

DOES COLLEGE FOOTBALL SUCCESS IMPACT  
ACADEMIC RANKINGS AND THE OVERALL ACADEMIC QUALITY  
OF INCOMING STUDENTS FOR PRIVATE UNIVERSITIES?

by

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## ABSTRACT

The purpose of this study was to gain a better understanding of the relationship that exists between the football success of the seventeen NCAA Division-1 FBS private universities and the US News and World Report college rankings. This study shines more light on the constant debate about whether or not football success significantly impacts the reputation of a university. This study measures the relationship between college football success and the potential indirect benefits a university experiences from this success. These indirect benefits include things such as increases in applications and alumni donations. This study measures the correlations between football success and academic reputation through the use of regression analysis models that look at the change in US News and World Report college rankings from 1998 to 2013.

The results from these statistical models demonstrated an undeniable correlation between the football success of the seventeen NCAA Division-1 FBS private universities and the US News and World Report college rankings. In other words, the better a private university performs in football, the better its academic reputation will become, assuming the university has continually invested in its academics.

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## INTRODUCTION

The relationship between collegiate athletics and higher education has been a topic of heated debate for quite some time. As the salaries of college coaches continue to increase and more and more money is poured into collegiate athletics, one must begin to question the rationale behind this ever-increasing trend. In fact, in recent years, congress has even begun to question the role of the National Collegiate Athletic Association (NCAA) in higher education. In 2006, Californian Representative, Bill Thomas asked the NCAA president the following question, “How does playing major college football or men's basketball in a highly commercialized, profit-seeking, entertainment environment further the educational purpose of your member institutions” (Thomas, 2006)? Some people would answer this question by saying that collegiate athletics *do not* further the academic objectives of higher education. These people would argue that the money spent on athletic programs should be spent solely for the purpose of improving a school’s academic mission. However, others would argue that college athletics act more as a complement to a school’s academic mission rather than a substitute for it. They believe that universities receive a variety of indirect benefits from college athletics such as increased applications, more academically competitive incoming classes, increased student body unity, and increased alumni donations.

According Christopher Del Conte, athletic director of Texas Christian University, “I believe athletics is the front porch for the university. No doubt about it. It puts us in a position to sell our university coast to coast. As our program has risen in football, the amount of applicants has risen from 4000 or 5000 six to seven years

ago to well over 20,000 applicants per year now. The popularity of TCU to share the vision of what the university is, athletics has helped sell that vision.” Del Conte went onto compare TCU’s recent success to what happened to Duke University in the early 80s, “I refer to this as the Duke effect. Duke University was a great regional university in the early 80s. Because of the basketball program, they became a national university and their brand has been branded coast to coast. You could say the same for TCU. We’d been a great regional university, but because of our [athletic] success, we’ve become a national university (Del Conte, 2012). This study explores the theory expressed by Del Conte in greater detail by examining the impact athletic success has on the many variables that make up the annual college rankings published by the U.S. News and World Report.

### **Premise and Rationale**

The basic assumption throughout this study is that a university is always striving to maximize the overall student quality for its future incoming classes, as well as increase the amount of donations the university receives. The idea is that higher achieving students and increased donations naturally will lead to an overall betterment of the university. As the overall academic quality of students continues to improve and the increase in donations allows for things such as the hiring of better professors, increased resources for academic programs, and upgrades to academic facilities, the overall reputation of a university is naturally expected to increase.

When it comes to admissions, the more applications a university receives, the more selective the admissions department is able to be during the acceptance

process. In theory, assuming a university's acceptance numbers remain relatively constant, an unusual increase in the amount of applications a university receives allows the institution to be much more selective by accepting students with superior academic credentials. This decrease in acceptance rate and the superior students that bring with them increased SAT scores would help improve the overall ranking of the university. It is also assumed that this increased university ranking would lead to even more applications and student interest in the future. Institutions are also always striving to find ways to increase alumni donations. In the case of private universities that rely solely on tuition and private donations for funding, an increase in alumni donations is especially beneficial to the university.

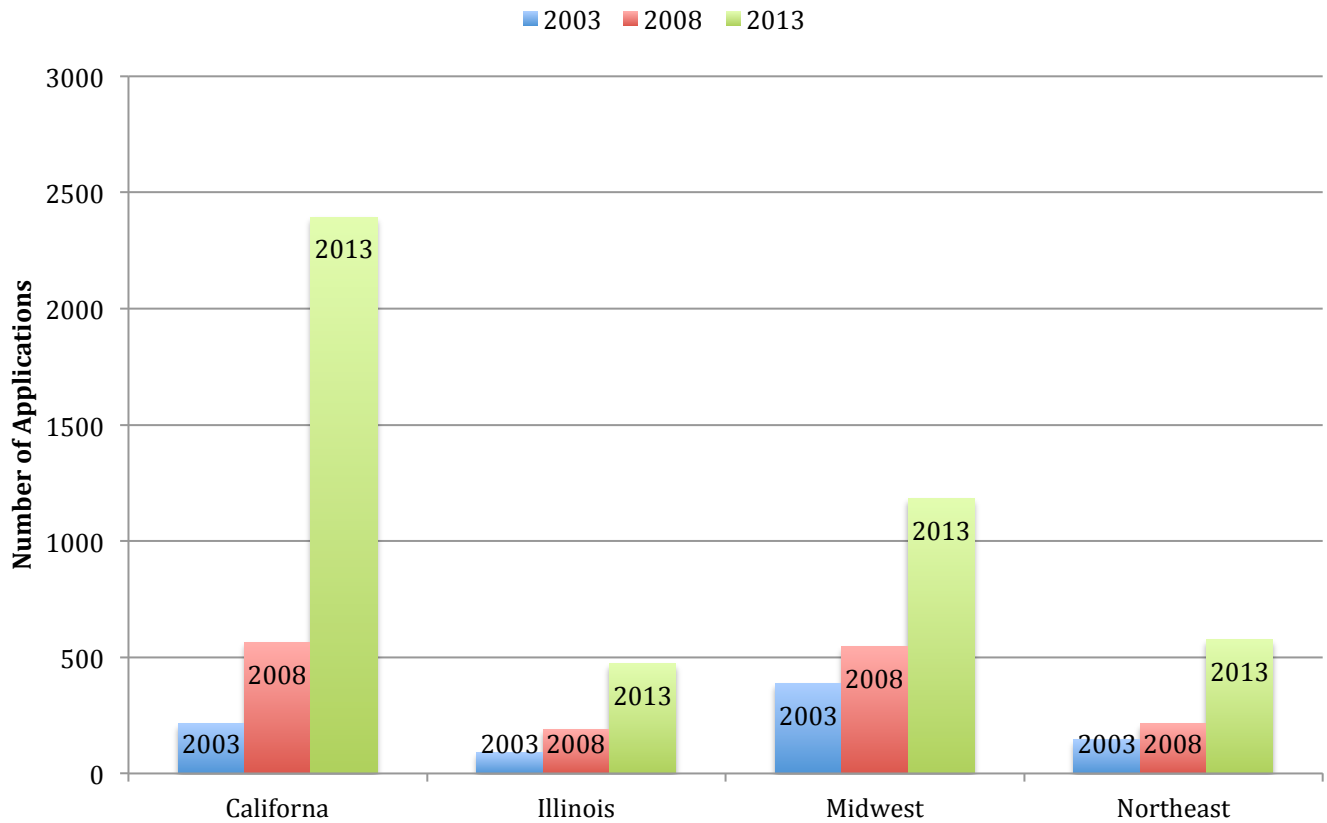
Next, it is important to note that all of the previously mentioned measurables such as applications, acceptance rate, SAT scores, and alumni donations play a role in determining the University Rankings produced by the US News and World Report. Because of these things, the proposition of this study is that collegiate athletic success, specifically the football success of the seventeen NCAA Division-1 FBS private universities, positively influences the variables that make up the US News and World Report rankings. In essence, having a successful football team results in large amounts of positive coverage through many different channels of media. This media coverage acts as fantastic advertising for the university, which in theory, leads to improvements such as an increase in applications, higher-quality students, and increased amounts of alumni donations.

As previously mentioned, a school's athletic program, especially its football and men's basketball team, is often considered the "front porch" of the university.

Going along with this analogy, a prospective student would most likely know of a university by its athletic program before anything else. The prestige and recent success of a university's athletic program is often times the first impression made on a student during his or her college search. In the case of this study, the more success a university's football team has, the more media attention and exposure they will receive. This is especially true in the day and age of ESPN and social media. This positive media exposure essentially acts as free advertising for the university. Even more important is the fact that this added media exposure often provides the university an opportunity to get its name out there for potential applicants that otherwise may not have considered attending the school. The effect of this can result in a substantial increase in the pool of prospective students now interested in applying and attending the university. Looking specifically at Texas Christian University for support of this theory, in a time span of 10-years, TCU saw their total applications increase from 7,537 applicants in 2003 to 18,483 applicants in 2013. The following charts break down TCU's application numbers in more detail.



## TCU Out-of-State Applications



	2003	2008	2013	Total % Increase since 2003
<b>Total Applications</b>	7537	12,033	18,483	145%
<b>Texas</b>	5,172	8,576	10,540	104%
<b>California</b>	214	563	2,394	1019%
<b>Illinois</b>	91	188	473	420%
<b>Midwest</b>	388	545	1,181	240%
<b>Northeast</b>	145	213	575	297%

These numbers are hard to ignore, but it would be naïve to claim that this enormous increase in applications was solely because of TCU's football. During this 10-year span, TCU's football team experienced 8 seasons of at least 10 wins, as well as playing in two BCS bowl games, one of which was TCU's Rose Bowl Victory in 2011. Even more astounding was the amount of growth TCU experienced from out-of-state applications. In 2008, TCU received 563 applications from Californian high school students. Five years later, after winning the Rose Bowl, TCU received 2,394 applications from California, a 325% increase. The increase in out-of-state applications did not stop in California. TCU saw a surge in applications from all regions of the country with there being a 152% increase in applications from students in Illinois, a 117% increase from students in the Midwest, and a 170% increase from students in the Northeast since 2008. Along with this, there has also been a 23% increase in applications from students within the state of Texas over the past 5 years.

As stated by TCU athletic director Christopher Del Conte, "[Academics and athletics] go hand in hand. The tail does not wag the dog... I don't think we just invest heavily in athletics; we invest heavily in the overall university. If you're going to be great in something, you must have the very best facilities to attract the best students in the country. You can't use 1950 Bunsen burners if you're going to be great in Chemistry. So, it's the same philosophy. It has to be a core mission of the university" (Del Conte, 2012). In other words, athletic success alone cannot be the sole driver. A university must be investing everywhere if it wants to attract the best students, with athletic success simply acting as the thing that sparks a prospective

student's initial interest. It is also important to note that a successful athletic program may represent a potential social and cultural atmosphere that a prospective student desires from his or her college experience. This is because successful athletic programs are often located at universities that provide the traditional college activities that many students desire to experience such as Greek Life, Homecoming, and, of course, the ability to experience big-time college sporting events (Toma, 2003). In his book, *Football U: Spectator Sports in the Life of the American University*, Doug Toma suggests that students will usually develop a strong connection with their university based on their school's athletic teams, often becoming donating alumni in the future. Going along with this approach, a successful athletic program can carry much more weight than one would initially expect.

The goal of this study is to determine whether or not this notion that football success benefits a university can be statically supported. The question that arises is *how does one accurately measure athletic success?* This study will look specifically at the football success of the seventeen NCAA Division-1 FBS private universities by taking into account things such as the amount of wins per season, their final AP Poll ranking, and whether or not they played in a BCS bowl. It is assumed that private universities are affected differently than large public universities when it comes to football success, which is why this study is specifically focusing in on private universities only. The rationale behind this assumption is that large public universities are drastically less sensitive to the effects of football success. This is because many public universities already act as their state's flagship university and

naturally attract large amounts of applications. Another assumption is that large public universities with successful athletic programs are a dime a dozen in the United States. Very rarely would an out-of-state student from California be drawn to look at a large rural university such as Nebraska, solely because they have a good football team. There are clearly plenty of other public universities with good football teams that this theoretical student would likely consider first. Private universities that offer big-time college football, however, are much more rare. Pairing this with the fact that private universities often offer a much more personalized college experience helps explain why this study assumes that private universities are much more affected by football success.

#### RESEARCH QUESTION

This study will attempt to answer the following question:

*Does statistical data support the theory that there is a significant correlation between the football success of NCAA Division-1 FBS private universities and the U.S. News and World Report College Rankings?*

Before proceeding it is essential to explain the reasoning behind using the college rankings from the U.S. News and World Report. The U.S. News and World Report, which will be referred to as the "USNWR" from this point forward, has been producing college rankings for over 25 years and has really established themselves as the premiere college ranking system. According to the USNWR website, the rankings are created through the use of widely accepted indicators of university excellence. The formula to calculate these rankings uses quantitative measures that

education experts have proposed as reliable indicators of academic quality. These seven weighted measures are: alumni giving rate (5 percent), Graduation rate (7.5 percent), financial resources (10 percent), student selectivity, which includes SAT score percentiles and the percent of incoming students that graduate from the Top 10% of their high school. (12.5 percent), faculty resources (20 percent), retention rate (22.5 percent), and an undergraduate academic reputation score, which is a peer assessment survey that allows top academics- presidents, provosts, and deans of admissions- to account for intangibles at peer institutions such as faculty dedication to teach (22.5 percent) (USNWR, 2014).

This study focuses in on the overall college ranking, the SAT score percentiles, the amount of freshmen in the top 10% of their high school class, alumni giving percentage, and the academic reputation score. These measurables are believed to be the most influenced by an increase in the overall quality of incoming students. The most closely looked at and used measure throughout this study is the academic reputation score. Referring back to the analogy that athletics acts as a university's "front porch," the academic reputation score acts a great measure for how people view a university overall. If a correlation can be found that supports the idea that football success helps influence a university's academic reputation score, then the results of this study would provide a great amount of insight into the relationship between athletics and academia. The indirect benefits of athletic success that may very likely influence a university's academic reputation score could include an increase in applications, mean SAT scores, and alumni donations. As a university's academic reputation score increases, its overall

academic prestige increases as well. With academic prestige comes benefits such as a higher research-classification, additional giving to the university, and, naturally, an opportunity to move up in the college-rankings publications. According to sports sociologist James Frey, there are three reasons why a university's president would support athletics:

1. Presidents believe having a winning program helps attract students and increases financial contributions.
2. Presidents believe that football is the only thing in higher education powerful enough to unite a university's entire community together, including its diverse student body, faculty, and staff.
3. Presidents recognize and acknowledge the kind of national exposure that athletic success brings to their university.

All things considered, a study that could statistically prove a correlation between the college football success of NCAA Division-1 FBS private universities and the U.S. News and World Report College Rankings would carry great implications for all parties involved in higher education, including athletic directors, admission departments, university presidents, and boards of trustees. If a correlation is found, the inference can be made that the relationship that exists between football success and USNWR college rankings is because of the previously mentioned measurables that make up the USNWR college rankings such as, academic reputation, acceptance rate, SAT scores, and alumni giving. These finding

would be important in beginning to understand how college football in today's day and age indirectly affects the rest of its university.

## LITERATURE REVIEW

### **Sociology of Sports**

The overlying basis of this study looks at how sports influence the opinions of others. There are many examples of published literature that look at the sociological effects of sports. For instance, in a study published by Eric Dunning, college sports are considered social establishments that can unite a large and diverse community that otherwise would be disconnected (Dunning, 1999). The community and unification that one experiences through the spectatorship of sports is almost religion-like. Dunning goes on to elaborate on this idea by saying, "...identification with a sports team can provide people with an important identity prop, a source of 'we-feelings' and a sense of belonging (p. 32). Other published articles also support the idea that people are strongly influenced by sports. The article, "*Motivating College Athletics*" states:

"It seems reasonable that, all things being equal, students prefer their schools to win rather than lose, and yet it may be that the "consumption capital" provided by attendance at games and creation of lifetime memories is the biggest attraction of major athletics for students. Many students may see athletics as an essential part of the college experience" (Osborne, 2004)."

By examining the sociology of sports, it is clear that there is a high probability that

prospective students and alumni are strongly influenced by the effects of college athletics. This study expands on this logic and tests to see if football success influences the academic reputation of a university through the use of USNWR college rankings.

### **Flutie Factor**

It all began during Thanksgiving weekend of 1984. 10th ranked Boston College was playing the defending national champions, 12<sup>th</sup> ranked University of Miami on the new nationally broadcasted cable television network, ESPN. Boston College was losing with only a few seconds left. On the final play, as the clock expired, quarterback Doug Flutie threw the ball 65 yards into the end zone where it was caught by a Boston College wide receiver, giving BC a 47-45 victory. Flutie later went on to win that year's Heisman Trophy, which is awarded annually to college football's best player. Boston College quickly became the talk of the sports country (Oslin, 2004). The following academic school year, Boston College had a 25 percent increase in applications (Sperber, 2000). This event was deemed the "Flutie Factor. This has become the go-to example of how athletic success can profoundly benefit a university.

### **Alumni Giving**

Studies that explore the impact college athletics have on a university first started being published over 30 years ago. Some of the earliest studies looked into the relationship between collegiate football winning percentage and its effect on



alumni donations only to conclude that very little correlation existed at all (Sigelman and Carter, 1979; Brooker and Klastorin, 1981). Another study shortly followed attempting to look at more football variables than simply winning percentage. They, however, came to same conclusion that there was no correlation between athletic success and alumni donations (Sigelman and Bookheimer, 1983).

More recent studies tend to be more successful at finding positive trends between the relationship of football success and donations to the school. In 1990, an article was published that studied Clemson University over a four-year period looking at alumni donations. This study found there was, in fact, a strong correlation between winning percentage and alumni donations. Their study estimated that for every 10 percent increase in contributions towards athletics, there was a 5 percent increase in contributions in academics (McCormick and Tinsley, 1990). The obvious downside to this study was that it only covered a very short period of time.

According to another study, bowl appearances were found to increase alumni giving at both public and private universities. (Baade and Sundburg, 1996). The authors found that football postseason success was much more effective than basketball postseason success. They attributed this to the different postseason structures of the two sports. In basketball, it is not common for a team's postseason basketball experience to abruptly end after the first weekend, leading to very short-lived excitement. Football, on the other hand, has a postseason that creates multiple weeks of buildup and anticipation as fans count down the days between the end of the season and the start of bowl games. Some of the studies finding positive correlations between athletic success and alumni donations got a little creative

when trying to define what it meant to have athletic success, using variables such as television coverage (Chressanthis & Grimes, 1994), postseason participation (Baade & Sundberg, 1996), and home attendance (McEvoy, 2005). There is essentially no literature that looks closely into how athletic success should be measured. With different studies defining “athletic success” differently, the established conclusions become slightly weakened. This study will look at multiple measures of athletic success in hopes of coming to a more solidified conclusion. While proof seemed to be lacking during the early years of these studies, there seems to be a pretty constant trend as of late that shows that there is, in fact, a correlation between athletic success and alumni donations. If this is true, then there is certainly potential that USNWR rankings can be influenced too.

### **Academic Implications**

There have been several studies throughout the years that delve into the relationship between the athletic performance of universities and its impact on the number of applications they receive (Allen & Peters, 1982; Chressanthis & Grimes, 1993; Chu, 1989; Frank, 2004; Murphy & Trandel, 1994; Toma & Cross, 1998; Zimbalist, 1999). There are also several studies that specifically focus on how SAT scores of incoming students are affected by athletic success. (Bremmer & Kesslering, 1993; McCormick & Tinsley, 1987; Mixon, 1995; Tucker & Amato, 1993). Out of all the studies, two are most referred to throughout literature:

- *“Athletics versus academics: Evidence from SAT scores”*(McCormick & Tinsley, 1987)
- *“The relation between a university's football record and the size of its applicant pool”* (Murphy & Trandel, 1994).

McCormick and Tinsley released the first study in 1987 that analyzed the relationship between athletic success and SAT scores. Since then, many other researchers have referenced them and used their methodology in similar studies. Their study collected data between the years 1971-1984 on about 150 schools, with 63 of them being identified as having “big-time” athletic programs. Using freshman average SAT score as their dependent variable, they used a multiple regression analysis model to determine whether a series of different independent variables had any influence on SAT scores. Included in their independent variables were things such as: total enrollment, type of school (public or private), student/faculty ratio, total enrollment, percent of doctorates per faculty member, tuition, university age, professor salaries, endowment per student, and library volumes. McCormick and Tinsley came up with a calculation that stated that colleges with a big-time athletic program automatically had a 3 percent advantage in SAT score, making the claim that “other things the same, a school that participates in major college athletics has a better undergraduate student body than one that does not” (pg. 1106). While their hypothesis was proven to be statistically significant, it is essentially impossible to account for all the possible factors that could affect the SAT scores for an incoming freshman class.

The study conducted by Murphy and Trandel in 1994 focused on the relationship between athletic success and application numbers. The athletic programs of 46 different universities were analyzed over a ten-year period from 1978-1987 using the *Peterson's Guide to Colleges and Universities* as their primary

data source. They performed a multiple linear regression analysis using independent variables that included: tuition rate, average professor salary, and high school graduates available within the state. Total applications acted as their dependent variable. At the end of their study, Murphy and Trandel came up with the calculation that a school that experienced a 25 percent increase in football winning percentage would also experience 1.4 times more applications. Within the article, Murphy and Trandel conclude that their study “provides some weak evidence that consistent, long term football success raises applicant totals; however, our results do not allow us to disentangle fully this possible effect from the effects of other cross-sectional differences among universities” (p. 268).

As a whole, most studies focused on application numbers and SAT scores, often times finding conflicting results, or results that lacked concrete support. While there were many studies that found a positive correlation, the significance of these relationships were typically relatively small. The many different approaches and techniques used to conduct the different studies of the past make the complexity of this situation very apparent. This present study hopes to achieve a more concrete conclusion by narrowing down the subjects to only NCAA Division-1 FBS private universities and looking at the data on a year-by-year basis, something that is rarely done in past studies. Lastly, this study will use the USNWR rankings, a variable not often used, as a core basis for analysis. The USNWR college rankings contain many very relevant variables that will be interesting to explore.

## METHODS & RESULTS

This section will explain the methods used to carry out the following study. The particular methods used will help to discover the type of relationship that exists between football success and a private university's ranking in the U.S. News and World Report. The study will first prove the correlation that exists between the variables used to create the USNWR college rankings. Next, a multivariable regression model will be run to determine how a multitude of football variables affect the college rankings and academic reputation determined by the USNWR. Lastly, single variable regression models will be run to determine how individual football variables influence a school's academic reputation.

### **Participants & Data**

The sample for this study includes the seventeen private universities that have a NCAA Division-1 FBS football team:

1. Baylor University
2. Boston College
3. Brigham Young University
4. Duke University
5. University of Miami, FL
6. Northwestern University
7. Notre Dame University
8. Rice University
9. Southern Methodist University
10. Stanford University
11. Syracuse University
12. Texas Christian University
13. Tulane University
14. Tulsa University
15. University of Southern California
16. Vanderbilt University
17. Wake Forest University

The data was collected from the U.S. News and World Report college rankings from 1998-2013. Data used in this study that was collected for every university includes:

- Overall university ranking given by USNWR
- Academic reputation
- Percent of freshman in the Top 10% of high school class
- SAT 25<sup>th</sup> and 75<sup>th</sup> percentile
- Acceptance rate
- Alumni giving percentage

The data used to measure football success for every university includes:

- Wins per year
- Top 25 finishes
- Final AP poll
- Bowl game
- BCS bowl game

These data inputs will be analyzed to determine if a correlation between football success and the USNWR rankings can be proven to exist.

## Regression Analysis Explained

Excel computes a multitude of outputs when running a regression analysis. This section will briefly explain the four most relevant parts of a Regression Output that are looked at throughout this study. The first output number that is looked at is *R-Square*, which measures the overall regression's accuracy. In other words, *R-Square* explains how much of the dependent variable's variance is supported by the explanatory variable's variance. Variance is used by statisticians to see how individual numbers compare to each other within a set of data. A good *R-Square* is typically at least 0.6 (60%) or 0.7 (70%). The next output number looked at is known as *Significance of F*. This explains the probability that a model's output was not by chance. In order to confirm the validity of a regression output, one typically wants a very small *Significance of F* (usually below 5%). The third important part of a Regression Output is the *P-value* of each coefficient and the *Y-Intercept*. Each *P-value* represents the likelihood that the results are real and did not happen by chance. The lower the *P-value*, the more likely that the coefficient or the *Y-Intercept* is valid. For example, if the *P-value* for a regression coefficient is 0.018, then there is only a 1.8% probability that the result occurred by chance. In this study, a *P-value* below 10% is considered ideal. The last part looked at is referred to as the *t-statistic*. A relatively high *t-statistic* indicates a strong relationship between variables. Therefore, a model with high *t-statistics* as well as low *p-values* indicates a statistically significant relationship between the dependent variable and the explanatory variables.

## Design

The study will be broken into three main parts in order to come to an overall conclusion. The first test will simply look at the relationship between academic reputation and the independent academic variables. Once this is determined, a more extensive multivariable regression test will be run to determine the relationship between academic reputation and football success on a year-by-year basis. Lastly, multiple single variable regression tests will be run to determine how individual football variables influence a school's academic reputation. These variables will use three separate 5-year time ranges to measure how relationships are affected when looking at changes over time, rather than year-by-year.

### Test I.

SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.854667043				
R Square	0.730455755				
Adjusted R Square	0.726417639				
Standard Error	0.066029137				
Observations	272				
<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	3.154614971	0.788653743	180.890234	0.00000%
Residual	267	1.164079147	0.004359847		
Total	271	4.318694118			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>
Intercept	-0.551493829	0.173601857	-3.176773795	0.166417%	-0.89329655
<b>SAT 75 Percentile</b>	0.000920535	0.000136317	6.752888902	0.000000%	0.000652142
<b>Percent of Freshman in Top 10% of HS Class</b>	-0.043345613	0.060845336	-0.712390076	47.68%	-0.163143303
<b>Acceptance Rate</b>	-0.088241543	0.040642232	-2.171178547	3.080%	-0.168261571
<b>Alumni Giving Rate (Percentage)</b>	0.203313999	0.059432706	3.420910999	0.07219%	0.086297619

Test I looks solely at the relationship between academic reputation and the academic variables used in the USNWR. According the USNWR website, the



academic reputation score makes up 22.5% of the overall college ranking and is determined through a peer assessment survey that allows top academics- presidents, provosts, and deans of admissions- to account for intangibles at peer institutions such as faculty dedication to teach. This study assumes that academic reputation would be a good representative of how college football acts as the “front porch” of a university. Before proceeding with any regression models that looked at the relationship between football and academic reputation, it is important to first determine the relationship academic reputation has with other academic variables. The regression analysis above shows that there is, in fact, a clear relationship between the two. As academic reputation increases, SAT scores and Alumni giving move up and acceptance rate goes down, just as one would expect. The only surprise is that there does not seem to be much a correlation for the number of students in the Top 10% of their high school class.

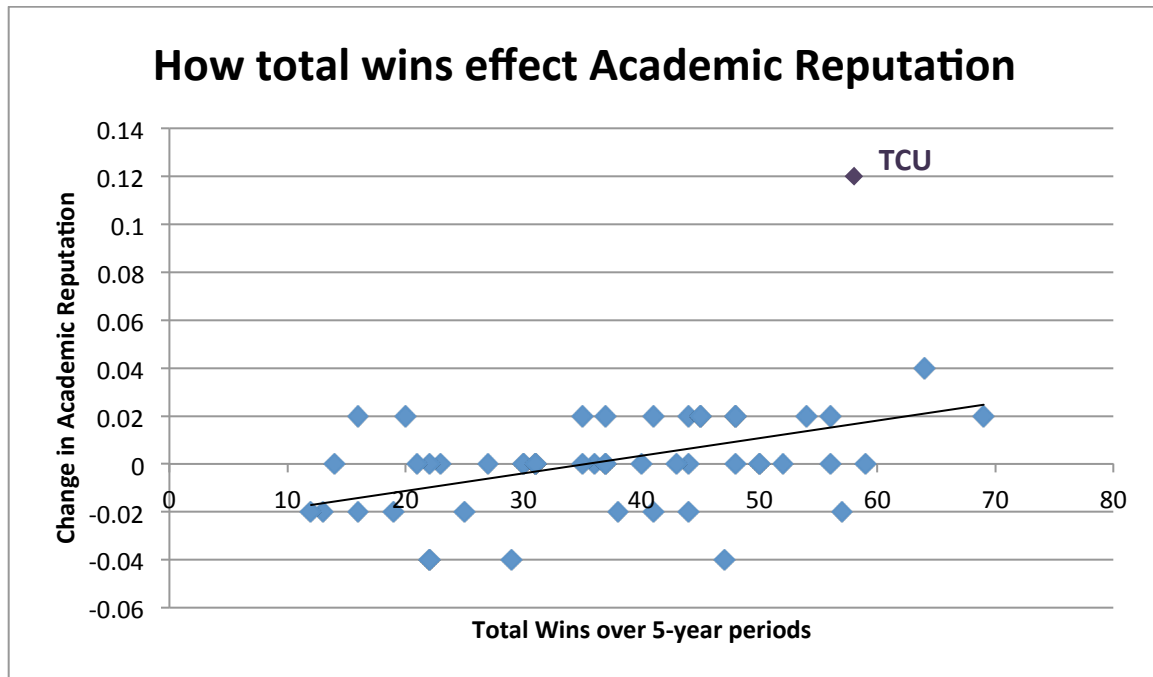
Another regression was run to see the relationship between academic reputation and academic ranking. As expected there was an extremely strong correlation between the two. As reputation moved up, so did overall ranking. Now that it has been proven that Academic reputation and rankings are directly correlated with the other academic variables (minus the top 10%), it is now appropriate to move forward.

## Test II.

SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.866038306				
R Square	0.750022348				
Adjusted R Square	0.742418465				
Standard Error	0.064069147				
Observations	272				
<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	8	3.239117101	0.404889638	98.63675595	0.000000000%
Residual	263	1.079577016	0.004104856		
Total	271	4.318694118			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>
Intercept	-0.378152209	0.180674503	-2.093002623	0.037307117	-0.733904818
<b>Wins</b>	0.005983424	0.001715481	3.487898137	0.000570469	-0.009361249
<b>Final AP Poll</b>	0.00764509	0.000697916	2.109541696	0.091285639	-0.001450665
<b>BCS</b>	0.043081746	0.016132905	2.67042696	0.008047475	0.011315652
<b>SAT 25 Percentile</b>	0.0094239%	5.04676E-05	1.86731845	0.062969492	-5.13288E-06
<b>SAT 75 Percentile</b>	0.000730616	0.00014559	5.018321331	0.0000961%	0.000443946
<b>Percent of Freshman in Top 10% of HS Class</b>	0.019346731	0.060041331	-0.32222355	0.747539329	-0.137569611
<b>Acceptance Rate</b>	-0.095829805	0.041058379	-2.333989011	0.020349839	-0.176674779
<b>Alumni Giving Rate (Percentage)</b>	0.204587799	0.058619777	3.490081497	0.000566034	0.089163994

Test II incorporates a more extensive multivariable regression test will to determine the relationship between academic reputation and football success on a year-by-year basis. The results showed that there is indeed a relatively strong correlation between academic reputation and the football variables: wins, final AP poll, and BCS bowl appearances. This is the first proof that begins to support the idea that football success and academic reputation *is* related. The data used for this test can be found in Appendix A.

### Test III.



The last test looks at single variable regressions using ranges of time that go from 1998-2003, 2003-2008, and 2008-2013. This helps give the study more variety looking at changes over time, rather than looking at year-by-year changes. Each regression would look at a single variable and how it related to the change in academic reputation over the three different 6-year periods of time. For instance, the graph above was created by totaling the wins that each university experience between 1998-2003, between 2003-2008, and between 2008-2013. Continuing with this example, TCU won 58 games and moved up 0.12 points in academic reputation from 2008-2013. During that time period, TCU is an outlier because of its extreme increase in academic reputation (which can be seen in the chart above). Even when removing TCU from the mix, there was still a relatively strong line of best fit. Other variables such as BCS bowl appearances and total times finishing in the Top 25 also

showed strong correlation to academic reputation. The data used for this test can be found in Appendix B.

### Discussion & Implications

After performing the regression models, there is statistically significant support for the correlation between athletic success and US News and World Report college rankings. This is relevant for many reasons. Whenever the implications of college football success is discussed, there is often debate regarding the potential indirect benefits caused by football success such as increased applications, higher SAT scores for incoming classes, and increases in alumni donations. As discussed previously, the US News and World Report college rankings take all these indirect benefits into consideration when calculating their rankings. Since there was a statistically significant correlation between the USNWR rankings and college football success, it is fair to say that the college football success does in fact provide indirect benefits to private universities.

One of the worries for this study was the lack of sensitivity found in the USNWR rankings. This lack of sensitivity means that they do not change very easily, so there was a concern that the impact college football success had would not be significant enough to effect the rankings. The fact that rankings were affected speaks to the significance that football success has on private universities. This study obviously did not look at how public universities are affected by football success. This study felt that private schools had the potential to be affected much more significantly than public schools, which is why only private schools were looked at.

For future studies, it would be worth focusing on public universities and seeing if college football success had the same impact on them as it does on private universities.

While football success clearly benefits private universities, this study has no ability to measure the economic efficiency of what it takes to have football success. Running a football program is extremely expensive and requires very large financial investments. Even with a significant investment in college football, success is far from guaranteed. Something else this study failed to measure was the amount institutions were investing in the academic side of a university. It is assumed that universities willing to invest in sports are also simultaneously investing in academics. As discussed earlier, “the tail does not wag the dog.” To attract the best students, college football success is not enough by itself. Universities must be willing to provide the best academic faculty and facilities as well.

### Conclusion

The results of this study show that there is, in fact, a statistically significant correlation between the football success of the seventeen NCAA Division-1 FBS private universities and academic reputation within the USNWR college rankings. This data from this study supports the theory that college football acts as the “front porch” of a private university and truly influences how people view the school. These indirect influences lead to more students applying to a particular school, which allows the school to be more selective and increase their overall student prestige. Football success also leads to other indirect benefits such as increased

Alumni Donations. All of these variables combine to increase the overall rankings and reputations of a private university. As the popularity of college football continues to rise, so does the amount of criticism regarding what college football continues to become. While this study fails to prove the economic efficiency of college football, there is no denying that college football success does indeed provide shared value for a private university.

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