-realignment-over-the-bcs-era#slide17>
- Dennie, C. (2012). Conference realignment: From backyard brawls to cash cows. *Mississippi Sports Law Review*, 2(1), 249–279.
- Dosh, K. (2012, March 12). Tournament pays handsomely for schools. *ESPN Men's College Basketball Blog*. [http://www.espn.com/blog/collegebasketballnation/post/\\_id/53175/tournament-pays-handsomely-for-schools](http://www.espn.com/blog/collegebasketballnation/post/_id/53175/tournament-pays-handsomely-for-schools)
- Duderstadt, J. J. (2003). *Intercollegiate athletics and the American university: A university president's perspective*. University of Michigan Press.
- Fleisher, A. A., Goff, B. L., & Tollison, R. D. (1992). *The National Collegiate Athletic Association: A study in cartel behavior*. University of Chicago Press.
- Gilleran, M., Katz, R., & Vaughn, I. (2013). *Should college athletes be paid?* Santa Clara University School of Law, Institute of Sports Law and Ethics. <http://law.scu.edu/sports-law/should-college-athletes-be-paid/>
- Green, D. (2018, February 9). Ed O'Bannon: How to fix college sports and revamp the student-athlete experience. *Sports Illustrated*. <https://www.si.com/college-basketball/2018/02/09/ed-obannon-interview-court-justice-ncaa-lawsuit-college-athletes-paid>
- Groza, M. D. (2010). NCAA conference realignment and football game day attendance. *Managerial & Decision Economics*, 31(8), 517–529. <https://doi.org/10.1002/mde.1506>
- Heller, D. E. (2002). *Condition of access: Higher education for lower income students*. Preager.
- Himmelsbach, A. (2012, June 26). Major colleges approve four-team football playoff. *The New York Times*. <https://www.nytimes.com/2012/06/27/sports/ncaafotball/four-team-college-football-playoff-approved.html>
- Hobson, W., & Rich, S. (2015). College athletic departments are taking in more money than ever—and spending it just as fast. *The Washington Post*. [http://www.washingtonpost.com/sf/sports/wp/2015/11/23/running-up-the-bills/?utm\\_term=.e6cf7f211e45](http://www.washingtonpost.com/sf/sports/wp/2015/11/23/running-up-the-bills/?utm_term=.e6cf7f211e45)
- Hossler, D. (2000). The role of financial aid in enrollment management. *New Directions for Student Services*, 82, 77–90.
- Hoxby, C. M. (2009). The changing selectivity of American Colleges. *Journal of Economic Perspectives*, 23(4), 95–118. doi:10.1257/jep.23.4.95
- Huma, R., & Staurowsky, E. J. (2012). *The \$6 billion heist: Robbing college athletes under the guise of amateurism*. National College Players Association. [ncpanow.org](http://ncpanow.org)



- Humphreys, B. R., & Mondello, M. (2007). Intercollegiate athletic success and donations at NCAA Division I institutions. *Journal of Sport Management*, 21(2), 265–280. <https://doi.org/10.1123/jsm.21.2.265>
- Johnson, A. L. (2000). The evolution of strategic enrollment management. *Journal of College Admissions*, 166, 4–11.
- Jovell, K., Gaume, C., Hunter, D., & Irwin, B. (2006). *History of financial aid*. [Presentation.] Annual meeting for the National Association of Student Financial Aid Administrators (NASFAA), Seattle, WA, United States.
- Kirshner, A. (2018, March 08). *The NCAA made \$1 billion in 2017, for the first time*. SBNation. <https://www.sbnation.com/2018/3/8/17092300/ncaa-revenues-financial-statement-2017>
- Knight Commission on Intercollegiate Athletics. (2010). *Restoring the balance: Dollars, values, and the future of college sports*. John S. and James L. Knight Foundation Commission on Intercollegiate Athletics.
- Kogan, V., & Greyser, S.A. (2014). *Conflicts of college conference realignment: Pursuing revenue, preserving tradition, and assessing the future*. Harvard Business School. <https://www.hbs.edu/faculty/Pages/item.aspx?num=46476>
- Koo, G., & Dittmore, S. (2012, April 27). Winning boosts (athletic) giving. *Inside Higher Ed*. <http://www.insidehighered.com/news/2012/04/27/athletic-giving-crowds-out-Academic-donations-research-finds>
- Kramer, D. A. (2016). Motivations to switch: Refuting the public discourse on athletic conference realignment. *The Review of Higher Education*, 39(3), 339–370. <https://doi.org/10.1353/rhe.2016.0018>
- Mandel, S. (2012, May 4). Realignment cheat sheet: Which teams ended up in which league? *Sports Illustrated*. [http://sportsillustrated.com/2012/writers/stewart\\_mandel/05/03/realignment-primer](http://sportsillustrated.com/2012/writers/stewart_mandel/05/03/realignment-primer)
- Mandel, S. (2013, June 10). Go for it on fourth and multiply. *Sports Illustrated*. <https://www.si.com/vault/2013/06/10/106332817/go-for-it-on-fourth-and-multiply>
- Mccormick, R. E., & Tinsley, M. (1987). Athletics versus academics? Evidence from SAT scores. *Journal of Political Economy*, 95(5), 1103–1116. <http://doi.org/10.1086/261505>
- McDonald, B. (2003, Spring). Phenomenology. *Boston College Magazine*. <http://bcm.bc.edu>
- McEvoy, C. (2005) The relationship between dramatic changes in team performance and undergraduate admissions applications. *The SMART Journal*, 2(1).

- McEvoy, C. (2006). An examination of the “Flutie Factor” in intercollegiate athletics. *Sports Economics Perspectives*, 3, 6–8.
- McMurphy, B. (2019, September 18). *Analyzing the conference realignment that shaped today’s football landscape*. Stadium. <https://watchstadium.com/news/analyzing-the-conference-realignment-that-shaped-todays-football-landscape-mcmurphys-law-09-17-2019/>
- Mixon, F. G. (1995). Athletics versus academics? Rejoining the evidence from SAT scores. *Education Economics*, 3(3), 277–283.
- Mixon, F., & Hsing, Y. (1994). The determinants of out-of-state enrollments in higher education. *Economics of Education Review*, 13(4), 329–335.
- Morphew, C. C., & Taylor, B. J. (2009, August 19). College rankings and dueling mission statements. *The Chronicle of Higher Education*. <https://www.chronicle.com/article/College-RankingsDueling/48070>
- NCAA Football. (n.d.). Retrieved from <https://www.ncaa.com/sports/football/fbs>
- NCAA. (2017). *NCAA Eligibility Center 2017-2018 Guide for the College Bound Student Athlete*. <http://www.ncaapublications.com/productdownloads/CBSA18.pdf>
- Nelder, J., & Wedderburn, R. (1972). Generalized linear models. *Journal of the Royal Statistical Society*, 135, 370–384. <https://doi.org/10.2307/2344614>
- Nocera, J., & Strauss, B. (2016, February 26). How Northwestern football union nearly came to be. *Sports Illustrated*. <https://www.si.com/college-football/2016/02/24/northwestern-union-case-book-indentured>
- Notre Dame renewing tv contract with NBC. (2008, June 19). *NBC Sports*. <http://nbcsports.msnbc.com>
- O’Bannon, E. (2018, February 26). *The NCAA is broken*. The Players’ Tribune. <https://www.theplayerstribune.com/en-us/articles/ed-obannon-ncaa>
- O’Neill, J. M. (2019, February 1). Rutgers athletics well behind Big Ten peers in revenue as well as victories. *North Jersey Record*. <https://www.northjersey.com/story/news/2019/02/01/rutgers-athletics-bottom-big-ten-revenue-and-victories/2748374002/>
- Oslin, R. (2004, November 18). Remembering the miracle in Miami. *The Boston College Chronicle*. <http://www.bc.edu>
- Perez, S. J. (2012). Does intercollegiate athletics draw local students to a university? *Journal of Sports Economics*, 13(2), 198–206.

- Petit, F. C. (1997). *Men's intercollegiate basketball and its impact on undergraduate admission application rates: An examination of Division I-AAA institutions from 1987-1993*. (Order No. 205789). [Doctoral dissertation.] ProQuest Dissertations & Theses Global. (1458952547).
- Pettit, L. K. (2014, January 16). College football reflects American culture. *Helena Independent Record*. [https://helenair.com/news/opinion/readers\\_alley/college-football-reflects-american-culture/article\\_24c8dfba-7e42-11e3-be4f-0019bb2963f4.html](https://helenair.com/news/opinion/readers_alley/college-football-reflects-american-culture/article_24c8dfba-7e42-11e3-be4f-0019bb2963f4.html)
- 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.
- Pope, D. G., & Pope, J. C. (2014). Understanding college application decisions. *Journal of Sports Economics*, 15(2), 107–131. <https://doi.org/10.1177/1527002512445569>
- Rhoads, T., & Gerking, S. (2000). Educational contributions, academic quality, and athletic success. *Contemporary Economic Policy*, 18(2), 248–258.
- Ridpath, B. D. (2017, January 20). Part time students, full time college athletes-not a bad idea but also not a new one. *Forbes*. <https://www.forbes.com/sites/bdavidridpath/2017/01/19/part-time-students-full-time-college-athletes-not-a-bad-idea-but-also-not-a-new-one/#15e43e6e4f66>
- Rishe, P. J. (2003) A reexamination of how athletic success impacts graduation rates: Comparing student-athletes to all other undergraduates - the university. *American Journal of Economics and Sociology*, 62(2), 407–427.
- Rittenberg, A. (2017, June 27). Save the date: All eyes on 2023 for conference realignment. *ESPN*. [http://www.espn.com/college-football/story/\\_/id/19743196/why-2023-next-big-date-conference-shuffling](http://www.espn.com/college-football/story/_/id/19743196/why-2023-next-big-date-conference-shuffling)
- Rooney, J. F. & Davidson, A. B. (1995). Football. In K.B. Raitz (Ed.), *The theater of sports*. Johns Hopkins University Press.
- Routon, P., & Walker, J. (2015). Student-athletes? The impact of intercollegiate sports participation on academic outcomes. *Eastern Economic Journal*, 41(4), 592–611.
- Rudolph, F. (1990). *The American college & university: A history*. University of Georgia Press.
- Russo, R. D. (2018, March 02). NCAA's Mark Emmert: Changes needed, but not paying players. *Chicago Tribune*. <http://www.chicagotribune.com/sports/college/ct-ncaa-paying-players-20180302-story.html?scrlybrkr=49556b11>
- Ryan, C. L., & Bauman, K. (2015). *Educational attainment in the United States: 2015 population characteristics*. United States Census Bureau. <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf>

- Ryman, A. (2013, February 7). Colleges covet out-of-state students. *USA Today*.  
<https://www.usatoday.com/story/news/nation/2013/02/07/arizona-colleges-out-of-state-students/1899499/>
- Sandomir, R. (2013, August 23). To protect its empire, ESPN stays on offense. *The New York Times*. <https://nytimes.com>
- Saul, D., Atkinson, W., Fang, S., & Tucker, H. (n.d.). *The Chronicle*. <http://dukechronicle.com/>
- Seltzer, R. (2018, February 6). Giving to colleges rises by 6.3%. *Inside Higher Ed*.  
<https://www.insidehighered.com/news/2018/02/06/personal-giving-pushes-donations-colleges-and-universities-new-level-2017>
- Shaffer, C. (2015). *Should Division I Football and Men's Basketball Student-Athletes be Paid?* (Order No. 855252). [Doctoral dissertation.] ProQuest Dissertations & Theses Global. (43125). <https://search-proquest-com.ezproxy.shu.edu/docview/276276328?accountid=13793>
- Sherman, R. (2016, April 12). NCAA will now make \$1 billion from TV rights. *SBNation*.  
<https://www.sbnation.com/college-basketball/2016/4/12/11415764/ncaa-tournament-tv-broadcast-rights-money-payout-cbs-turner>
- Shulman, J. L., & Bowen, W. G. (2002). *The game of life: College sports and educational values*. Princeton University Press.
- Simplicio, J. (2011). New ideas that are academically sound are good, those that bring in money are even better. *Education*, 131(3), 533–537.
- Smith, D. R. (2008). Big-time college basketball and the advertising effect: Does success really matter? *Journal of Sports Economics*, 9(4), 387–406.  
<https://doi.org/10.1177/1527002507310805>
- Smith, R. (1990). *Sports and freedom: The rise of big-time college athletics*. Oxford University Press.
- Smith, R. (2001). *Play-by-play: Radio, television and big-time college sport*. Johns Hopkins University Press.
- Sperber, M. (1990). *College sports, inc.: The athletic department vs. the university*. Henry Holt & Co.
- Sperber, M. (2000). *Beer and Circus*. Henry Holt and Company.
- 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), 1–20. [https://doi.org/10.1016/s1441-3523\(08\)70101-3](https://doi.org/10.1016/s1441-3523(08)70101-3)

- Suggs, W. (2000). Players off the field. How Jim Delany and Roy Kramer took over big-time college sports. *Chronicle of Higher Education*, 47(13), A59–61.
- Sulieman, R. (2018, April 3). Sailing: Elis prepare for New England Championships. *Yale News*. <https://yaledailynews.com/blog/2018/04/03>.
- Sullivan, M. (2008). *Fundamentals of statistics*. Pearson Prentice Hall.
- Swail, W., & Wilkinson, B. (2007). *Strategic enrollment management: An introduction*. Educational Policy Institute. <http://www.educationalpolicy.org/>
- Thelin, J. R. (2004). *A history of American higher education*. Johns Hopkins University Press.
- Toma, J. D. (2003). *Football U.: Spectator sports in the life of the American university*. University of Michigan Press.
- Toma, J. D., & Cross, M. E. (1998). Intercollegiate athletics and student choice: Exploring the impact of championship seasons on undergraduate admissions. *Research in Higher Education*, 39(6), 633–661.
- Tracing the History of N.C.A.A. Conferences. (n.d.). *The New York Times*. <http://www.nytimes.com/newsgraphics/2013/11/30/football-conferences/index.html>
- Tucker, I. B., & Amato, L. (1993). Does big-time success in football or basketball affect SAT scores? *Economics of Education Review*, 12(2), 177–181.
- US Lacrosse. (n.d.). <https://www.uslacrosse.org/>
- Won, D., & Chelladurai, P. (2016). Competitive advantage in intercollegiate athletics: Role of intangible resources. *PLOS ONE*, 11(1).
- Wong, G. (2014, June 9). The path to the athletic director's office. *Sports Business Journal*. <https://www.sportsbusinessdaily.com/Journal/Issues/2014/06/09/In-Depth/Wong-column.aspx>
- Yost, M. (2010). *Varsity green: A behind the scenes look at culture and corruption in college athletics*. Stanford University Press.
- Zimbalist, A. (2001). *Unpaid professionals: Commercialism and conflict in big-time college sports*. Princeton University Press.
- Zwick, R. (2017). Admissions testing in college and graduate education 1. *Handbook on Measurement, Assessment, and Evaluation in Higher Education* (pp. 271–294). Routledge.

## Appendix A

### Schools Used in the Study from 1998 to 2014

First Year Play- ing in New Conf.	Schools Changing Conferences	School	Previous Conference to New Conference
1998	1	Army	(Independent) to (C-USA)
1999	10	Air Force BYU Colorado State New Mexico San Diego State UNLV Utah Wyoming Arkansas State UAB	(WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC) (Independent) to (Big West) (Independent) to (C-USA)
2000	1	Nevada	(Big West to WAC)
2001	11	Arkansas State Idaho New Mexico State North Texas Louisiana-Lafayette	(Big West) to (Sun Belt) (Big West) to (Sun Belt) (Big West) to (Sun Belt) (Big West) to (Sun Belt) (Independent) to (Sun Belt)

		Louisiana-Monroe Middle Tennessee State Boise State Utah State TCU Louisiana Tech	(Independent) to (Sun Belt) (Independent) to (Sun Belt) (Big West) to (WAC) (Big West) to (Independent) (WAC) to (C-USA) (Independent) to (WAC)
2002	1	UCF	(Independent) to (MAC)
2003	2	USF Utah State	(Independent) to (C-USA) (Independent) to (Sun Belt)
2004	4	Miami Virginia Tech Troy UConn	(Big East) to (ACC) (Big East) to (ACC) (Independent) to (Sun Belt) (Independent) to (Big East)
2005	16	Army Cincinnati Louisville USF TCU Marshall UCF Tulsa UTEP Rice	(C-USA) to (Independent) (C-USA) to (Big East) (C-USA) to (Big East) (C-USA) to (Big East) (C-USA) to (Mountain West) (MAC) to (C-USA) (MAC) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA)

		SMU Boston College Temple Idaho New Mexico State Utah State	(WAC) to (C-USA) (Big East) to (ACC) (Big East) to (Independent) (Sun Belt) to (WAC) (Sun Belt) to (WAC) (Sun Belt) to (WAC)
2006	0		
2007	1	Temple	(Independent) to (MAC)
2008	1	Western Kentucky	(Independent) to (Sun Belt)
2009	0		
2010	0		
2011	5	Colorado Nebraska Utah BYU Boise State	(Big 12) to (Pac-12) (Big 12) to (Big Ten) (MWC) to (Pac-12) (MWC) to (Independent) (WAC) to (MWC)
2012	8	Texas A&M Missouri West Virginia TCU Temple Fresno State Hawaii Nevada	(Big 12) to (SEC) (Big 12) to (SEC) (Big East) to (Big 12) (MWC) to (Big 12) (MAC) to (Big East) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC)



2013	17	Syracuse	(Big East) to (ACC)
		Pitt	(Big East) to (ACC)
		UCF	(C-USA) to (American)
		Houston	(C-USA) to (American)
		Memphis	(C-USA) to (American)
		SMU	(C-USA) to (American)
		Middle Tennessee (State)	(Sun Belt) to (C-USA)
		FAU	(Sun Belt) to (C-USA)
		FIU	(Sun Belt) to (C-USA)
		North Texas	(Sun Belt) to (C-USA)
		Texas-San Antonio	(WAC) to (C-USA)
		Louisiana Tech	(WAC) to (C-USA)
		Utah State	(WAC) to (MWC)
		San Jose State	(WAC) to (MWC)
		Texas State	(WAC) to (Sun Belt)
		Idaho	(WAC) to (Independent)
		New Mexico State	(WAC) to (Independent)
2014	7	Maryland	(ACC to Big Ten)
		Rutgers	(American to Big Ten)
		Louisville	(American to ACC)
		East Carolina	(American to C-USA)
		Tulsa	(American to C-USA)
		Tulane	(American to C-USA)
		Western Kentucky	(Sun Belt to American)

## Appendix B

### 1997 to 2014 Conference Rankings

*Conference rankings determined by overall winning percentage against non-conference opponents. Associated Press final Poll, and Simple Rating System (SRS) (College Football Statistics and History, n.d.)*

1997 Season	
1	Southeastern Conference (SEC)
2	Pac-10 Conference (Pac-10)
3	Atlantic Coast Conference (ACC)
4	Big Ten Conference (Big 10)
5	Big 12 Conference (Big 12)
6	Conference USA (C-USA)
7	Western Athletic Conference (WAC)
8	Big East Conference (Big East)
9	Mid-American Conference (MAC)
10	Independent
11	Big West Conference (Big West)

1998 Season	
1	Big 12
2	Big 10
3	Pac-10
4	SEC
5	ACC
6	Big East
7	C-USA

8	WAC
9	Independent
10	Big West
11	MAC

1999 Season	
1	Big 10
2	SEC
3	ACC
4	Big 12
5	Pac-10
6	Big East
7	Mountain West Conference (Mountain West)
8	C-USA
9	WAC
10	Independent
11	Big West
12	MAC

2000 Season	
1	Pac-10
2	Big East
3	Big 12
4	SEC
5	Big 10
6	ACC

7	C-USA
8	Mountain West
9	WAC
10	MAC
11	Big West
12	Independent

2001 Season	
1	SEC
2	Big 12
3	Pac-10
4	Big East
5	Big 10
6	ACC
7	Mountain West
8	C-USA
9	WAC
10	Independent
11	MAC
12	Sun Belt Conference (Sun Belt)

2002 Season	
1	Pac-10
2	SEC
3	Big 12
4	Big 10

5	ACC
6	Big East
7	Independent
8	Mountain West
9	C-USA
10	MAC
11	WAC
12	Sun Belt

2003 Season	
1	SEC
2	ACC
3	Big 10
4	Big 12
5	Pac-10
6	Big East
7	Mountain West
8	Independent
9	C-USA
10	WAC
11	MAC
12	Sun Belt

2004 Season	
1	Pac-10
2	ACC

3	Big 12
4	Big 10
5	SEC
6	Mountain West
7	Big East
8	WAC
9	C-USA
10	Independent
11	MAC
12	Sun Belt

2005 Season	
1	Big 10
2	ACC
3	Pac-10
4	Big 12
5	SEC
6	Big East
7	Independent
8	Mountain West
9	C-USA
10	MAC
11	WAC
12	Sun Belt

2006 Season	
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1	SEC
2	Big East
3	Pac-10
4	Big 10
5	Big 12
6	ACC
7	Mountain West
8	WAC
9	C-USA
10	Independent
11	MAC
12	Sun Belt

2007 Season	
1	SEC
2	Pac-10
3	Big East
4	Big 12
5	ACC
6	Big 10
7	Mountain West
8	WAC
9	Independent
10	C-USA
11	Sun Belt
12	MAC

2009 Season	
1	SEC
2	Big East
3	ACC
4	Big 12
5	Pac-10
6	Big 10
7	Mountain West
8	Independent
9	WAC
10	C-USA
11	MAC
12	Sun Belt

2010 Season	
1	Pac-10
2	SEC
3	Big 12
4	ACC
5	Big 10
6	Independent
7	Big East
8	WAC
9	Mountain West
10	C-USA



11	MAC
12	Sun Belt

2011 Season	
1	Big 12
2	SEC
3	Big 10
4	Pacific 12 Conference (Pac-12, formerly Pac-10)
5	Big East
6	ACC
7	Independent
8	Mountain West
9	MAC
10	C-USA
11	WAC
12	Sun Belt

2012 Season	
1	SEC
2	Big 12
3	Pac-12
4	Big 10
5	Independent
6	ACC
7	Big East
8	WAC

9	Sun Belt
10	Mountain West
11	C-USA
12	MAC

2013 Season	
1	Pac-12
2	SEC
3	Big 12
4	Big 10
5	ACC
6	American Athletic Conference (American)
7	Mountain West
8	Independent
9	Sun Belt
10	C-USA
11	MAC

## Appendix C

### Conference Movement

*Schools who had conference movement and if their movement was to a more successful conference.*

First Year in new Conf.	Schools changing conferences	School	Previous Conference to New Conference	Schools whose new conference had a higher ranking the previous season. Schools whose conferences no longer completed in FBS are also included, as long as their new conference is a more prestigious conference. Schools who moved to newly formed conferences are also included, as long as their new conference is a more prestigious conference.
1998	1	Army	(Independent) to (C-USA)	Army
1999	10	Air Force	(WAC) to (MWC)	Air Force
		BYU	(WAC) to (MWC)	BYU
		Colorado State	(WAC) to (MWC)	Colorado State
		New Mexico	(WAC) to (MWC)	New Mexico
		San Diego State	(WAC) to (MWC)	San Diego State
		UNLV	(WAC) to (MWC)	UNLV
		Utah	(WAC) to (MWC)	Utah
		Wyoming	(WAC) to (MWC)	Wyoming
		Arkansas State	(Independent) to (Big West)	
		UAB	(Independent) to (C-USA)	*Mountain West was a newly formed conference

2000	1	Nevada	(Big West to WAC)	Nevada
2001	11	Arkansas State	(Big West) to (Sun Belt)	Arkansas State
		Idaho	(Big West) to (Sun Belt)	Idaho
		New Mexico State	(Big West) to (Sun Belt)	New Mexico State
		North Texas	(Big West) to (Sun Belt)	North Texas
		Louisiana-Lafayette	(Independent) to (Sun Belt)	Louisiana-Lafayette
		Louisiana-Monroe	(Independent) to (Sun Belt)	Louisiana-Monroe
		Middle Tennessee State	(Independent) to (Sun Belt)	Middle Tenn State
		Boise State	(Big West) to (WAC)	Boise State
		Utah State	(Big West) to (Independent)	
		TCU	(WAC) to (C-USA)	TCU
		Louisiana Tech	(Independent) to (WAC)	Louisiana Tech
				*Sun Belt was a newly formed conference.
2002	1	UCF	(Independent) to (MAC)	none
2003	2	USF	(Independent) to (C-USA)	none
		Utah State	(Independent) to (Sun Belt)	
2004	4	Miami	(Big East) to (ACC)	Miami
		Virginia Tech	(Big East) to (ACC)	Virginia Tech
		Troy		

		UConn	(Independent) to (Sun Belt) (Independent) to (Big East)	UConn
2005	16	Army Cincinnati Louisville USF TCU Marshall UCF Tulsa UTEP Rice SMU Boston College Temple Idaho New Mexico State Utah State	(C-USA) to (Independent) (C-USA) to (Big East) (C-USA) to (Big East) (C-USA) to (Big East) (C-USA) to (Mountain West) (MAC) to (C-USA) (MAC) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA) (Big East) to (ACC) (Big East) to (Independent) (Sun Belt) to (WAC) (Sun Belt) to (WAC) (Sun Belt) to (WAC)	Cincinnati Louisville USF TCU Marshall UCF  Boston College  Idaho New Mexico State Utah State
2006	0			none
2007	1	Temple	(Independent) to (MAC)	none
2008	1	Western Kentucky	(Independent) to (Sun Belt)	none

2009	0			none
2010	0			none
2011	5	Colorado Nebraska Utah BYU Boise State	(Big 12) to (Pac-12) (Big 12) to (Big Ten) (MWC) to (Pac-12) (MWC) to (Independent) (WAC) to (MWC)	Colorado  Utah BYU
2012	8	Texas A&M Missouri West Virginia TCU Temple Fresno State Hawaii Nevada	(Big 12) to (SEC) (Big 12) to (SEC) (Big East) to (Big 12) (MWC) to (Big 12) (MAC) to (Big East) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (MWC)	West Virginia TCU Temple Fresno State Hawaii Nevada
2013	17	Syracuse Pitt UCF Houston Memphis SMU Middle Tennessee (State) FAU	(Big East) to (ACC) (Big East) to (ACC) (C-USA) to (American) (C-USA) to (American) (C-USA) to (American) (C-USA) to (American) (Sun Belt) to (C-USA) (Sun Belt) to (C-USA)	Syracuse Pitt UCF* Houston* Memphis* SMU*

		FIU North Texas Texas-San Antonio Louisiana Tech Utah State San Jose State Texas State Idaho New Mexico State	(Sun Belt) to (C-USA) (Sun Belt) to (C-USA) (WAC) to (C-USA) (WAC) to (C-USA) (WAC) to (MWC) (WAC) to (MWC) (WAC) to (Sun Belt) (WAC) to (Independent) (WAC) to (Independent)	Idaho New Mexico State  *First season of the American Conference in FBS. ** Last season of WAC in FBS.
2014	7	Maryland Rutgers Louisville East Carolina Tulsa Tulane Western Kentucky	(ACC to Big Ten) (American to Big Ten) (American to ACC) (American to C-USA) (American to C-USA) (American to C-USA) (Sun Belt to American)	Maryland Rutgers Louisville  Western Kentucky

## Appendix D

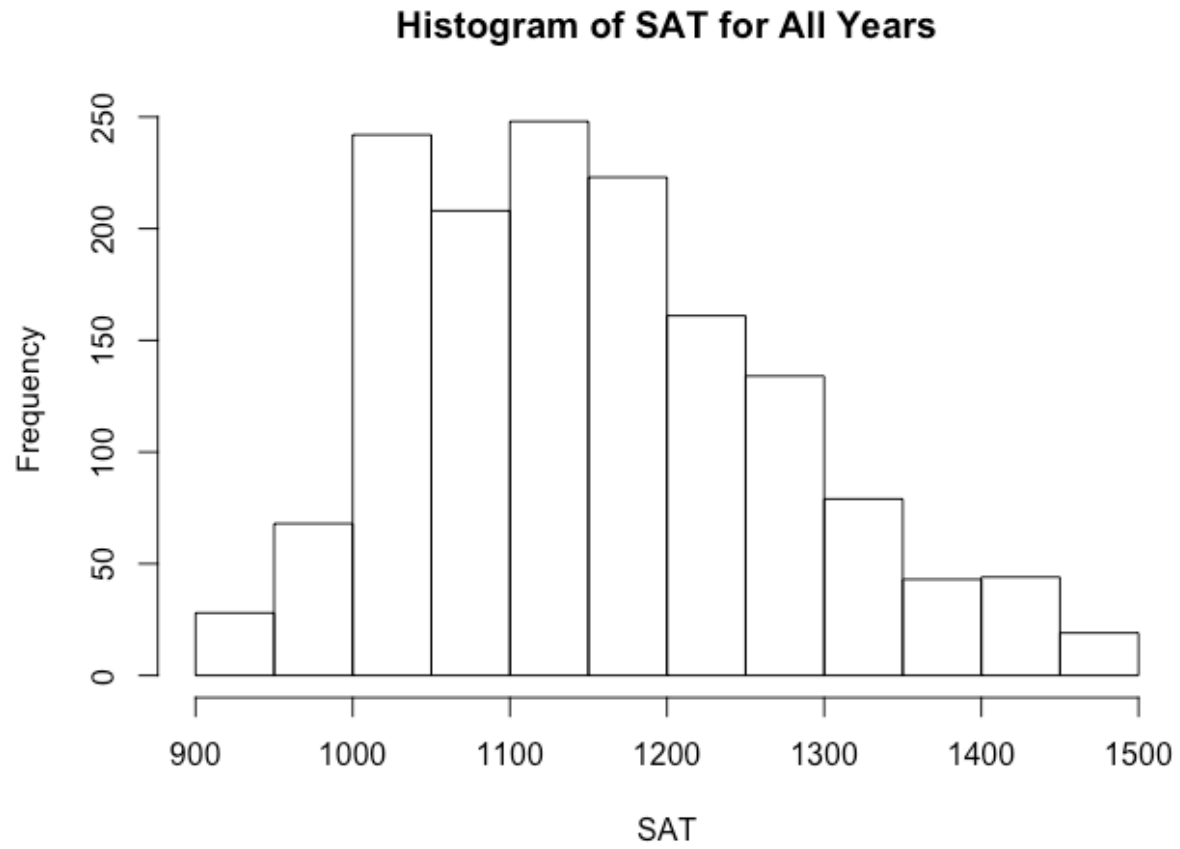
### FBS Conferences from 1998 to 2014

Conference	Years Active
American Athletic Conference	2013-2014
Atlantic Coast Conference	1998-2014
Big East	1998- 2012
Big Ten	1998- 2014
Big 12	1998- 2014
Big West	1998-2000
Conference USA	1998-2014
Independent	1998-2014
Mid-American Conference	1998-2014
Mountain West Conference	1999-2014
Pac-12	1998-2014
Southeastern Conference	1998-2014
Sun Belt	2001-2014
Western Athletic Conference	1998-2012



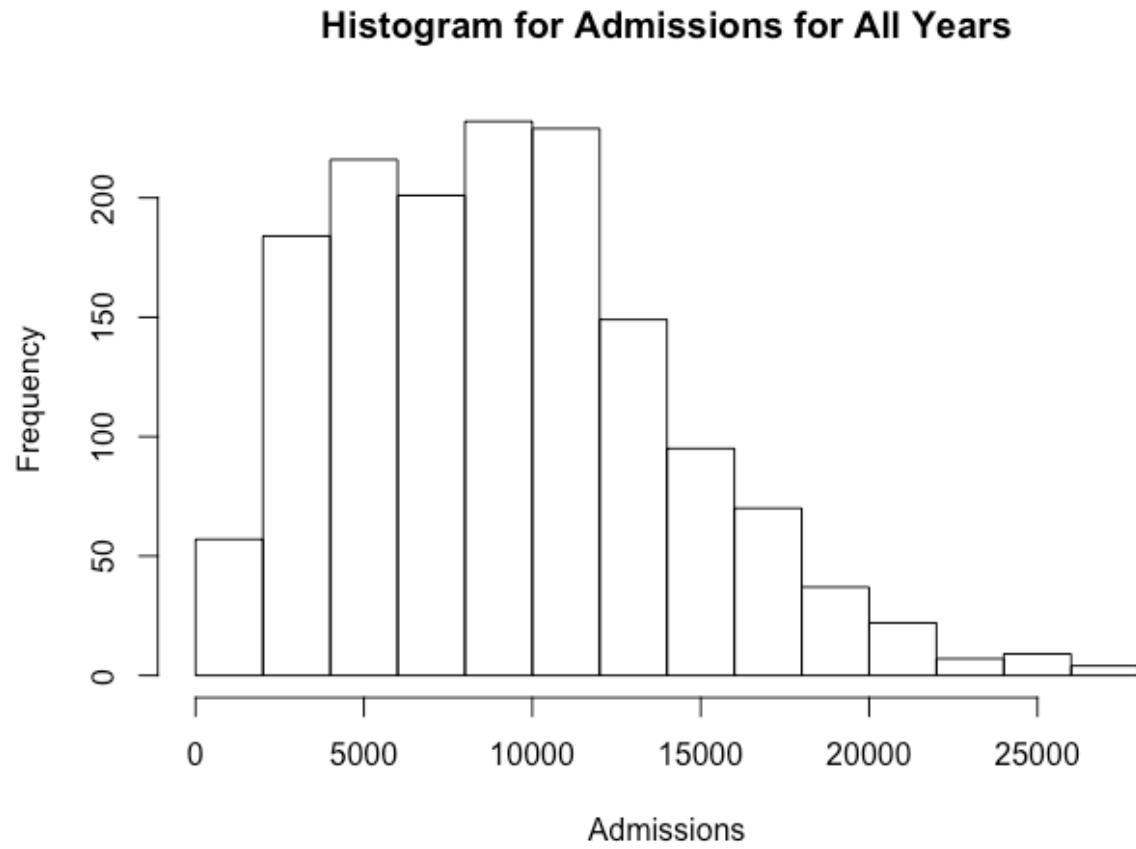
## Appendix E

### Histogram of SAT for All Years



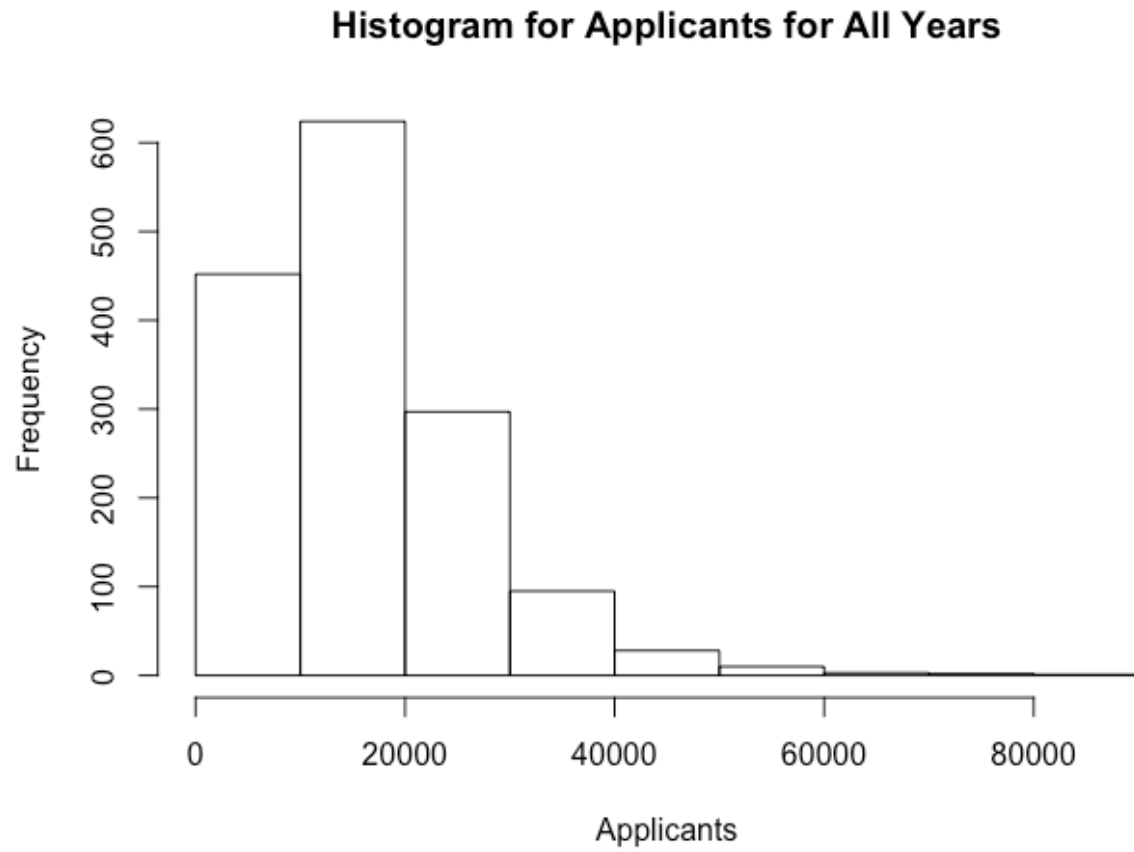
## Appendix F

### Histogram of Admissions for All Years



## Appendix G

### Histogram of Applications for All Years



## Appendix H

### Histogram of Enrollment for All Years

#### Histogram for Enrolled for All Years

