

Victory by Affiliation?

Evaluating the Relationship Between Division I Athletics and Institutions of Higher Education in a Conference-Centric Landscape

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Abstract

The rise of television drastically changed the landscape of college athletics. Responding to new incentives, the world of Division I FBS football has become increasingly conference-centric, as institutional leadership has begun to prioritize the needs of the conference over all else. While, historically, athletic success has been shown to have a minor positive effect on the number of applicants a college or university receives, the new conference-centric landscape imposes new costs on the institutions involved, rendering the functionality of the old relationship somewhat obsolete. This paper uses recent bouts of conference realignment to assess the value in conference affiliation and to see if the increased costs of conference-centrism are met with equalizing benefits. Results indicate that there are no significant benefits associated with a conference of particular athletic or academic quality, though there may be a slight increase in applicants, decrease in admissions rate, and increase in SAT scores associated with joining one of the six “power conferences”— the ACC, Big Ten, Big 12, PAC-12, SEC, and Big East.

Keywords: NCAA, conference realignment, positional good, post-secondary education

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1 Introduction

In the words of Charles Clotfelter, American higher education and big time college athletics are “strange bedfellows” (Clotfelter, 2011). The United States is the only country where it seems perfectly natural for educational institutions to sponsor athletic teams that often resemble professional franchises. Originally, college athletics were student-run activities. It was not until the late 19th century that athletics organized at the institutional level emerged, forming a highly controversial relationship with the academic bodies of their institutional hosts.

American colleges and universities were built with missions to create and diffuse knowledge (Goldin, 1999). As college athletics have grown over the last century, people have begun to question whether or not it makes sense for institutions to expend resources on a form of commercial entertainment that may or may not contribute to their academic missions. While many studies have analyzed the value that athletic presence and athletic success add to educational institutions, over the last sixty years technological changes and the rise of television have drastically reshaped the landscape of Division I college athletics in ways that have rendered the marriage between universities and their athletic departments even more unsound. A shift in power from the individual institutions playing Division I sports, to the athletic coalitions, or conferences, that they are a part of has placed a new emphasis on the importance of conference affiliation at the expense of smooth integration of athletics and academics, and even athletic success.

The goal of this paper is to examine the academic-athletic relationship in its new conference-centric landscape, and utilize the recent bouts of conference realignment as a way to test whether any value can be found in conference affiliation. In particular, I will look for connections between institutional value and both the athletic and academic strength of an institution’s conference peers. My results confirm that athletic success is correlated with a few measures of institutional value, but find no evidence to support claims that being affiliated with conference members of high academic or athletic strength transfers into value for an individual institution. There may be small increases in the number of applications a school receives, a decrease in admissions rate, and an increase in SAT scores of incoming students associated with the act of realigning to a power conference, but these results are small and slow to materialize, which may suggest other factors are at work.

2 Theory and Literature Review

2.1 Managing a Positional Good

At a very basic level, colleges and universities are sellers of educational degrees. The value of those degrees is almost entirely determined by the public's perception of the college or university that sells it. In a self-fulfilling cycle, institutions that are perceived as being high quality receive high demand for their products, allowing them to be more selective when choosing which applicants to admit. Selectivity allows institutions to cultivate a body of high quality students and faculty, who, in turn, bring credibility to the institution's reputation. A credential from a top tier university is considered valuable because the market perceives that he who holds that degree is high quality human capital. This result is what creates the demand that initiated the cycle.

Simon Marginson (2006) formalizes this notion by describing universities as "positional goods," a term coined by Fred Hirsch in his paper, "The Social Limits to Growth" (Hirsch, 1977). A positional good is one whose consumption (and subsequent value) depends negatively on the consumption and value of its competitors. A college or university is part of a subset of positional goods that depend on their relative status within the market. Some institutions, Marginson describes, "offer better social status and lifetime opportunities than others." In fact, while the positional aspect of universities, he notes, "is not the only consideration in the minds of prospective students...it is more important than teaching quality. Institutional reputation is known, teaching quality mostly is not." When potential enrollees are facing a choice between a prestigious university "with known indifference to undergraduate teaching, and a lesser institution offering better classroom support, nearly everyone opts for prestige." Of course, positional goods necessarily have a zero-sum nature: "Elite degrees and other positional goods confer advantages on some only by denying them to others. ...There is an absolute limit on the number of positional goods at a given level of value" (Marginson, 2006). In short, elite universities maintain elite status by *failing* to fulfill demand.

The following analysis is framed upon the fact that, given the positional nature of the good he is selling, the leader of a college or university (referred to as the university president from here on out) has two fundamental jobs:

1. Create and maintain high demand for the college or university's product.
2. Provide a product that has the value to make its reputation credible.

In other words, the university president must market his institution in a way that attracts a large number of applicants, while also providing a high quality experience to current students and faculty in order to maintain high demand in the future.

2.2 Athletics as a Marketing Tool: The Theory

Look at a college or university from a bird's eye view, and you will see a complex multi-armed organization—a decentralized collection of entities held together under the umbrella of a name and an academic mission. Made up of a multitude of academic departments, research centers, hospitals, student service centers, and student organizations—most of an institution's various branches have a clear connection to an overarching vision that centers around teaching, research, and service. Big-time athletics are a peculiar exception, yet are undeniably a “significant activity” at many an institution. “Intercollegiate athletics are the feature of our Universities best known to the American public” (Angell, 1928). This statement, written 85 years ago, is more true today than ever before. Many university presidents have incorporated big-time athletic programs as a “secondary product” of their institutions as a way to fulfill their two value-creating roles, despite the fact that athletics are a tool whose institutional value is perplexingly unclear.

The most comprehensive analysis of the relationship between college athletics and American higher education is Charles Clotfelter's book, *Big-Time Sports in American Universities*. In a thorough quantitative and qualitative cost-benefit analysis, Clotfelter addresses two main questions about universities that sponsor major athletic programs: First, why do they do it? And, second, what are the costs and benefits?

In theory, college athletics have the potential to contribute to institutional value in a variety of ways. One of the most popularly cited theoretical benefits is that athletics serve as a way for a school to market itself to a broad audience, creating more demand for its institutional product (i.e., more applicants), which drives the aforementioned value-creating cycle in the market for positional goods. Athletics also have the potential to foster a sense of community among current students and among alumni, which hypothetically leads to increased support in the form of alumni donations. Even increased political

support has been cited as a potential benefit of big athletic programs, particularly for large state schools who have alumni serving in state and local government (Clotfelter, 2011).

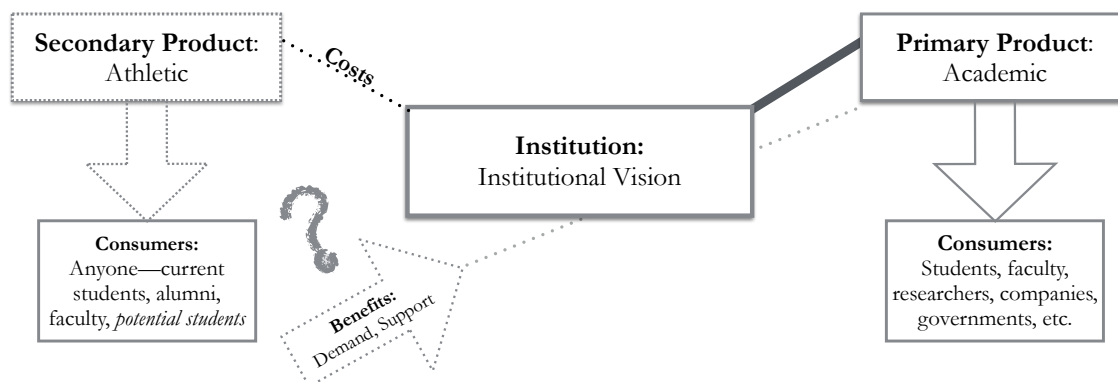
On the flip side, there are clear costs to hosting such a commercial activity, some of which threaten the integrity of the institution's mission. One of the more critical conflicts Clotfelter discusses in his analysis is the academic compromise school's often make in order to succeed athletically:

A survey of 21 public universities with big-time athletic programs, covering data from various years between 1999 and 2007, found that athletes, especially football players, were much more likely than the average freshman to have been admitted as "special admits," that is, were admitted through some exception to the institutions' usual admissions requirements. Whereas an average of 4 percent of all freshmen at those universities were classified as special admits, the average percentage of all freshman athletes accepted under such exceptions was 26 percent, and the corresponding percentage of football players was 49 percent. (Clotfelter, 2011, p.182)

Clotfelter discusses how big-time sports challenge the typical values of an institution in other ways. He makes it clear that there are both upsides and downsides of hosting big athletic programs that university presidents ought to consider when making decisions about how to use their resources.

Combining Clotfelter's analysis with a bit of brand management theory from the world of marketing, we can look at a university president as a manager who is working to create value for his firm. Successful brands are managed from the top down, meaning that the products the firm provides are physical manifestations of the firm's vision. An institution of higher education is no different—its primary products are education and research, which it provides in order to support a mission of disseminating knowledge. In theory, athletics can serve as a helpful tool to create value for a university's primary products by cultivating both demand and support. In other words, a functional athletic-academic relationship would look like the feedback loop illustrated in Figure 1. Because big-time athletics programs can also impinge on the institution's integrity, it must be the case that they create more value than they cost in order for hosting big-time programs to be a rational choice by university leaders.

Figure 1: Theoretical Functionality of the Athletic-Academic Relationship



2.3 Literature Review

Given the popularity of college athletics, it is evident that many universities believe that the benefits of “big-time” programs outweigh the costs, and many researchers have attempted to measure those benefits quantitatively. The evidence thus far is inconclusive. Some researchers propose that there is no significant relationship between athletics and institutional value, while others find significant, but small, measurable effects.

In his book, Clotfelter analyzes data from *U.S. News and World Report*, taking measures of institutional value from their ranking system—percentage of freshmen from the top ten percent of their high school class, percentage of applicants who were accepted, percentage of alumni who made donations, SAT scores of incoming freshmen, etc.—and finds that there is virtually no difference in relative rankings based on those qualities for schools that have big-time football programs compared to those that do not (Clotfelter, 2011, 148). In one of the most comprehensive analyses done to date, Pope & Pope (2009) find that a successful football season has a strong but fleeting effect on the size of an institution’s applicant pool. For example, finishing the football season ranked among the Top 20 teams in the FBS produces an estimated 2.5 percent boost in applications, and winning a national championship produces a 7-8 percent jump. These increases, they note, include students with both high and low SAT scores, and tend to only last a year or two before fizzling out. Other notable studies by Murphy & Trandel (1994), Toma & Cross (1998), McEvoy (2005) and Zimbalist (2001) support the findings of Clotfelter, Pope, and Pope: that football success has a small, but short-lived effect on the size of a university’s applicant pool.

It can be argued that an increased number of applicants only equates to an increase in institutional value if it translates to enrollment of higher caliber students. Zimbalist, Bremmer & Kesselring (1994), Litan *et al.* (2003), and Tucker (2005) report that even dramatic increases in football success, measured by a bowl game appearance¹, or a 50 percent increase in win percentage, are associated with little to no change in the SAT scores of incoming students. In other words, even if athletic success does increase the size of an institution's applicant pool, evidence shows that the quality of the freshmen class is not improved.

The other part of the relationship between institutions and athletic departments that has been researched is whether athletic success has an impact financial donations made to universities by alumni and non-alumni fans. The results of these studies are varied. Humphreys & Mondello (2007) find no measureable relationship between athletic success and unrestricted donations made to universities as a whole, though they find that success is correlated with donations made to athletic departments. Turner *et al.* (2001), on the other hand, find that giving rates are unaffected by athletic success at high profile schools, namely those who play the most elite level of college football in the Division I Football Bowl Subdivision (FBS). They find giving rates are only modestly positively correlated at Division III schools, a less elite division made up of institutions that have chosen *not* to provide athletic scholarships. A study by Stinson & Howard (2008) shows that the percentage of total athletic-restricted donations made to universities has been on the rise. In other words, increased athletic donations may have a crowding-out effect, *negatively* impacting donations made to other branches of an institution.

While there are many existing studies on the value that big-time athletic programs and athletic success create for academic institutions, there have been drastic changes to the landscape of the college athletics system that have altered the relationship between athletic programs and their academic hosts, bringing new questions to the forefront. After a brief discussion on how the landscape of elite college athletics, characterized by conference realignment and the imminent rise of Division I FBS "super conferences" has changed the relationship between educational institutions and their athletic departments, the goal of this paper is twofold. First, through a qualitative cost-benefit analysis, I will show how the

¹"Bowl game appearance" refers to appearance in one of the post-season Bowl Championship Series (BCS) games. Eligibility requirements for bowl games are complicated, but boil down to having strong regular season records.

rising power of Division I FBS football conferences has created different priorities among athletic departments by imposing new costs on the institutions involved. The desire for athletic success has been overtaken by the monetary incentives of being in a powerful football conference with a lucrative television contract, which has fundamentally altered the theoretical athletic/academic relationship that has been researched in the past. Second, I will use data on schools playing Division I FBS football between 1990 and 2010, to see if, in this new landscape, the “functional” relationship between higher education and big-time athletics is still intact.

3 The Evolution of the College Conference System

The Southern Intercollegiate Athletic Association (SIAA) was established in 1894, marking the beginning of organized college athletics in the South. The presidents of seven major Southern universities—Alabama, Auburn, Georgia, Georgia Tech, North Carolina, Sewanee, and Vanderbilt—formed the association to create a mechanism through which they could standardize rules of play, requirements for eligibility, and create a foundation for competition among peer institutions (Saylor, 1984). The SIAA was one of the first manifestations of the need for intercollegiate athletic regulation that had been growing since the mid-nineteenth century. As college athletics—at the time, largely run by the students themselves—grew in popularity, a number of university presidents and faculty members voiced fears that the trend was on the verge of losing control. They worried that the growing prevalence of athletics as part of the “college experience” could overwhelm the fundamental academic purpose of their institutions. Harvard president, Charles Eliot, claimed that “lofty gate receipts from college athletics had turned amateur contests into major commercial spectacles,” and President Walker of the Massachusetts Institute of Technology worried that on the current trajectory, it would “soon be fairly a question whether the letters B.A. [stood] more for Bachelor of Arts or Bachelor of Athletics” (Smith, 1986). The biggest concerns were among faculty, who were wary of the demands that athletic participation was placing on both university finances and students’ time.

At the same time college presidents realized the power athletics could have as a marketing tool that could be exploited to the benefit of their institutions. At many schools, this realization took precedence over the materializing concerns, and presidents figured out ways to provide the hungry athletic enterprise with the support it needed to grow:

At the time athletic departments were forming, college presidents were in tune with materialism and took the approach that athletics advertised the university and directly correlated with increased enrollment. College presidents became active marketing agents for athletics, attending games, speaking to victorious teams, and soliciting funds from alumni and boards of trustees, while institutions began to provide money for teams, absorb their debts, and grant scholarships. College presidents often sided with development of athletics rather than with faculty. (Smith, 2000)

Thus, the tension between higher education and athletics began. Controversy over the relationship heightened when, in 1905, college football play led to over eighteen deaths and a hundred major injuries, spiraling the matter out of the hands of university presidents and into the hand of President Theodore Roosevelt, himself, who demanded reform. Roosevelt called for a convention of representatives of major intercollegiate football programs. The representatives were assigned the task of creating some kind of regulation that would help keep the hazards of college football at bay (Smith, 1986). The result of the convention was the governing body now known as the National College Athletics Association (NCAA).

From its creation, the NCAA remained relatively hands-off, serving mostly to enforce rules concerning safety. In order to provide the regulation that the growing college-athletics enterprise needed, more conferences like the SIAA formed, and eventually a conference system took shape across the country, serving as a way of connecting participating institutions to one another through geography, culture, and style of play. The Southeastern Conference (SEC), for example, represented a coalition of schools defined by a shared, undying southern passion for football, while the Big Ten represented the flagship schools in their respective Midwestern states. Regionally delineated, the conferences created a framework for easy competition and fan loyalty. The most well known conferences are those known as the NCAA Division I Football Bowl Subdivision (FBS)—previously known as Division I-A. Member schools of this division represent the top teams in college football. In the last two decades, there have been 14 such athletic coalitions in Division I FBS (see Table 1).

Table 1: Division I FBS Conferences

Conference	Abbreviation	Year Formed	Headquarters
Atlantic Coast Conference	ACC	1953	Greensboro, North Carolina
Big East ²	—	1979	Providence, Rhode Island
Big Ten	—	1896	Rosemont, Illinois
Big 12	—	1996 (1907 ³)	Irving, Texas
Conference USA	C-USA	1995	Irving, Texas
Division I Independents ⁴	—	—	—
Mid-American Conference	MAC	1946	Cleveland, Ohio
Mountain West Conference	MWC	1999	Colorado Springs, Colorado
Pacific-12 Conference ⁵	PAC-12	1915	Walnut Creek, California
Southeastern Conference	SEC	1932	Birmingham, Alabama
Sun Belt Conference	Sun Belt	1976	New Orleans Louisiana
Western Athletic Conference	WAC	1962-2013 ⁶	Englewood, Colorado
Big West ⁷	—	1969-2000 ⁸	Irvine, California
Southwest Conference	SWC	1914-1996 ⁹	Dallas, Texas

Institutions and their athletic departments managed to coexist throughout most of the 20th century. Aside from simply serving as a way to schedule games, conferences became part of an institution’s athletic identity, and helped “create legions of loyal fans,” who lived and died for the bitter rivalries that formed among conference peers. As Clotfelter describes, “How does a Michigan fan describe his or her devotion without eventually uttering the words ‘Ohio State’?” In fact, traditional rivalries became such an integral part of institutional culture, that the playing schedules of most big-time football programs have remained almost identical for nearly a century to keep those rivalries in tact: “University of Michigan in 2009 played five of the same teams that were on its schedule in 1929 (fellow Big Ten members Michigan State, Purdue, Iowa, Illinois, and Ohio State).

²The football playing arm of the Big East was separated from the non-football part in July, 2013, and was dubbed the American Athletic Conference. As the majority of this paper uses data pre-dating the reorganization, the conference will be referred to as the Big East from here on out.

³The Big 12 formed in 1996 out of a merger between the Big 8, established in 1907, and four schools from the Southwest Conference

⁴Independent schools are those not affiliated with a particular conference

⁵The PAC-12 was known as the PAC-10 until 2011

⁶The WAC stopped sponsoring football beginning in the 2013-14 season

⁷The Big West was known as the Pacific Coast Athletic Association (PCAA) until 1988.

⁸The Big West stopped sponsoring football in 2000.

⁹The SWC dissolved in 1996.

Georgia in 2009 played three teams it had played in 1929, Oklahoma five, and Southern California seven” (Clotfelter, 2011). Conference affiliation became integrated into the seams of university culture.

University presidents organized most of these athletic conferences and conference management was delegated to a conference commissioner who would work with athletic directors and faculty representatives from each institution. Presidents would meet annually to discuss conference matters, and though the coalitions helped define the public faces of their institutions, it was the athletic departments themselves that had the most control. A 1929 report by the Carnegie Foundation for the Advancement of Teaching stated that “the forms of faculty oversight the study team observed mostly amounted to little more than pseudo faculty control” (Clotfelter, 2011, pg. 34) and a more recent report describes faculty oversight of athletic programs as merely “rubber-stamping” decisions made by the athletic department. An even blunter assertion of athletic department autonomy came from a basketball coach in the 1980’s:

We’re not really even part of the school anymore, anyway. I work for the N.C. State Athletic Association. That has nothing to do with the university. Our funding is totally independent. You think the chancellor is going to tell me what to do? Who to take into school or not to take into school? I doubt it. I’m paid to win games. If I say a kid can help me win, I’ll get him. It’s the same at 99 percent of the places in the country. (Clotfelter, 2011, pg. 35)

For most of the 19th century, athletic departments and university leadership shared the same, simple, goal of winning games. All of this changed, however, with the rise of television, which fundamentally changed the relationship between the institution, the athletic department, and the athletic conference. Many feared that the ability to watch a football game from the comfort of one’s own home would siphon off potential spectators, but it turned out that the opposite occurred. Not only did fans still line up at the gates to see games live, but television opened up college sporting events to entirely new markets of viewers, who would tune in from all over the country to join the festivities. Until 1984, the NCAA prohibited its member institutions from negotiating their own television contracts. In the 1984 decision, *National Collegiate Athletic Association v. Board of Regents of the University of Oklahoma*, however, the Supreme Court put an end to the NCAA’s control, ruling that the organization was in violation of the Sherman Antitrust

Act. Clotfelter illustrates the major change that occurred in TV coverage following the 1984 decision by comparing the number of football games that were televised on the first weekend of October in the years 1983, 1990, and 2008. In 1983 two games were shown. The number grew to ten in 1990, and almost tripled to 29 by 2008 (Clotfelter, 2011, pg. 53). Broadcasting contracts alone created a new level of financial responsibility among major athletic conferences, which required the once simple coalitions of peer institutions to become legal corporations run by a board of directors made up of the presidents of the conference members.

Table 2: The Most Lucrative Television Contracts in the FBS

Conference	Contract Size	Annual Payout	Network
ACC	\$3.6B	\$240m	ESPN/Raycom
Big East	\$126m	\$18m	ESPN
Big Ten	\$2.8B	\$112m	Big Ten Network ¹⁰
Big Ten Championship Game ¹¹	\$1.45m	\$24.1m	FOX
SEC	\$2.25B	\$150m	ESPN
Big 12	\$2.6B ¹²	\$200m	ESPN/FOX
Mountain West	\$116m	\$18m	ESPN/CBS
PAC-12 ¹³	\$3B	\$250m	ESPN/FOX

It quickly became evident that broadcasting deals between conferences and TV networks had serious revenue-generating potential. Table 2 shows data on some current television contracts that exist among FBS conferences, to provide a sense of the enormity of these network relationships. Schools wanted to be positioned in conferences that had good network exposure, and conferences wanted to be built of schools with quality athletic programs so as to maximize television market share (Duderstadt, 2009, pg. 181). Thus, the conference realignment trend began, starting with Penn State's move to the Big Ten in 1990, which set off a domino effect that has continued ever since. This "realignment fever" has left a landscape of conferences that is far less logical and more chaotic than it was at its origin as conferences have merged, dissolved, and members have changed

¹⁰This contract will begin in 2017 when an existing contract with ESPN expires.

¹¹Yes, the Big Ten has a separate contract for its Championship Game *alone*. It will expire in 2016.

¹²The Big 12 has two different network deals.

¹³The PAC-12 also has its own PAC-12 Network.

affiliation. The Big Ten has twelve (soon-to-be fourteen) member schools, while the Big 12 only has ten! In many cases, the divisions no longer make geographical sense either: University of Cincinnati, for example, is part of the Big East, despite the fact that few would claim Ohio to be an eastern state. Similarly, West Virginia plays in the Big 12 with nine other schools that are all from smack-dab-in-the-middle of the country in Texas, Iowa, Oklahoma, and Kansas. By next year, 43 schools (roughly a third of schools that compete in Division I FBS football) will have participated in a conference shift. Louisville, alone, will have participated in five different conferences in the last two decades.

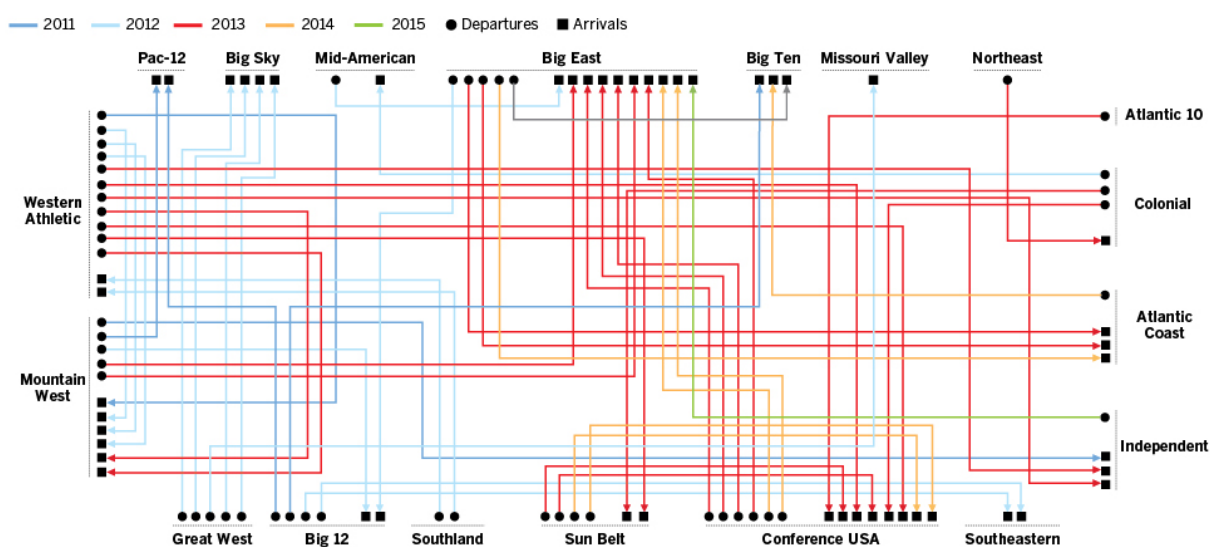


Figure 2: The changes to the NCAA conference landscape attributed to realignment since 2011, as depicted by Ranoa & MacDonald (2012) in *The Los Angeles Times*.

The consensus is that the chaotic conference shuffle will continue until an entirely new conference landscape is left—a “superconference utopia.” (McGee, 2011) The world of the “superconferences” is easy to imagine:

Picture a map divided perfectly into four regions, each corner neatly covered by a union of 16 traditional and/or profitable universities located in 16 traditional and/or profitable media markets. Those regions would fight their internal football battles from Labor Day to Thanksgiving, host a championship game, and send their best schools off into a December battle royal. The New Year would carry us all, finally, to the mountaintop nirvana that is a slickly produced

and wildly profitable college football playoff—which would extend deep into the hoops season (McGee, 2011).

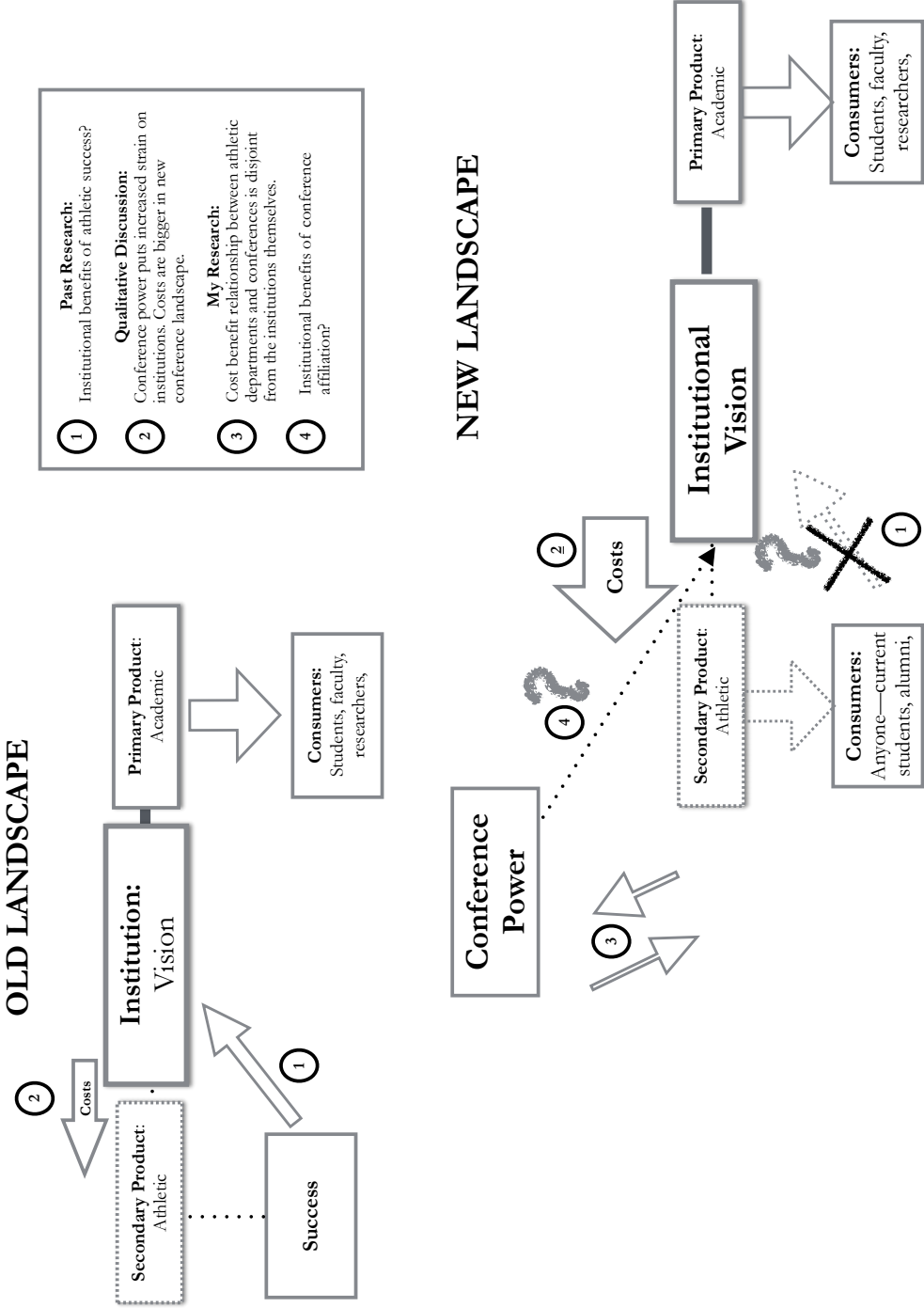
Each of the four superconferences would form from a pre-existing BCS automatic qualifier¹⁴—today’s “football powerhouse” conferences: the ACC, SEC, Big East, Big Ten, Big 12, and Pac 12—with an enormous multitier television contract. The ultimate goal of these conferences is money and power, and as Louisville basketball coach Rick Pitino explained, they seem “to be where we’re all headed. That’s where leadership is steering us. Where football is steering us. And if you don’t expand or put yourself into a position to expand, you’re in trouble. Maybe extinction.” (McGee, 2011).

The story of the conference system’s evolution is a window into the drastic shift that occurred in the relationship between academic institutions and big time sports. What was initially touted as a tool that university presidents could exploit to push their institutions into the limelight and create a slight boost in demand, has now grown into an enterprise of its own. Athletic departments have grown more and more detached from their host institutions, and in many cases are hardly distinguishable from separate business entities that are members of a conference cartel. The conferences themselves have grown from simple alliances of schools into profit maximizing cartels that often dictate the actions of the members involved. “There is certainly a national conversation going on now that I can’t ever recall taking place,” said William E. Kirwan, chancellor of the University of Maryland system and co-director of the Knight Commission on Intercollegiate Athletics¹⁵ “We’ve reached a point where big-time intercollegiate athletics is undermining the integrity of our institutions, diverting presidents and institutions from their main purpose” (Stuart, 2013). Prioritizing conference affiliation has some clear costs. The rest of this analysis will be devoted to illustrating those costs and taking one of the first plunges into exploring whether or not there are measureable benefits.

¹⁴Historically, an automatic qualifying conference was one whose champion receives an automatic berth in one of four Bowl Championship Series (BCS) bowl games—the Sugar Bowl, the Cotton Bowl, the Rose Bowl, and the Orange Bowl. Major changes were instituted for the 2014 season that also created a BCS Championship Game.

¹⁵The Knight Commission was formed in 1989 after highly visible bout of scandals in college sports. The goal of the Commission is to ensure that athletics remain aligned with the academic missions of American colleges and universities.

Figure 3: Evolution of the Athletic-Academic Relationship



4 A Qualitative Cost Benefit Analysis

The shift in power to the hands of the power conferences has forced some very visible costs upon member institutions. These costs fall into two main categories, which we will call *Type I Costs* and *Type II Costs*. Type I Costs occur when, by prioritizing conference affiliation, many institutions act in ways that undermine characteristics that have, theoretically, made the athletic/academic relationship valuable in the past. Type II costs occur when institutions undertake new costs in order to accommodate the new “conference-centric” landscape. The goal of this section is to, first, describe both categories of costs in detail, and, second, explain where benefits could possibly be found in the new landscape.

4.1 Type I Costs: Breaking Functionality

Disrupted Rivalries

Michigan versus Ohio State, Stanford versus Cal, Oklahoma versus Texas – almost any college football fan will boast that their team is part of “one of the greatest rivalries in all of sports.” Fans live and die for annual rivalry games, some which have been played every year for a century. Many of these rivalries, however, have not been strong enough to withstand the forces of realignment. The “Backyard Brawl”—a 104 year tradition between the University of Pittsburgh and the University of West Virginia was ruined when West Virginia moved to the Big 12 in 2011. Nebraska’s move to the Big Ten in 2010 ruined a rivalry with Oklahoma that spanned over 80 seasons, and the Duke versus Maryland rivalry will end when Maryland moves to the Big Ten in 2014. “The Border War” between Kansas and Missouri—teams that played each other in football each of 120 seasons beginning in 1891—ended when Missouri joined the SEC in 2012. These are just a few examples of tradition that the recent realignment fever has disrupted. These rivalries are an integral part of university culture—a way for alumni, students, and fans to bond and rise in support for their teams. A century of history is not something that can be replaced, even by a large television contract.

Fans value more than just specific rivalries—they care about conference identity as well. Upon announcing that it would be leaving the ACC, the University of Maryland alienated a huge part of its fan base. Thousands of fans protested the move, writing letters and creating Facebook pages rallying people to “boycott” support of the team. A few long-time donors announced that they would *stop* giving money if the realignment came to

fruition. Maryland held fast to its decision, however, citing that the new affiliation would bring substantial academic benefits (Wolverton, 2013). In other words, one of the primary justifications for having athletics—fostering alumni support—was completely overlooked when conference affiliation became first priority.

Crowding Out Other Sports

The existence of intercollegiate athletics are often justified by the classical ideal of *mens sana in corpore sano* — “a sound mind in a sound body” (Branch, 2011). Colleges pride themselves on doing more than just filling brains with facts—they strive to create well-rounded individuals who are prepared for encounters with the world around them. There are few better ways to learn valuable skills like teamwork, mental fortitude, discipline and courage, than through athletic competition. For athletics to create this value, however, they must be available to more students than the fewer than 150 athletes that play football and men’s basketball—the “revenue sports”. In December 2013, Temple University announced its plan to eliminate six of its varsity sports programs in July 2014, a move that will affect over 200 student athletes. The teams that will be cut include the men’s and women’s crew teams, rich in tradition that has produced “more than its share of Olympians,” men’s track and field, baseball, softball, and the men’s gymnastics team, “which has the highest grade point average of all teams on campus and the 2013 senior male athlete of the year.” Though Temple’s president, Neil Theobald claims that “the university’s 2-10 football team and its ambitions to succeed in the American Athletic Conference, which requires expensive travel to places like Dallas and Cincinnati, had nothing to do with the cuts” (Macur, 2013), the fact is that Temple’s decision is part of a disturbing trend in which schools that are struggling financially are putting non-revenue sports¹⁶ on the chopping block. The University of Maryland cut seven teams last year, and Rutgers cut six in 2006—undermining the spirit of amateurism among the broader student body, in favor of football and basketball—the two sports that have potential for commercialization (Macur, 2013).

¹⁶A non-revenue sport is typically defined as one other than football or men’s basketball—the sports from which the majority of athletic department revenue is generated through ticket sales.

Undermining Student Health and Safety

There is no debate that university presidents should prioritize the physical well-being of his students. Naturally, the humanitarian reasons are the priority, but even for purely economic purposes, health is a determinant of the value of the human capital that will serve to represent the president's product. In theory, sports help protect the physical well-being of student athletes by promoting active lifestyles. As the commercial enterprise has grown, however, illustrations of institutional leadership ignoring the health and well-being of students in order to protect the interests of their athletic departments have become increasingly common. On April 16, 2014, *The New York Times* reported evidence that Florida State University deliberately neglected to investigate rape allegations made against their star quarterback until *after* the football season was over (a season in which the accused quarterback led FSU to win the national title). Another well-known scandal involved Jerry Sandusky, a football coach at Penn State University, who sexually abused minors for years without criminal report. These are just two examples of numerous cases in which schools, law enforcers, and even students have turned a blind eye to the law when it comes to the actions of athletes and athletic departments. A prosecutor who was involved in two cases of rape accusations against star football players in Florida explained that after learning what football meant in the South, he realized that "keeping players on the field was a priority." In order to bolster and protect athletic success and reputation, institutions are putting the health, safety and well-being their students and communities on the line.

Sacrificing Athletic Success

It seems like it should be uncontroversial to argue that winning games should be a priority for athletic departments, particularly given the potential institutional benefits of athletic success that have been measured. A few schools, however, have recently faced interesting tradeoffs between conference affiliation and athletic success. In general, the majority of schools that realign have done so into conferences whose members have athletic strength that surpasses their own. In fact, between 1991 and 2012, 28 schools moved from a non-power conference to a power conference.¹⁷ Intuition would tell us that playing against tougher competition will make it tougher to win. Of the 28 schools that joined a power conference, the majority suffered a lower win percentage the first year after the switch.

¹⁷Statistic calculated from the dataset I created for this analysis—described in the next section.

On average, that decrease in win percentage was 22 percent—equating to about 2 to 3 more losses per season.

The University of Utah, which moved from the Mountain West Conference to the newly christened Pac-12 in 2011, is a particularly extreme example. Before realignment, Utah fans had enjoyed what many would deem the peak of the school's historical athletic prowess—the football team won the Sugar Bowl in 2009, pulling a huge upset with a win over Alabama. Both the men and women's basketball programs won the Mountain West Championship, and the gymnastics team came in fourth in the NCAA championship. If athletic success has the power to bring a school good publicity, Utah should have been enjoying the ride. In moving to the more prestigious PAC-12, however, Utah gave up its position as a Mountain West athletic powerhouse, and the school's athletic success has plummeted from a historic high to a historic low. The football team missed a bowl game for the first time in a decade, and failed to make it to the NCAA gymnastics finals after reaching the Super Six round of the competition every season for the 13 previous years (Bullinger, 2013). In their last season in the Mountain West, Utah Utes football had a final season Power Rating of 0.717—about 40 percent higher than the conference mean. Two years after the move, the teams power rating was down to .502, only 80 percent of the PAC-12 mean¹⁸.

The University of Wyoming faced another intriguing dilemma in a game against Fresno State last season. The only undefeated school in the Mountain West (which is *not* a conference with an automatic qualifier for a BCS bowl), Fresno State was the only school in the Mountain West with the hopes of going to a BCS bowl. Fresno's appearance in a bowl game could bring in almost half a million dollars to the Wyoming athletic department, but if Wyoming won, Fresno's record would be blemished, ruining this possibility. Alumnus and loyal UW fan explained the interesting predicament the team faced going into the game: "We beat Fresno tonight, that's it for the Mountain West...I'm a Wyoming fan, and I want us to win every game, but I cheer for the Mountain West too because I want us to matter" (Godfrey, 2013). Wyoming faced a clear tradeoff between personal success and conference success—would it be better off to win a a game (nationally broadcast on television) and display the school's athletic strength, or lose the game and potentially promote conference success, which would generate a large monetary payoff?¹⁹

¹⁸Again, calculated using the dataset I created for this analysis.

¹⁹To prevent readers from hanging in suspense, Wyoming ended up losing the game—10 to 48.

4.2 Type II Costs: Conference-Imposed Burdens

Increased Travel Costs

In July of 2011, the University of Nebraska moved from the Big 12 to the Big Ten. According to the university's athletic department, the move led to a \$1 million increase in the travel budget alone to accommodate the increase in distance between Nebraska and its new conference peers. The football team alone spent nearly \$200,000 on flights and hotels. Football teams, of course, only play about a dozen games per season. This is not the case for Nebraska's 20 other varsity teams, who must make the grueling trips to competitions (600 miles on average) much more frequently. Of course, the cost of travel is not only a monetary one. Air travel across the country puts a much bigger burden on athletes' time than does a three or four hour interstate bus ride.

Table 3: Average Travel Distance (miles) for Realigning Schools

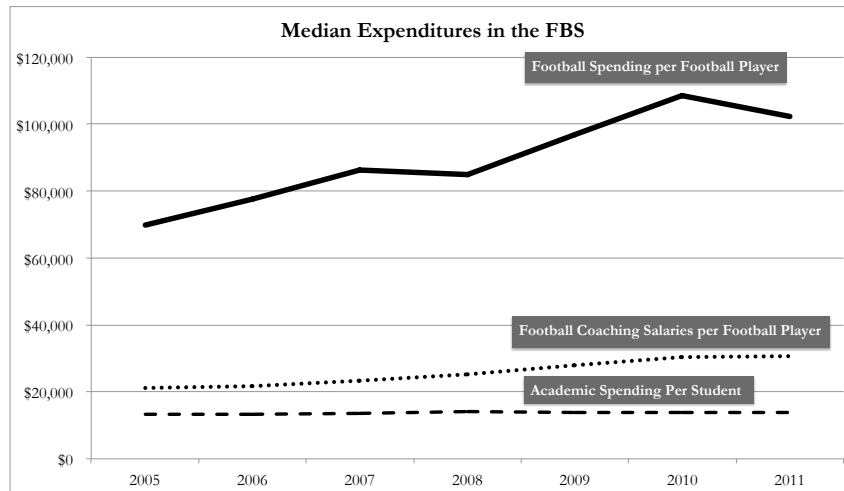
School	Old Conference	Avg Dist.	New Conference	Avg Dist.	% Change
Miami (FL)	Big East	1,048	ACC	706	-32.63%
Virginia Tech	Big East	426	ACC	265	-37.79%
Fresno State	WAC	919	Mountain West	778	-15.34%
Cincinnati	CUSA	577	Big East	442	-23.4%
Nevada	WAC	910	Mountain West	784	-13.85%
Louisville	CUSA	532	Big East	496	-6.77%
Hawaii	WAC	2,943	Mountain West	2,942	-0.03%
Pittsburgh	Big East	406	ACC	407	.25%
Syracuse	Big East	480	ACC	564	17.5%
Missouri	Big 12	426	SEC	518	21.6%
TCU	CUSA	737	Mountain West	837	13.57%
Utah	Mountain West	444	PAC-12	568	27.93%
Nebraska	Big 12	411	Big Ten	554	34.79%
Colorado	Big 12	606	PAC-12	794	31.02%
S. Florida	CUSA	694	Big East	907	30.69%
Texas AM	Big 12	428	SEC	643	50.23%
SMU	CUSA	643	Big East	880	36.86%
Central Florida	CUSA	729	Big East	1,002	37.45%
Boston College	Big East	294	ACC	731	148.64%
Houston	CUSA	607	Big East	1,105	82.04%
West Virginia	Big East	353	Big 12	1,007	185.27%
San Diego State	Mountain West	840	Big East	1,879	123.79%
Boise State	Mountain West	736	Big East	1,802	144.84%

Nebraska is not the only school that is facing increased travel costs due to realignment. Table 3 shows the average travel distance for each of the 25 schools that realigned between 2004 and 2013, before and after realignment (Data compiled by Winthrop Intelligence, 2012). Overall, realignment resulted in a 37% increase in travel distance. Isolating only the schools that realigned into one of the power conferences, the average increase in travel distance was 50%.

A Spending Game

Just as universities are “positional goods” when it comes to their academic products, athletic departments are “positional” in nature as well. Departments work to raise all of the money that they possibly can, in order to do nothing else but spend it on star players, coaches, or attractive facilities that will aid in the recruiting process. Lucrative television contracts play right into what has been likened to a spending “arms race”—if one school in a conference decides to spend boatloads of money to bolster their team’s success, conference peers must follow suit in order to have a shot at winning. Clotfelter points to a few pieces of evidence of this spending spree. Most notably is the boom in construction of new facilities that started around 1990 (right around the time the television boom began). Between 1990 and 2005 over half of Division I FBS universities either renovated existing football stadiums or opened new ones. Some of the most expensive renovations were done at Michigan and Oklahoma State, costing \$226 million and \$260 million, respectively. The increase in coaches salaries is equally astounding. Salaries for full-time university professors enjoyed a 33% increase between 1986 and 2009, while coaches salaries increased *seven-fold* during that same time period (Clotfelter, 2011, pg. 122). Washington State University boasts a particularly disproportionate example, paying head football coach, Mike Leach, \$2.2 million in 2012 while the next highest salary on the Washington State University payroll was \$750,000. The football coach at University of Washington, Steve Sarkisian, was the top paid government employee in the *entire state* of Washington in 2012. For reference, the average state employee saw 3% reductions in hours and pay between 2011 and 2012 while Sarkisian earned almost \$1 million more (Benedict & Keteyian, 2013). Figure 4 shows how football related expenditures have skyrocketed over the last decade, particularly compared to academic spending.

Figure 4: Athletic Expenditures in the FBS



The median value of football expenditures in the FBS has skyrocketed over the last decade. In particular, relative spending on athletics per athlete versus academic spending per student has gotten quite disproportionate (Data compiled by the Knight Commission on Intercollegiate Athletics, 2005-2011)

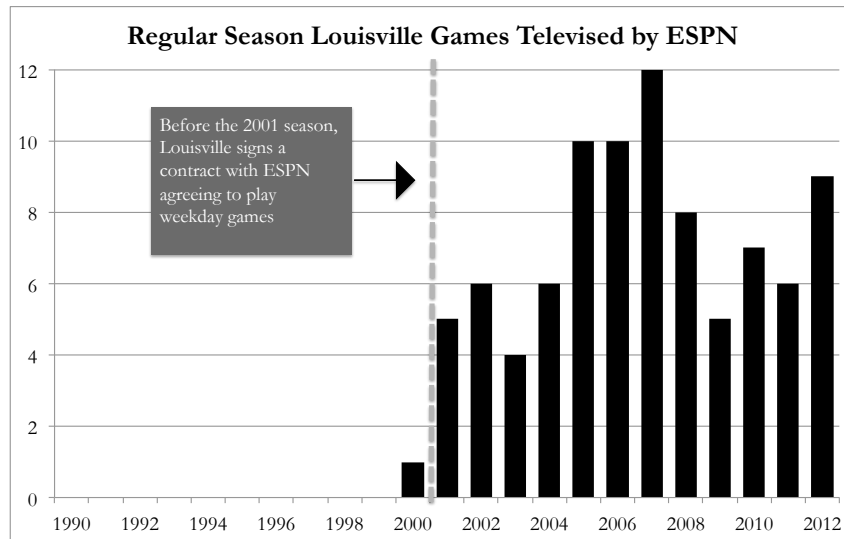
The question of concern to this analysis, of course, is whether spending such huge sums of money is worth it. In other words, do the expenditures *bring in* more value to the institution than they cost? A positive benefit to spending so much on sports is critical, particularly for state schools, many of whom are struggling to find funding to support their *students*. But, schools that are going to be broadcast on national television for the world to see are under pressure, as they do not want to be seen as the conference member with the shabby facilities or the one without a star player. As a result, when one conference member ups the ante, the rest of the conference must follow suit. Only one team in each conference can be the best, however, and since resources are limited, there will come a point when institutions will have to make decisions about prioritizing funding, regardless of conference norms. If increasing the value of the athletic “good” requires sacrificing the value of the academic one, the academic-athletic relationship is defunct.

The Rise of Weekday Games

On July 31, 2013, ESPN announced that their coverage of the 2013 college football season—from kickoff on August 29 to the BCS National Championship on January 6—

would include 69 live weekday game telecasts across their five channels: ESPN, ESPN2, ESPNU, ESPN3, and ABC (Humes, 2013). At least one team from each FBS conference would have a game on a Tuesday, Thursday, or Friday night. A month later, *The New York Times* featured a story about the football team at the University of Louisville, whose athletic department recently forged a crucial relationship with ESPN as the network's "Tuesday Night Football Franchise." Since 1990, as networks realized that high demand for college football entertainment was more than just a Saturday afternoon phenomenon, weekday football has been on the rise. As a former ESPN executive described, "As we cleared more homes, bigger conferences saw more dollars and better exposure...Schools would say: 'We'll play on any night. Do you want us to start at 9, or do you want us to start at 6?'" (Eder *et al.*, 2013).

Figure 5: Surge in Weekday Games



Louisville saw a huge surge in its number of televised games starting in 2001 when the school agreed to become ESPN's "Tuesday Night Franchise." (Data compiled by Eder *et al.*, 2013)

A weekday game might be great for publicity, but is a critical example of television's power to create tension between athletic departments and their host institutions. Spectators grumble about having to come to campus on a weeknight to show their support, while students may give up a night of studying in order to be part of the game festivities. The athletes, most importantly, are at risk for losing almost an entire academic week if they

are playing a weeknight game to which they must travel. Perfectly stated in *The New York Times* feature, “Louisville’s ascent is a case study of how an institution of higher learning can become all but inextricably conjoined with ESPN, an institution of higher profits. It illustrates not only ESPN’s power to make kings among athletic programs, but how profoundly its presence can affect an entire university and its institutional priorities” (Eder *et al.* , 2013).

Monetary Costs

In most cases, realignment comes with basic fixed costs attributable to the change in affiliation itself. Teams must update facilities and get new uniforms and fan apparel that sport the logo of the new conference rather than the old. Some schools even have to pay an exit fee to the conference from which they are departing—liquidated damages for breaking contracts and disrupting general conference equilibrium. The ACC charges a \$52 million penalty for members who leave the conference—a fee which has sparked a massive lawsuit between the conference and the University of Maryland who is protesting the fee as it moves to the Big Ten (Epstein, 2013).

Disrupting University Rhythm

Not only do students often neglect classes in order to attend or watch games scheduled at disruptive times for the benefit of the broadcasting networks, but in many instances, television broadcast schedules have caused institutions to cancel classes or shut down altogether to accommodate games. University of Central Florida, Mississippi State, Boston College, and San Diego State are just a few of the institutions that have cancelled class on the day of an evening, weeknight broadcast. When Stanford University played the University of Oregon on a Thursday in November, 2013, Stanford University employees were told to leave work early to alleviate some of the parking congestion that would be created by the anticipated crowd of 51,000 fans. On May 16, 2013, the President of Washington State University issued the following statement:

In an effort to increase the number of conference football games given national television exposure each season, the PAC-12 has significantly increased the number of regular-season conference football games scheduled to be played on Thursday and Friday nights.

As a result, at 6 p.m. on Thursday, Oct. 31, Washington State University will host Arizona State University in a conference football game...affording us the opportunity to share the beauty of our unique Pullman campus before a national television audience in a broadcast carried by one of the ESPN family of networks...I solicited input from our athletic director as to best industry practices from around the country...After taking all recommendations into account, I have authorized that attendance to all classes the morning of Oct. 31 be made optional at the discretion of faculty and that all afternoon classes that day be canceled as part of our efforts to ensure the safety and ease of travel throughout campus for faculty, staff, students, and fans (Office of the President, 2013)

For the fan, such accommodations might be welcomed, but for the student, the professor, the administrator, or the researcher, they are clear disruptions to productivity, and examples of how institutions are bowing to conference and network needs, instead of the other way around.

Crowding Out Academic Intensity

In November 2013, two students at the University of California, Berkeley, published a white paper analyzing the consequences that Berkeley's athletic decisions have had on the rest of the institution. Co-author John Cummins explains that, like all other big-time football programs, Berkeley "is in a "spending race" on facilities, coaching salaries and conference-related travel in order to lure"—or as the paper puts it, "in the hopes of luring"—the best recruits (Cummins & Hextrum, 2013). The athletic department at Berkeley has taken on a life of its own, in ways that, as Cummins describes, actually harm the academic quality of the university. The university "continues to admit underprepared students because of their athletic prowess," and the Berkeley football team holds the lowest graduation rate of any Division I program. In fact, 25 percent of the university's football players are "special admits," or students who have academic credentials that are well below the norm (Cummins & Hextrum, 2013). The problems at Berkeley are present at many other schools with big-time programs. The University of North Carolina and Auburn are two who have recently been caught allowing athletes to sidestep NCAA academic regulations by counting illegitimate classes toward their degrees" (Grasgree, 2012).

Associate Professor Glen R. Waddell published a study through the National Bureau of Education Research that looked at the relationship between athletic success and student grades at the University of Oregon. Using survey data, he found that the “team’s success significantly reduces male grades relative to female grades” (Lindo *et al.*, 2011). Note that Waddell’s results refer to the *entire* student body (not just the athletes). In particular, he finds that the phenomenon is only present during fall quarters—coinciding perfectly with football season. In a similar study, Clotfelter found that articles downloaded from college campus libraries dipped six percent per day when the university’s team was playing in the March Madness basketball tournament²⁰. “When a team won an upset or close game, article access fell 19 percent the day after a victory. Neither dip was made up later with increased downloads” (Clotfelter, 2011). Thus, the growing athletic enterprise can both lower the quality of an institution’s student body, *and* lower the productivity of otherwise high-quality students.

4.3 The Benefits

A rational decision maker should only choose to incur all of the costs illustrated in the previous section if there are, at the very *least*, some equalizing benefits. In this section, I will outline the two types of potential benefits of competing in the new, conference-dominant world of college football that I set out to measure in this analysis.

Monetary Benefits

There is little doubt that the main force driving realignment is money. As Dr. John Cheslock, director of Penn State’s Center for the Study of Higher Education explains, “The way to make sure you’re in a good financial condition is to make sure you’re in a good conference” (Cheslock & Knight, 2012). Conferences distribute telecast revenue to their member schools, and conferences that are built of a large number of high-profile schools generate millions of dollars per game.²¹ As a result, conference realignment can be viewed as a search, of sorts, for revenue maximizing alliances.

²⁰One of the most popular contemporary sporting events, March Madness is the single-elimination tournament held every year to determine the NCAA Men’s Division I Basketball champion.

²¹The distribution scheme varies from conference to conference—some conferences distribute revenues evenly across members, while others have different formulas for determining payouts.

It is crucial to understand, however, that generating more revenue through new conference alliances *does not imply that an institution is financially “better off.”* Colleges and universities are not-for-profit institutions. Economics Professor Brian Goff explains that “unit directors in universities (e.g. department chairs, deans, athletic directors) do not typically have an incentive to maximize profits (budget surpluses)” because of their non-profit nature (Goff, 2000). Thus, a rise in revenue also tends to imply a rise in expenditures of similar magnitude. For many of the schools that have realigned, the rise in *expected* revenue—the result of new membership in a conference with a more lucrative television contract—has athletic departments increasing current expenditures to the point that they are projecting losses for the next decade. Its move to the PAC-12 left the University of Colorado, for example, with about \$22 million in debt—a sum it does not expect to pay off until 2019. A study by ESPN’s Kristi Dosh compared the change in operating revenues and expenses for 16 schools that realigned in 2004 and 2005, to those of the rest of the FBS. Though, between 2004-2005 and 2011-2012, conference switchers had an increase in revenue that outpaced the increase for FBS schools on average by 23 percent, their increase in expenses outpaced the overall FBS average by 24 percent. Table 4 shows data on the revenue and expense growth for the public schools that realigned at this time (Dosh, 2012).

Table 4: Revenue and Expense Growth for Realigning Schools, 2004-05 to 2010-11

School	Revenue Growth	Expense Growth
Va. Tech	72%	75%
Cincinnati	63%	49%
Louisville	113%	112%
S. Florida ²²	104%	119%
C. Florida	94%	106%
Marshall	68%	58%
UTEP	30%	30%
Idaho	48%	46%
Utah State	108%	180%
New Mexico State	110%	104%

The bottom line is that even large increases in revenue that go *in* to athletic departments *also tend to go out of them.* In other words, the increased revenue seldom gets funneled back into the main body of the institution (if it did, this would be a source of value created

²²S. Florida’s expense growth is inflated slightly due to a one-time legal settlement paid off in 2010-11

by conference affiliation). McEvoy *et al.* (2013) find that the single biggest determinant of department revenues is whether or not a school is part of a power conference.²³ The researchers, however, identify only a handful of institutions—the University of Florida, University of Tennessee, and Louisiana State University—where athletic surplus has been transferred back to the university. Even in those unusual circumstances, the transfers that have occurred represented far below ten percent of the school’s entire athletic budget. Thus, if we are to find monetary benefits from conference affiliation, it must be the case that there is an increase in funding appropriated *directly to the university*—i.e., we need to see increases in areas *other than* the increases in funding that go straight to the athletic department.

A reasonable place to look for this connection would be in the form of donations made to the university (not appropriated to athletics). Donations can be made to schools in two forms:

1. **Restricted donations** are donations that are earmarked for a certain purpose. In this case, donors give with the expectation that their gift will be used to support a certain activity at the institution. In my analysis, I look at donations that are restricted for athletics, which I will refer to as “Athletic Donations,” and compare these to the total amount of donations made to an institution as a whole (“Total Donations”).
2. **Unrestricted donations** are given to an institution with no specific directions on how they are to be used.

Instead of looking at the relationship between athletic success and donations, or the relationship between conference affiliation and total revenues (as per McEvoy *et al.* (2013)), I will examine the relationship between conference affiliation, athletic donations, and total donations made to institutions to search for the “institutional value” with which my analysis is concerned.

Peer Effects

There is a set of potential non-monetary institutional benefits that are best illustrated anecdotally, through the story of the University of Utah’s move to the PAC-12.

²³McEvoy, Morse, and Shapiro include the Big East (now, the American Athletic Conference) as part of the group of power conferences.

Athletic success was not necessarily a priority in Utah's decision to change conferences. In fact, Utah knew that its teams would struggle in the PAC-12, and publicized reasons for the move that transcended the football stadium. In an article published in *The Salt Lake Tribune* in July of 2011, David Rudd, the dean of Utah's College of Social and Behavioral Science, explained that moving to a more prestigious conference would shed more prestigious light on Utah itself. "With the U.'s admission to the PAC-12 Conference," Rudd says, "the rest of the nation will associate Utah with Stanford, Cal, and Washington." The acting president at the time, Loris Bertz, explained that with a higher profile, Utah would be able to "showcase the academic and research [mission] of the university to a population that has never really understood who [they] are and just how good [they] are" (Maffly, 2011). The basic premise of the Utah's PAC-12 dream is that by being associated with top-tier universities like Stanford, Cal, and UCLA, Utah would gain a Top-Tier reputation. This, they hope, would attract more research grants, better faculty, and more applicants, which would allow for more selectivity, and the cultivation of a student body of higher academic caliber. The U. even published hypotheses about the benefits that would be brought upon the economy of the State of Utah as a whole—because of a larger influx of out of state visitors who would come in for football games. Utah's view of football's influence on institutional quality is an assertion that when it comes to creating value, athletic success in and of itself is less important than conference affiliation.

The Utah story is a perfect outline of the second area in which I will look for sources of institutional value amid the new conference-centric landscape. My question is this: is there any benefit to being associated, via conference, with high caliber schools? While Utah focuses on the academic merits of its fellow conference members, I will look for connections between institutional value and both the athletic and academic strength of conference peers.

4.4 Measuring Value: Summary and Goals of Analysis

Here are the general takeaways from the qualitative cost-benefit analysis of Division I athletics in a conference-centric world:

Type I Costs

Type I Costs are ways in which the new, conference-centric landscape of college athletics has created tension between theoretical and empirically proven valuable characteristics of

the relationship between institutions and big-time sports. Included in this category are:

- Disrupting rivalries and conference ties for the sake of realignment can **alienate fans and potential donors**.
- The resources needed to support big-time football programs that can stand up in a power conference may **crowd out other sports, eliminating athletic opportunities for the majority of students**.
- In order to maintain athletic success and reputation, institutions make **questionable decisions that challenge the integrity of their values, and sometimes endanger their students**.
- Institutions must sometimes **sacrifice athletic success or potential athletic success for the sake of conference success**.

Type II Costs

Type II Costs are costs that schools face because of the new conference-centric landscape, that did not necessarily impose such large burdens before priorities shifted. Type II Costs include:

- **Increased travel costs** from having to travel to conference peers that are farther away. These costs may be worse for sports other than football that play more games per season.
- **Disruptions to the student-athlete's academic week due weekday games**, which have risen in popularity for the sake of the television networks.
- **Fixed costs from conference realignment** itself, including updating uniforms, facilities, and conference exit fees.
- The grand commercial nature of important football games can **damage institutional productivity** by inducing cancellation of classes and even entire university shutdowns.
- The **opportunity cost of recruiting athletes** to help schools be successful against other football powerhouses rather than academically qualified students who could add to an institution's academic climate and productivity.

Broadly, my analysis has two parts:

- Verify whether results that have previously been reported on the **impact of athletic success** on an institution’s number of applicants, admissions rates, and SAT Scores can be replicated with this dataset.
- Attempt to measure whether the **qualities of a school’s conference** have any impact on that school’s own qualities.

5 Data

5.1 Description of Variables

I focus this analysis on the colleges and universities that comprise the Division I Football Bowl Subdivision (FBS)—the “elite” football schools who are the biggest players in the network deals and conference changes. My study required collection of two types of data: “athletic variables”—which include team win percentage, power rating, athletic department revenues and expenditures, and donations made to the athletic department—and “institutional variables”—the number of applications an institution receives, the admissions rate, SAT scores of entering students, and the total amount of money donated to the institution as a whole. Table 5 contains a description of each variable collected and its respective source. More information on the surveys and data sets referenced in Table 5 can be found in Appendix A.3.

5.2 Remarks and Assumptions Regarding Financial Data

In general, data that is available on athletic department finances must be considered with some degree of skepticism. Universities have varied reporting practices when it comes to accounting revenues and expenses for their athletic departments. Different institutions make different decisions about in which parts of their budgets to include certain revenues and expenses—physical education, scholarships and financial aid, overhead costs, and maintenance of athletic facilities, parking fees, and merchandise sales, to name a few. It is a commonly cited statistic that the majority of athletic programs fail to make a profit, or even to break even, which means that in order to pay for athletic department expenses, institutions must supplement direct athletic department revenue with money from their central funds. Many schools include this supplemental funding as part of their athletic

department revenues, and as a result, the data shows that they break even *to the dollar*. Thus, it is difficult to compare financial reports from one school to the next or, moreover, to know exactly what is encompassed in the data that exists.

Table 5: Variable Sources and Descriptions

Variable	Source	Years	Description
Conference	Historical college football statistics compiled by http://www.jhowell.net/	1989-2012	Which conference was School i in during year t ?
Final Power Rating (PR)	Historical college football statistics compiled by http://www.jhowell.net/	1989-2012	A measure of school i 's football power, accounting for win percentage and opponent's strength. ²⁴
Win Percentage	Historical college football statistics compiled by http://www.jhowell.net/	1989-2012	Percentage of games won by School i during year t .
Conference Bowl Appearances	Historical college football statistics compiled by http://www.jhowell.net/	1989-2012	Number of bowl appearances made by schools in Conference j , year t .
Total Athletic Revenues and Expenditures	Equity in Athletics Disclosure Act (EADA)	2000-2010	Total expenditures and revenues for all men's and women's teams at School i during year t .
Donations (Total and Athletic)	Voluntary Support of Education Survey	2003-2012	Total donations made to school i by fiscal year.
Number of Applicants	Annual Survey of Colleges and US News and World Report	1989-2010	How many applicants did School i have in year $t - 1$?
Admissions Rate	Annual Survey of Colleges and US News and World Report	1989-2010	Of all the applicants to School i in year $t - 1$, what percent were admitted?
SAT Scores	Annual Survey of Colleges and US News and World Report	1989-2010	25th and 75th percentile SAT Scores for class entering in year $t - 1$.
Top 25	The Center for Measuring University Performance (MUP)	2000-2012	Was school i ranked among the top 25 American research institutions according to the MUP ranking system? ²⁵ .

²⁴See Appendix A.1 for a detailed description of the power rating variable.

²⁵See Appendix A.2 for further detail.

To deal with the difficulties of interpreting the available financial data, I make a few decisions and assumptions for this analysis. First, because I cannot easily make inferences about athletic department revenues *relative to* expenses, I focus only on the expenditure side, looking mainly at level changes in expenditures. As I discussed in the previous section, I will go forward under the assumption that, given the not-for-profit nature of universities and their athletic departments, revenue growth and expense growth tend to be close to a one-to-one relationship (or expense growth exceeds revenue growth, but rarely the other way around). The only revenue variables that I consider are donations made to the athletic department and total university donations. The data on donations is more reliable and standardized in its reporting, allowing more easily for its use.

5.3 Data Quality and Scope

While the data on win percentage, power rating (PR) and conference bowl appearances is very thorough—available for all of the schools playing Division I FBS football between 1989 and 2012—there is some data in the other categories that is less complete. The regressions requiring academic variables are not perfectly balanced because there are a few institutions that did not report data to each of the surveys used for collection. Similarly, only the public universities are required to report financial data on athletic department revenues and expenses to the government. Some private universities still report this information, but it must be noted that those institutions that do report choose to do so voluntarily. The data on was much more complete for both public and private universities, though there were a few institutions that failed to report the athletic subdivision. Table 5.3 shows summary statistics for the primary set of variables I use.

Note: Financial data is reported in millions of dollars.

6 Part A: Valuation of Athletic Success

6.1 Methodology

The question driving the first part of my research is the one that has been asked time and time again: “*does winning matter?*” The goal of this section of my analysis was, in large part, to see if I could replicate the results of previous studies on the impact of athletic success using my data. I analyze the effect of athletic success on a few key institutional

Table 6: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Applicants	11778.167	7167.471	620	55708	2288
Admissions_t	0.68	0.201	0.08	1	2186
SAT25_t	1008.213	131.66	400	1380	2284
SAT75_t	1233.739	116.676	520	1580	2283
PR_t	0.533	0.185	0.058	0.979	2746
Pct	0.509	0.226	0	1	2746
TotalDonations	94.941	108.831	1.624	1034.849	1085
AthleticDonations	9.665	9.811	0	55.629	658
TotalAthleticExpenditure	34.941	22.571	0.467	125.978	1144
FootballExpenditures	9.343	6.232	0.004	39.07	1139
Conf_Top25_t	0.251	0.261	0	0.909	2746

qualities—admissions rate, number of applicants, and SAT scores at the 25th and 75th percentile. These qualities, which serve as my dependent variables, are characteristics of institutions of higher education that can serve as proxies for “institutional value.” For example, because of the positional nature of the market for higher education, it can be argued that having more applicants and a lower admissions rate (i.e., higher demand) implies a more valuable product—in this case a more valuable degree.

To analyze the relationship between athletic success and institutional value I use the following specification:

$$Y_{it} = \beta_0 + \beta_1 X_{it}^{Athletic} + \beta_2 I_t^{Year} + \beta_3 I_i^{School} + \epsilon_{it} \quad (1)$$

where Y_{it} is one of the various academic measures of institutional value—*Admissions Rate*, *Log Applicants*, and *SAT Scores*—and X is either *Power Rating* or *Win Percentage*. I include fixed effects for each year, to control for time trends, and each school, to control for individual institutional differences.

Past studies have measured athletic success using variables such as win percentage, overall ranking (whether or not a team was in the top 20, nationally), or presence/victory in a BCS Bowl Game. I chose to look at win percentage and power rating as my “success” measures in order to make a different distinction. While win percentage is a “universal”

quality, in that any school in any conference can achieve the same win percentage by winning and losing the same number of games, power rating carries some information about conference affiliation—my ultimate subject of interest. A school that plays in the WAC (a non-power conference), for example, can have the same win percentage as a school that plays in the SEC, but a lower power rating, due to the fact that the SEC member's *fellow conference members* are considered tougher opponents. (Refer to Appendix A.1 for details on how power rating is calculated.) Thus, a comparison of the value of a win versus the value of a higher power rating should provide some insight as to the value of membership in an athletically powerful conference.

6.2 Results and Discussion

My findings are consistent with past analyses that show that having a winning football season may lead to a slight boost in applications one or two years following, but that the effect quickly wears off. Table 7a shows the regression output for tests on log applicants, admissions rates, and 75th percentile SAT scores due to changes in power rating in the current year, and lagged one, two, and three years (PR_t , PR_{t1} , PR_{t2} , and PR_{t3}). The only significant coefficient is on the one year lag of log applicants—0.0889. To interpret the magnitude of the result, I looked at the *change* in power rating from year $t - 1$ to year t for each school in my sample. The maximum change in power rating exhibited in my data was 0.448, which occurred between 1999 and 2000 for the University of South Carolina who went from a 0 – 11 (wins—losses) season in 1999 to an 8 – 4 season in 2000. According to my results, a school that exhibited the maximum change in power rating of 0.448 would have an associated 4 percent increase in applicants.

The results are slightly different when I use win percentage and its lags (Pct_t , Pct_{t1} , Pct_{t2} , and Pct_{t3}) as my independent variables instead of power rating (See Table 7b). Using the same example from above, between 1999 and 2000, the University of South Carolina had change in win percentage of 0.667. An increase of this magnitude is associated with a 4.2 percent increase in applicants one year after the successful season, and a 3.3 percent increase two years after. Again, I find no significant correlation between win percentage and admissions rate or 75th percentile SAT scores. Of course, win percentage and power rating are highly correlated, but the results indicate that the number of applicants are slightly more sensitive to an increase in win percentage than they are to an increase in power rating. If this is true, it means that potential applicants care more about getting a

win than they do about what team that win is against — i.e., when it comes to conference membership it may be better to be a “big fish in a small pond” than a “small fish in a big pond.” This result will provide some fodder for the rest of my analysis.

(a) Power Rating and Institutional Quality				(b) Win Percentage and Log Applicants			
	(1)	(2)	(3)		(1)	(2)	(3)
	ln_apps_t	Admissions_t	SAT75_t		ln_apps_t	Admissions_t	SAT75_t
PR_t	0.0438 (0.0303)	0.00875 (0.0145)	5.163 (8.897)	Pct_t	0.0278 (0.0212)	0.00335 (0.0101)	4.339 (6.227)
PR_t1	0.0889** (0.0318)	-0.0242 (0.0152)	4.011 (9.331)	Pct_t1	0.0630** (0.0219)	-0.0178 (0.0105)	1.837 (6.441)
PR_t2	0.0602 (0.0320)	-0.0200 (0.0153)	1.144 (9.332)	Pct_t2	0.0491* (0.0220)	-0.0159 (0.0105)	1.970 (6.419)
PR_t3	0.00104 (0.0299)	-0.00408 (0.0143)	0.789 (8.785)	Pct_t3	0.0125 (0.0208)	-0.0107 (0.00998)	2.154 (6.136)
_cons	8.867*** (0.0277)	0.721*** (0.0133)	1162.0*** (8.144)	_cons	8.892*** (0.0223)	0.720*** (0.0107)	1232.2*** (6.595)
<i>N</i>	1870	1868	1953	<i>N</i>	1870	1868	1953
<i>R</i> ²	0.943	0.879	0.854	<i>R</i> ²	0.943	0.879	0.854

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7 Part B: Valuation of Conference Peer Effects

The next two sections are devoted to the main focus of my research: looking for measurable evidence of whether conference affiliation provides value to an academic institution. In this section, I discuss the first method I use to estimate this value: measuring conference “peer effects,” or, “halo effects,” in which the qualities of an institution reflects the qualities of its conference peers.

7.1 Methodology

I distinguish between four types of “peer effects” that could exist among schools in athletic conferences:

1. **Athletic-Financial:** The athletic power of an institution’s conference peers is correlated with the institution’s donations (athletic and/or total) or athletic expenditures.
2. **Financial-Financial:** The financial characteristics of an institution’s conference peers (average donations and athletic expenditures) is correlated with an institution’s own donations and athletic spending.
3. **Athletic-Academic:** The athletic power of an institution’s conference peers is correlated with the institution’s own academic quality—measured by *log applicants*, *admissions rate*, or *75th percentile SAT scores*.
4. **Academic-Academic:** The academic quality of an institution’s conference peers is correlated with an institution’s own academic quality, again measured by *log applicants*, *admissions rate*, and *75th percentile SAT scores*

In basic terms, the question I attempt to answer is as follows: “*If I am in a conference with better athletic/academic/financially successful schools, will I be academically/financially better off?*” Or, in other words, *does conference affiliation have institutional value?* The basic regression setup is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{-it}^{Conf} + \beta_2 I_t^{Year} + \beta_3 I_i^{School} + \epsilon_{it} \quad (2)$$

where X is a vector of “conference variables,” which are a calculated average value of a particular *athletic*, *academic*, or *financial* variable for school i ’s conference peers, *not* including school i , denoted $-i$ in equation 2. For example, Stanford’s “Conference 75th percentile SAT scores” would be the average 75th percentile SAT scores of Stanford’s 11 fellow PAC-12 members, itself not included. As I do in my first model (see equation 1), I include fixed effects for each year and school to control for time and institutional trends.

I use the following “conference variables” to measure a conference’s athletic, academic, and financial qualities:

- **Athletic:** The athletic measure I use is conference power rating (Conf PR)—a generally agreed upon measure of conference athletic strength. Though the average win percentage in a conference is, by nature, around 0.5, because power ratings take the strength of an opponent, there is a difference between winning games in one of the “power conferences” and winning games elsewhere.

- **Academic:** I used two variables to denote conference academic strength —75th percentile SAT scores and the “Conference Top 25” variable, which measures the number of conference members that are ranked in the top 25 in a national ranking of American research universities. The “Top 25” ranking for each institution is calculated based on the institution’s ranking on each of nine different indicators, which include things like research, endowment assets, and faculty awards (see Appendix A.2 for detail). I use the “Top 25” variable as a measurement of academic quality because it is stable, meaning the group of schools that are classified as “Top 25” is relatively unchanged throughout the time period of interest. The other advantage to this variable is that, because of how it is calculated, it is not directly correlated with applicants or admissions rates. This second quality allows me to use those measures as dependent variables (and avoid running a regression akin to “log applicants on log conference applicants” which would be at high risk for spuriousness).
- **Financial:** *Total donations, athletic donations, total athletic expenditures, and football expenditures* were used to measure the financial characteristics of each conference. Though I have data on athletic revenues, because of the difficulty in measuring athletic budgets discussed in an earlier section, and the subsequent assumptions I laid out, I focus only on the expenditure side. The goal here is simply to get a sense of how *levels* of donations and expenditures change with conference affiliation.

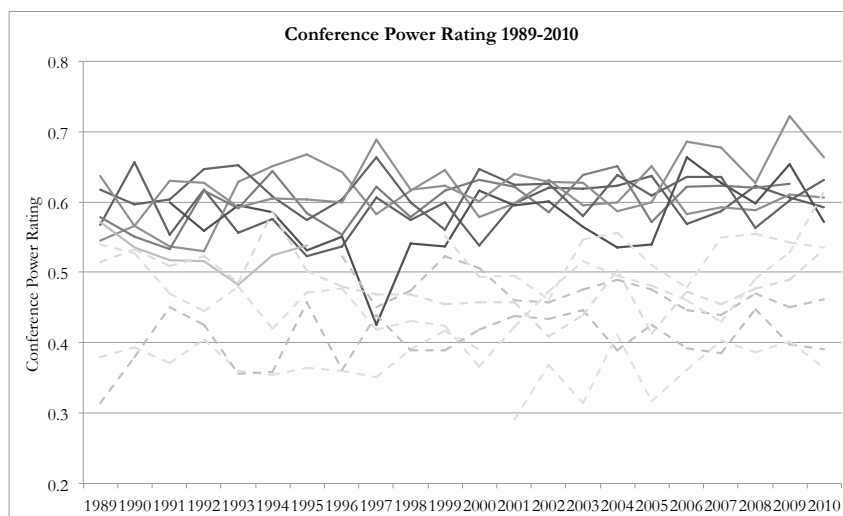
7.2 A “Natural Experiment”

Using this specification I aim to take advantage of schools that have *changed* conference affiliation within the time period of analysis (which varies depending on which variables are included in the regression). It is *these* schools that will exhibit large changes in their conference averages in the year of realignment, while the conference averages for schools that remain in the same conference are relatively stable over time. This characteristic is what allows me to use conference averages as a way to examine the effect of peer associations among conference members. That the data follows this pattern seems like a logical assumption, but in order to check its validity I compared the change from year $t - 1$ to year t of each of my conference variables between conference “switchers” in the year they realign, to the same value for “non-switchers” in the same year. I found that the variation in the conference variables, does indeed come from realignment. For example,

the variable *Conference 75th Percentile SAT Scores* ranges from 0.357 to 287.5 with a mean of 53.053 (standard deviation of 49.69) for “switchers” and ranges from 0 to 75.6 for “non-switchers” with a mean of 10.29 (standard deviation of 14.233). Other conference variables also follow the expected pattern.

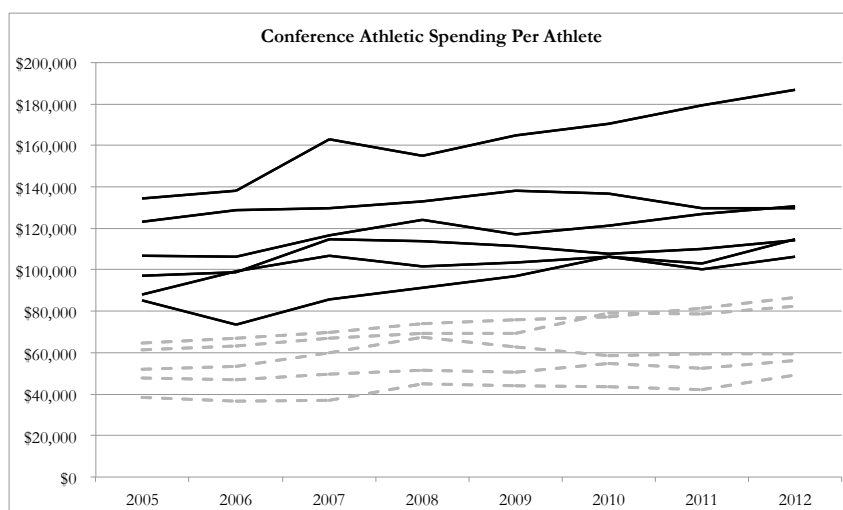
In addition to the variation in SAT scores, the biggest changes in conference averages occur for schools that move into a power conference from a non-power conference. Between 1991 and 2012, there were 28 such realignments. Figures 6, 7, and 8 illustrate the variation among average conference power ratings, median athletic spending per athlete, and median academic spending per full-time student, respectively. Just doing a simple eyeball test, it is clear to see that switching from a non-power conference (denoted by the dotted lines) to a power conference (solid lines) will cause a large jump in any of the conference average variables.

Figure 6: Conference Power Rating



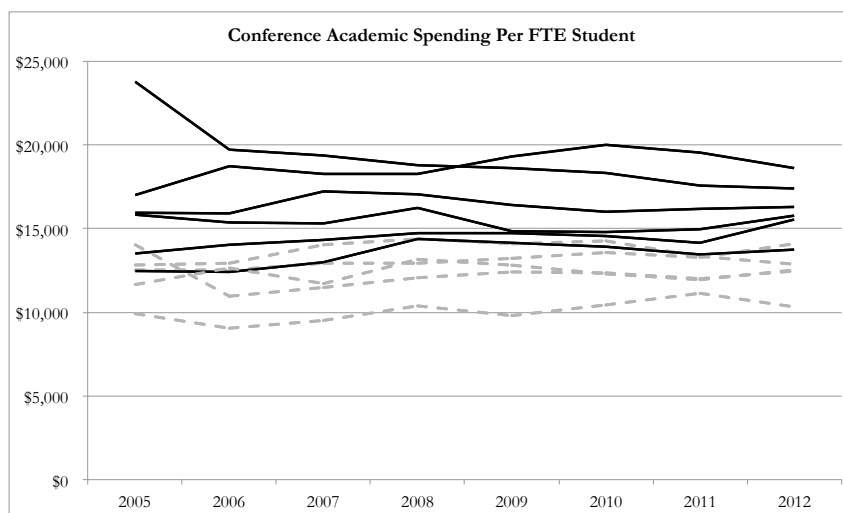
Average Conference Power Ratings over time. The power conferences (solid lines) have consistently higher power ratings than the non-power conferences (dotted lines), the gap between the groups remaining noticeable over time.

Figure 7: Athletic Spending per Athlete



Median athletic spending per athlete for each conference. The power conferences (solid lines) have consistently higher athletic spending per athlete than the non-power conferences (dotted lines), with the gap between the groups diverging over time. Even among individual conferences, there is wide variation—the SEC remaining the top spender by a long-shot over time.

Figure 8: Academic Spending per Full-Time Student



Median academic spending per full-time student for each conference. The power conferences (solid lines) still have consistently higher academic spending per student than the non-power conferences (dotted lines), but the gap between the groups is smaller than it is for the athletic variables in the previous two figures.

7.3 Results and Discussion

Financial Effects

Examining the *Athletic-Financial* and *Financial-Financial* relationships between conferences and member institutions results in some significant correlations. For reference, I first looked at the relationship between overall conference power rating, current and lagged up to three years ($Conf_PR$, $Conf_PR_{t1}$, $Conf_PR_{t2}$, and $Conf_PR_{t3}$), and average conference athletic donations. Conferences with a higher power rating receive significantly higher ($p < .01$) athletic donations (see Table 8). In my sample, the conference with the lowest conference power rating is the Sun Belt in 2001, which had a power rating of 0.291. The highest power rating in my sample, 0.722, was achieved by the SEC in 2009. According to the results, the difference in athletic donations attributable to power rating between the SEC in 2009 and the Sun Belt in 2001 would be about \$3.5 million.

Table 8: Conference Effects: Donations and Expenditures

	(1) ConferenceAthleticDonations
Conf_PR_t1	8.110** (2.510)
_cons	1.656 (1.353)
N	1188
R^2	0.845

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To look for *Athletic-Financial* effects—where an increase in the athletic power of school i 's conference has an impact on school i 's financial characteristics, see regression (1) in Table 9. The results indicate no significant correlations between the athletic donations or total donations of school i in year t and the power rating of school i 's conference, or the power rating of school i itself, currently, and lagged up to three years. I do find, however, that being in a conference with a high power rating is positively correlated with long-run total athletic expenditures. Three years after a ten percent increase in the average power rating of school i 's conference peers, school i will spend about \$1.1 million more (only

about 3% of the average Total Athletic Expenditures). For the *Athletic-Financial* effects to indicate institutional value in conference affiliation, we would look for an increase in conference power rating to be correlated with an increase in total donations bigger in magnitude than an increase in athletic donations or expenditures. This would indicate that the athletic power of an institution's conference peers leads to more money flowing into the institution itself (*not* going through the athletic department).

We can look to equations (3) and (4) in Table 9 for *Financial-Financial* effects. The results indicate that for every dollar increase in the average athletic donations of school i 's conference mates in year $t - 1$, school i 's total athletic expenditures increase by 53.5 cents in year t . Equation (4) shows that about 16 cents of that 53.5 cent increase is attributable to rising football expenditures. In other words, though being a part of a power conference means that your peers, on average, receive more athletic donations, the level of donations at peer institutions, however, does not necessarily indicate that an institution will receive higher levels of donations itself. Being part of a conference that receives a high level of athletic donations does significantly correlate with athletic expenditures.

So, even if school i is not a moneymaker itself, being affiliated with money-making schools induces school i to spend. This is not a surprising result. In fact, it is quantitative evidence of the "spending race" discussed in Section 4.2—if an institution's conference mates are spending more, the institution has no choice but to follow suit if they want to keep up. The power conferences are the ones that get higher athletic donations, and they are also the ones in which members receive large payouts from television contracts. This means that schools that are not necessarily football powerhouses, but are in power conferences, receive higher amounts of athletic revenue (and therefore have higher athletic expenditures), even if they are not receiving a high amount of donations. They can rely on their conference power, in other words, to fuel some of their spending. Recall, however, that we are looking for institutional value in the form of revenues going straight to the institution, via Total Donations. I find no evidence that conference peer effects create this kind of value for member schools.

Table 9: Conference Effects: Donations and Expenditures

	(1)	(2)	(3)	(4)
	AthleticDonations	TotalDonations	TotalAthleticExpenditure_t	FootballExpenditures_t
Conf_PR_t	2.469 (5.177)	-6.072 (23.08)	-1.235 (5.485)	-2.575 (2.159)
Conf_PR_t1	-0.738 (5.445)	-30.39 (24.30)	8.299 (5.110)	1.934 (2.012)
Conf_PR_t2	2.694 (5.636)	-14.40 (24.42)	-0.0636 (5.022)	0.720 (1.977)
Conf_PR_t3	1.934 (5.338)	-18.08 (23.69)	11.64* (5.039)	3.143 (1.984)
PR_t	-1.699 (1.682)	-11.61 (7.531)		
PR_t1	1.815 (1.796)	-8.038 (8.092)		
PR_t2	-1.396 (1.797)	12.23 (8.045)		
PR_t3	-2.523 (1.723)	0.714 (7.661)		
ConfAthDonations			0.535*** (0.0683)	0.161*** (0.0269)
_cons	8.790 (5.465)	136.5*** (22.16)	23.39*** (4.667)	6.629*** (1.837)
N	649	1072	793	793
R ²	0.799	0.944	0.962	0.918

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Academic Effects

Lastly, I looked at the *Athletic-Academic* and *Academic-Academic* relationships between an individual institution and its conference peers. My findings were inconclusive. I found no significant correlations between school i 's log applicants, admissions, or total donations and its conference's average 75th percentile SAT scores, the number of peer institutions ranked as part of the country's "Top 25" research universities, or its conference's power rating. In other words, school i 's presence in an academically *or* athletically powerful conference yields it no significant change in applications, admissions or donations received. See Table 10 for these results.

Table 10: Conference Effects: Academic

	(1)	(2)	(3)	(4)	(5)	(6)
	ln_apps.t	ln_apps.t	Admissions.t	Admissions.t	TotalDonations	TotalDonations
Conf.Top25.t	-0.0394 (0.0953)		0.0221 (0.0454)		11.21 (21.90)	
Conf.Top25.t1	-0.0958 (0.121)		0.00343 (0.0572)		-0.581 (28.90)	
Conf.Top25.t2	0.0342 (0.0948)		0.0149 (0.0448)		4.335 (26.19)	
Conf.PR.t	0.0523 (0.0895)	0.0362 (0.0937)	0.00692 (0.0424)	0.0379 (0.0445)	-4.173 (22.88)	-7.462 (29.57)
Conf.PR.t1	0.0797 (0.0920)	0.112 (0.0972)	-0.0236 (0.0435)	-0.0393 (0.0462)	-28.98 (24.27)	10.50 (30.88)
Conf.PR.t2	0.0435 (0.0875)	0.0486 (0.0911)	0.0586 (0.0414)	0.0797 (0.0433)	-22.42 (23.61)	-25.55 (29.26)
Conf.SAT75.t		-0.000293* (0.000147)		-0.0000954 (0.0000699)		0.00755 (0.0350)
Conf.SAT75.t1		-0.0000125 (0.000158)		-0.0000468 (0.0000749)		0.0281 (0.0344)
Conf.SAT75.t2		0.000165 (0.000145)		-0.0000114 (0.0000690)		0.0146 (0.0311)
_cons	8.903*** (0.0632)	9.680*** (0.209)	0.670*** (0.0299)	0.774*** (0.0990)	102.4*** (18.67)	50.37 (67.72)
N	1979	1790	1977	1788	1075	757
R^2	0.941	0.944	0.876	0.878	0.944	0.948

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Of course, statistical insignificance does *not* mean that there is no relationship—just that there is not one that we can measure confidently using this data. However, even though

the coefficients are statistically insignificant, we can still take note of the fact that they are all very very close to zero. The implication here is that there is no evidence to support the “Utah Claim” that school i 's membership in a conference with high achieving peers will improve school i 's institutional quality.

8 Part C: A Difference in Differences Approach to Estimating Conference Value

8.1 Methodology

My second approach for estimating the value of conference affiliation used a difference-in-differences (DD) type model. The DD approach is used to measure the change in an outcome variable for a group that has been subject to a certain “treatment,” comparing the outcome of that group to a “control” group that did *not* receive the treatment. For this part of the analysis, I use conference realignment as my “treatment,” in order to measure the effect that a change in conference affiliation has on a particular outcome variable. Between 1987 and 2012, there were 102 changes in conference affiliation. Table 11 shows the number of realignments that occurred each year during this period.

Table 11: Conference Realignments Per Year 1987-2012

Year	Number of Realignments	Year	Number of Realignments
1987	0	2000	1
1988	0	2001	11
1989	0	2002	1
1990	0	2003	2
1991	8	2004	4
1992	5	2005	16
1993	5	2006	0
1994	0	2007	1
1995	0	2008	1
1996	21 (<i>Conf USA founded</i>)	2009	0
1997	2	2010	0
1998	1	2011	5
1999	10 (<i>Mountain West founded</i>)	2012	8

If conference affiliation has no effect on individual institutional quality, there should be no difference in outcome between the treatment and control groups. If, however, conference affiliation does influence one of our chosen proxies for institutional value, I will be able to estimate it using this method. In particular, I address the following questions regarding the relationship between institutional quality and conference affiliation:

1. Is there a change in donations associated with switching conferences? Switching to a power conference?
2. Is there a change in institutional quality, measured by number of applicants, admissions rate, or SAT scores of incoming students associated with switching conferences? Switching to a power conference?

Switch-Treatment and the Single-Switch Variable Regression

I created a set of indicator variables to identify schools that change conferences. I will refer to these indicators as “switch” variables. For the first set of regressions, I used a single “switch” variable that equals 1 if school i switched conferences in year t or later. In other words, the single indicator “turns on” in the year of a switch, and then stays on. Using this variable, I implement a very simple difference-in-differences (DD) type model using schools that never switch conferences as the control group, and the conference realigners as the treatment group. Equations 3 and 4 depict the specific specifications I use. Once again, Y_{it} is the chosen institutional outcome variable (log number of applicants, admissions rate, SAT scores, donations, etc.) for school i in time t . Again, I include a fixed effect for each year and each school to control for time and individual institutional trends. The second specification (equation 4) also controls for win percentage and 75th percentile SAT scores in year $t - 1$, the year prior to the year of measurement for the chosen outcome variable. I chose these particular control variables in order to have a representative of school i 's athletic strength and academic strength—two factors that could definitely have an impact on any of the outcome variables²⁶. The coefficients of interest are α_1 and β_1 , which should indicate whether simply switching conferences is associated with a change in the institutional outcome of choice.

²⁶Naturally, I could not include the SAT control when estimating regressions with $SAT75_t$ as my dependent variable.

$$Y_{it} = \alpha_0 + \alpha_1 I_t^{switch} + \alpha_2 I_t^{Year} + \alpha_3 I_i^{School} + \epsilon_{it} \quad (3)$$

$$Y_{it} = \beta_0 + \beta_1 I_t^{switch} + \beta_2 I_t^{Year} + \beta_3 I_i^{School} + \beta_4 Pct_{it-1} + \beta_5 SAT75_{it-1} + \epsilon_{it} \quad (4)$$

Timing the Effects: The Multi-Switch Variable Regression

In order to isolate *when* the impact, if any, occurs, I further refined the specification using a total of four “switch” variables: $switch_t$ equals 1 if school i switches conferences in year t , 0 otherwise; $switch_{t1}$, $switch_{t2}$, and $switch_{t3}$, which equal 1 if school i switched conferences one, two, or three years ago, respectively; and $switch_{t4}$, which equals 1 if school i switched conferences four *or more* years ago. By separating the “switch variables” year by year, it will be easier to see whether or not a hypothetical effect on Y_{it} is instantaneous or slow to materialize, and fleeting or consistent once it does appear. Once again, the second regression also controls for win percentage and SAT scores in year $t - 1$.

$$Y_{it} = \alpha_0 + \alpha_1 I_t^{switch_t} + \alpha_2 I_t^{switch_{t1}} + \alpha_3 I_t^{switch_{t2}} + \alpha_4 I_t^{switch_{t3}} + \alpha_5 I_t^{switch_{t4}} + \alpha_6 I_t^{Year} + \alpha_7 I_i^{School} + \epsilon_{it} \quad (5)$$

$$Y_{it} = \beta_0 + \beta_1 I_t^{switch_t} + \beta_2 I_t^{switch_{t1}} + \beta_3 I_t^{switch_{t2}} + \beta_4 I_t^{switch_{t3}} + \beta_5 I_t^{switch_{t4}} + \beta_6 I_t^{Year} + \beta_7 I_i^{School} + \beta_8 Pct_{it-1} + \beta_9 SAT75_{it-1} + \epsilon_{it} \quad (6)$$

The Power Conference-Switch Treatment

The last modification utilizes a second set of *switch_power* indicator variables for conference “switchers” that is further refined to indicate the schools that switch to one of the six power conferences (ACC, Big Ten, Big 12, PAC-12, SEC, and Big East) from

a non-power conference. I then use the same specifications, simply replacing *switch*, *switch_t*, *switch_{t1}*, *switch_{t2}*, *switch_{t3}*, and *switch_{t4}* with *switch_power*, *switch_power_t*, *switch_power_{t1}*, *switch_power_{t2}*, *switch_power_{t3}*, and *switch_power_{t4}*.

Caveats

One caveat to the overall difference-in-differences strategy is that conference realignment is by no means random. Schools are not chosen to switch at random, but are usually targeted as candidates for a good reason. For example, commenting on the invitation that the, then, PAC-10 extended to the University of Utah, commissioner Larry Scott explained, “We wouldn’t be here today if the University of Utah had not distinguished itself” (Aiken & Jeppesen, 2010). That said, the *year* in which the realignment happens is more arbitrary, which is what gives this specification credence. If school *i* is being considered for realignment, it is almost equally likely that the actual move happens in year *t* as it is to happen in year *t* + 1 or year *t* – 1. This element of randomness is the key to the efficacy of this analysis.

8.2 Results and Discussion

Question 1: Does Conference Affiliation have a Financial Impact?

First applying the “single-switch variable” regressions for both a general conference switch *and* a power conference switch, I find no measurable relationship between either switch variable and Total Donations. The only estimate that is statistically significant is the coefficient on Athletic Donations for institutions that switch into a power conference. These results can be found in Table 12. In particular, switching to a power conference (see *switch_power_all* in Table 12, equation 4) is associated with a \$5.5 million increase in athletic donations.

Table 12: Financial Effects of a Conference Switch

	(1)	(2)	(3)	(4)
	TotalDonations	TotalDonations	AthleticDonations	AthleticDonations
switch	-4.520 (10.31)		-1.723 (3.431)	
switch_power_all		1.171 (8.724)		5.498** (1.917)
_cons	77.86*** (5.486)	75.60*** (2.944)	10.83*** (1.826)	8.875*** (0.739)
<i>N</i>	1085	1085	658	658
<i>R</i> ²	0.944	0.944	0.799	0.802

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: Donations: Multi-Switch Variable Regressions

	(1)	(2)	(3)	(4)
	TotalDonations	TotalDonations	AthleticDonations	AthleticDonations
switch_t	-6.481 (10.99)	-6.582 (11.58)	-0.890 (3.569)	-1.192 (3.587)
switch_t1	-0.539 (11.55)	-0.653 (12.16)	-2.366 (3.594)	-2.718 (3.616)
switch_t2	-0.562 (11.57)	-0.636 (12.23)	-1.687 (3.555)	-2.024 (3.576)
switch_t3	-2.797 (11.55)	-2.862 (12.17)	-2.353 (3.659)	-2.582 (3.672)
switch_t4	-7.255 (10.70)	-7.381 (11.33)	-2.348 (3.557)	-2.656 (3.575)
Pct_t1		-2.155 (5.255)		1.090 (1.197)
_cons	78.38*** (5.582)	105.7*** (6.695)	11.14*** (1.882)	10.82*** (1.952)
<i>N</i>	1085	1078	658	653
<i>R</i> ²	0.944	0.944	0.800	0.799

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The refined “multi-switch variable” specification, is more informative, providing a sense of *when* the effects occur relative to the year of realignment. I still find no significant coefficients when estimating the relationship between realigning to *any* conference and

either Total Donations or Athletic Donations. When, instead, I looked at the relationship between the same financial outcomes and switching, not to any conference, but to a *power* conference (ACC, Big Ten, Big 12, Pac 12, SEC, or Big East), I found that switching to a power conference is associated with an increase in school i 's Athletic Donations, significant at the 1% level. Refer to Table 14 for these results. The increase in athletic donations is realized in both the year *of* the switch ($switch_power_t$) and four or more years *after* the switch ($switch_power_{t4}$). In particular, a school that realigns receives about \$6.9 million more in athletic donations in year t , the year of realignment, and around \$5.6 million more in athletic donations four or more years after the switch ($switch_power_{t4}$).

Table 14: Donations in the Power Conferences: Multi-Switch Variable Regression

	(1)	(2)	(3)	(4)
	TotalDonations	TotalDonations	AthleticDonations	AthleticDonations
switch_power_t	-0.738 (10.75)	-0.650 (10.77)	6.978** (2.316)	6.899** (2.320)
switch_power_t1	0.135 (12.68)	-0.0345 (12.70)	4.744 (2.599)	4.673 (2.604)
switch_power_t2	-0.284 (13.72)	-0.270 (13.74)	3.404 (2.604)	3.275 (2.611)
switch_power_t3	8.901 (13.71)	8.717 (13.74)	4.522 (2.609)	4.501 (2.614)
switch_power_t4	1.837 (9.577)	1.622 (9.594)	5.612** (2.095)	5.614** (2.099)
Pct.t1		-2.029 (5.272)		1.027 (1.185)
_cons	75.51*** (2.999)	102.6*** (4.157)	8.856*** (0.760)	8.401*** (0.981)
N	1085	1078	658	653
R^2	0.944	0.943	0.803	0.802

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

There are a few possible ways to interpret these results. One explanation is that the boost in donations in year t could be attributable to the increased publicity associated with the realignment. A second scenario is that athletic departments may increase their fundraising efforts around the year of a switch in anticipation of the high overhead costs they will face upon realigning. The results suggest that in the first few years in a new conference—i.e., years $t1$, $t2$, and $t3$ —there is no significant increase athletic donations. The muted donations suggested by the data are, perhaps, illustrations of donor reactions

to being in an unfamiliar conference. Donors that have negative reactions to being separated from a conference to which they felt strongly tied may reduce their giving once the realignment occurs. Schools that join power conferences also tend to suffer in terms of athletic success—they have more trouble winning games when they are playing stronger opponents—another factor that could dissuade athletic donations. In the long run, however, once a school establishes itself among its new peers, the data implies that there is a favorable increase in athletic donations. This could be a result of donors becoming acclimatized to the new conference, or schools developing more supporters from their new position in a more powerful conference.

Recall, my assumption regarding financial data is that extra athletic department revenue has roughly a one-to-one relationship with athletic department spending—i.e., extra revenue made by the athletic department is also spent by the athletic department. This means that any value in the form of donations that is transferred back to the institution itself would have to show up in *Total Donations*, rather than Athletic Donations. In particular, we would need to see an increase in Total Donations that is *greater* in magnitude than the increase in Athletic Donations. This would imply that not only are more people supporting the athletic department, but that the realignment also generated more support for other institutional activities. The estimates for Total Donations are not statistically significant, so we must be cautious about making inferences. However, the fact that there is not a definitive increase in Total Donations to accompany the increase in Athletic Donations may weakly support findings of past researchers that Athletic Donations may actually crowd out unrestricted donations made to the institution as a whole.

Question 2: Does Conference Affiliation have an Academic Impact?

First using the “single-switch” specification to examine the relationship between a general conference switch and each of the “academic” institutional outcome variables: log applicants, admissions rate, and SAT scores, I found few significant relationships (see Table 15). The only significant result is the coefficient on the SAT variable for schools that changed conferences. According to the data, a conference switch is associated with an 18 point decrease in 75th percentile SAT scores of incoming freshmen and a 15 point decrease in scores at the 25th percentile. The coefficients on log applicants and admissions rate, though statistically insignificant, are very close to zero. The coefficient on the win-percentage control variable is highly significant in each specification, suggesting that the

relationship between overall athletic success and institutional characteristics confirmed in Part A is robust.

Table 15: Academic Effects: Single-Switch Variable Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
	ln_apps_t1	ln_apps_t1	Admissions_t1	Admissions_t1	SAT75_t1	SAT75_t1
switch	0.0168 (0.0142)		-0.00352 (0.00677)		-18.12*** (3.915)	
Pct	0.0805*** (0.0192)	0.0785*** (0.0191)	-0.0251** (0.00911)	-0.0246** (0.00909)	1.850 (5.372)	3.530 (5.377)
switch_power_all		0.0810*** (0.0233)		-0.0285* (0.0111)		20.99** (6.453)
_cons	9.022*** (0.0195)	8.917*** (0.0193)	0.721*** (0.00927)	0.722*** (0.00917)	1244.8*** (5.649)	1161.2*** (5.380)
<i>N</i>	2083	2083	2080	2080	2173	2173
<i>R</i> ²	0.940	0.940	0.870	0.870	0.860	0.859

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Also in Table 15 are the results obtained after refining the “single-switch” regression to measure the relationship between academic institutional outcomes and switching to a *power* conference (*switch_power_all*). This specification generated more significant results. Switching to a power conference is associated with an 8 percent increase in applicants, a 2.8 percent decrease in admissions rate, and a 21 point increase in the 75th percentile SAT scores of incoming students.

In order to assess *when* the associated effects occur, relative to the year of realignment, I, again, implemented the multi-switch variable specification. These results are in Table 16. In the case of a general conference switch, the only significant estimates are, again, associated with the SAT variables. Realignment is associated with a 12-14 point decrease in the year of the switch, a 23-25 point decrease in the year after the switch, a 14 point decrease two years after the switch, and a 25 point decrease in SAT scores four or more years following the switch.

Table 16: Academic Effects: Multi-Switch Variable Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
	ln_apps_t	ln_apps_t	Admissions_t	Admissions_t	SAT75_t	SAT75_t
switch_t	-0.0182 (0.0218)	-0.00874 (0.0219)	0.0137 (0.0101)	0.00685 (0.0104)	-12.15* (5.713)	-14.03* (5.942)
switch_t1	-0.0151 (0.0219)	-0.00867 (0.0219)	0.00296 (0.0102)	0.000451 (0.0104)	-22.75*** (5.772)	-24.75*** (5.990)
switch_t2	0.00790 (0.0224)	0.0168 (0.0224)	0.00170 (0.0104)	-0.00183 (0.0106)	-11.84 (6.063)	-13.55* (6.265)
switch_t3	-0.000611 (0.0240)	0.0138 (0.0239)	0.00198 (0.0111)	-0.00558 (0.0113)	-10.51 (6.364)	-12.23 (6.578)
switch_t4	0.0291 (0.0166)	0.0323 (0.0178)	-0.00568 (0.00769)	-0.00767 (0.00845)	-23.41*** (4.441)	-25.50*** (4.767)
Pct_t1		0.0750*** (0.0196)		-0.0240* (0.00930)		1.870 (5.363)
SAT75_t1		0.000452*** (0.0000830)		-0.000268*** (0.0000394)		
_cons	8.965*** (0.0177)	8.694*** (0.108)	0.704*** (0.00822)	1.017*** (0.0512)	1160.7*** (4.631)	1247.4*** (5.742)
<i>N</i>	2189	1918	2186	1915	2283	2173
<i>R</i> ²	0.936	0.941	0.868	0.878	0.862	0.860

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Isolating the effect of switching to a power conference, once again, generated some more significant results. Shown in Table 15, the significant changes in log applicants, admissions rate, and SAT scores occur four or more years after the switch. The results suggest that schools that realigned at least four years ago have 8.5 percent more applicants, a 2.7 percent decrease in admissions rate, and a 25 point increase in SAT scores at both the 25th and 75th percentiles. In all specifications, the coefficient on win percentage is still highly significant, suggesting that athletic success is associated with increases in applicants, and decreases in admissions rates.

Table 17: Academic Effects in the Power Conferences

	(1)	(2)	(3)	(4)	(5)	(6)
	ln_apps_t	ln_apps_t	Admissions_t	Admissions_t	SAT75_t	SAT75_t
switch_power_t	0.0212 (0.0404)	-0.00366 (0.0400)	-0.0000415 (0.0188)	0.000766 (0.0190)	11.30 (10.94)	12.14 (11.39)
switch_power_t1	0.0238 (0.0413)	-0.00278 (0.0409)	-0.00456 (0.0192)	-0.00204 (0.0194)	12.31 (10.96)	13.30 (11.42)
switch_power_t2	0.0409 (0.0406)	0.0161 (0.0411)	-0.00281 (0.0189)	-0.00369 (0.0195)	19.55 (10.97)	20.49 (11.43)
switch_power_t3	0.0469 (0.0408)	0.0256 (0.0406)	-0.0178 (0.0189)	-0.0176 (0.0193)	24.81* (11.18)	25.87* (11.64)
switch_power_t4	0.118*** (0.0251)	0.0846** (0.0284)	-0.0297* (0.0117)	-0.0273* (0.0135)	23.81*** (6.814)	24.50** (7.579)
Pct_t1		0.0762*** (0.0195)		-0.0245** (0.00930)		3.563 (5.384)
SAT75_t1		0.000426*** (0.0000821)		-0.000260*** (0.0000390)		
_cons	8.959*** (0.0175)	8.403*** (0.102)	0.707*** (0.00812)	1.040*** (0.0486)	1161.7*** (4.650)	1232.4*** (5.441)
<i>N</i>	2189	1918	2186	1915	2283	2173
<i>R</i> ²	0.937	0.941	0.868	0.878	0.861	0.859

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To put a few of these numbers into perspective, take the University of Utah as an example. In 2010, Utah's 75th percentile SAT score was 1260—just above the Mountain West conference mean (not including Utah) of 1251. The same year, the average 75th percentile SAT score in the, then, PAC-10, was 1325. If switching to the PAC-10 induced a 25 point increase in Utah's SAT scores, Utah would still fall well below the conference mean in its new conference. Moreover, with Utah's 2010 75th percentile SAT score of 1260, it ranked fifth highest out of nine schools in the Mountain West. With a 25 point increase, Utah's standing within the Mountain West would remain unchanged. In other words, a 25 point increase would not change Utah's ranking among its peer institutions in either its old conference or its new conference. The same analysis applied to the number of applicants yields the same result. So, though a 25 point increase in SAT scores or an 8

percent increase in applicants are not necessarily trivial, they are also not likely to move an institution from one echelon of institutional quality to another.

In summary, the DD approach rendered a few interesting results when estimating the extent of the relationship between academic qualities and conference affiliation:

First A general conference switch is associated with a 15-18 point decrease in the SAT scores of incoming freshmen. This significant correlation shows up in the year of the switch (year t) and remains robust when the year of the switch and each of the three following years are isolated one-by-one (years $t1$ through $t4$).

Second Switching to a power conference is associated with an 8 percent increase in applicants, a 2.8 percent decrease in admissions rates, and a 20 point increase in SAT scores of incoming freshmen. This significant correlation does not appear until four years after the switch occurs, and beyond (denoted year $t4$).

Altogether, the results are not straightforward to interpret. Schools that switch conferences tend to have changes in their academic variables that are either statistically insignificant or move in an *unfavorable* direction. Schools that switch to *power* conferences, however, actually seem to enjoy some favorable associated effects. Finding opposite outcomes from a slight distinction in treatment type is a bit surprising, but when considered carefully, is less problematic than it may seem. The only significant coefficients found when estimating the effects of a general conference switch were on the SAT variables—*not* on the number of applicants or admissions rates. While number of applicants and admissions rate are indicators of the *volume* of demand for an institutional product, the SAT variable indicates *quality* of the demand. With this in mind, the results suggest that in response to a general conference switch, there may be a shift in the subset of students applying to the switching institutions. As explained in section 3, the non-power conferences are slowly being “phased-out,” as the power conferences grow. An institution that realigns to a non-power conference (typically from another non-power conference), then, endures many of the costs identified in Section 4, without the key benefit—television revenue and extra publicity. It is possible that the high-quality, academically driven students applying to these institutions are turned off by the associated costs of realignment (perhaps they feel it is an emphasis on sports that they do not care for), and because there is no accompanying increase in applicants, the quality of the applicant pool actually

declines (though, recall from the Utah example—even a 20 point change in SAT scores is not necessarily a game changer).

Consider the alternate scenario, now, of a switch to a power conference. This “treatment” *is* associated with increased publicity and, according to the results, an increased number of applicants. As the theory goes, a larger applicant pool allows institutions to be more selective and admit fewer students relative to the number of applicants who are of *higher quality*—hence, the decrease in admissions rate and increase in SAT scores. Unlike the effects associated with a general conference switch, however, the *switch_power* effects, do not occur until a few years after a switch has happened, which makes the interpretation even less clear cut. One possible reason for the lag is that it takes a few years for a new market of applicants to generate interest in a conference newcomer. Perhaps it takes a few seasons of increased television appearances for a conference switcher to make enough of a splash to induce significantly heightened levels of interest.

On the other hand, the lagged effect renders the results slightly more suspect as well. Four years of time that passes after a switch is ample opportunity for many other things to happen at an institution that I am not able to control for in my regressions. Schools may improve their outreach to prospective students or improve other, non-athletic programs that attract attention. Under the assumption that these changes are made across *all* institutions in the dataset (switchers and non-switchers, alike), this possibility will not contaminate the estimates. It is reasonable to believe, however, that schools that are looking to switch conferences are amidst “general institutional makeovers” and are considering making across-the-board improvements to their institutions. If this is the case, it is possible that some of the associated increases are a result of an omitted variable that is causing an upward bias on the estimates for the lagged switch effects.

9 Conclusion

As the landscape of college athletics has changed over the past few decades, so has the relationship between athletic departments and academic institutions. To take advantage of the rise of television and changes in technology, schools have begun prioritizing conference affiliation at the expense of other characteristics—athletic success, storied rivalries, student involvement, and academic integrity, to name a few—that made the union of big time sports and higher education historically “functional.” Though the institutional value of big-time athletics has been researched in the context of the old landscape, this analysis was devoted to studying the relationship in the light of the conference-centrism that has overtaken.

After confirming that athletic success is significantly correlated with increases in institutional value in the form of an increased number of applicants, I used two different methods to look for value in conference affiliation. In the first, I looked for “peer effects” among conference members, to see if there is a halo effect that comes with being associated with schools of different qualities. While the data implied that there is some financial “rub-off” between an institution and its conference peers—schools that are associated with athletic powerhouses tend to spend more—there was no measurable evidence of any value transferred back to the central institution in monetary or academic form.

Looking for value in realignment itself I found several significant changes associated with becoming a member of one of the six power conferences, including: (1) an 8 percent increase in applications, (2) a 2.7 percent decrease in admissions rate, and (3) a 20 point boost in SAT scores. These effects are not evident immediately, however, taking more than four years after the realignment occurs to materialize. The lagged effect is not inexplicable, but also creates some questions about potential omitted variable biases.

Realignment and conference-centrism is a relatively new phenomenon, and thus, very little has been researched or written on the topic. As more data accumulates to include the most recent bout of realignments, more detailed studies of this sort can be done. Furthermore, the revenues and expenditures side of the cost-benefit analysis could be expanded if additional and more reliable data becomes available. Ultimately, it would be wise if a cost-benefit analysis of this type were considered when a university president is making decisions about which direction to send his institution’s athletic program. As the organi-

zation of Division I FBS conferences tends more and more toward a “superconference” landscape, the costs of prioritizing affiliation will continue to rise.

Take a recent example—the lawsuit won by Northwestern football players in March of 2014, in which the National Labor Relations Board (NLRB) ruled that the players are employees of the university and have the right to unionize. This decision was groundbreaking, in that, if it holds, it puts private institutions in the position of confronting the reality that they are hosting pseudo-professional athletic enterprises. Recognition of a player union would be the first explicit admission that, in a conference-centric landscape where football and basketball players are responsible for generating billions of dollars for athletic departments, the description “*student-athlete*,” with its implications of amateurism, is oxymoronic in nature. Particularly for the few Division I FBS universities that are considered elite *academic* institutions, the ruling may open eyes to a realization that that elite academic missions and elite athletic ambitions are an unsustainable pair when put together in a conference-centric world.

Ideally, a president would be able to look at costs like these, and others identified in this analysis, and weigh them against the benefits at his own institution. Based on this analysis, those benefits are small. In particular, he must compare the costs and benefits of big-time athletics with other methods of increasing institutional value. There may be less costly ways—i.e., using funding for better outreach to high school counselors or working to improve academic programs to make them more attractive to potential applicants—to generate the same benefits. For institutions that are driven, for the most part, by athletics, and are comfortable with having an athletic reputation that supercedes their academic one, the costs may seem relatively small. For the few, academically high achieving institutions that play Division I football, however, these costs may be, relatively, quite large. Institutions whose missions are the furthest from being aligned with the reputation and values created by hosting big-time sports in a “superconference” world—schools like Stanford, Northwestern, Berkeley, and UCLA—will be the first that will be forced to begin questioning the functionality of the strange athletic-academic relationship they have fostered for so long, and decide if, and when, to draw the line.

A Appendices

A.1 The Howell Power Rating System

Here is a description of the Power Rating system from which I took my variable, PR . The brief discussion below is adapted directly from a summary written by James Howell, the creator.

The Howell Power Rating System is based on the premise that there exists a power rating, P for each rated team, such that P represents the odds of that team beating the average team. The system also accounts for H , a home field advantage factor such that if two equally matched teams meet, H represents the odds that the home team will win the game. Finally, the system uses another variable R which is a root used to convert odds into point spreads.

Using these variables, Howell devises a formula to determine the odds of a team winning a game. Using P and H (if at home, or $(1 - H)$ if on the road, or .5 at a neutral site in place of H) and setting Q to the power rating of the opponent, the odds of winning O are expressed as:

$$O = \frac{(P)(1 - Q)(H)}{(P)(1 - Q)(H) + ((1 - P)(Q)(1 - H))} \quad (7)$$

Once O is calculated, the percentage, X , of total points that will be scored by that particular team is expressed by:

$$X = \frac{O^{\frac{1}{R}}}{O^{\frac{1}{R}} + (1 - O)^{\frac{1}{R}}} \quad (8)$$

$$PF = TP * X \quad (9)$$

$$PA = TP * (1 - X) \quad (10)$$

where TP is total points, PF is points for, and PA is points against.

In any completed game, PF, PA, and TP are known quantities, allowing O to be backed out in reverse. There are two ways of doing this reverse calculation for a team for a number of games. The first option is to analyze each game and then average the analyses.

The second option is to average all games and then analyze the averages. The results are slightly different depending on which method is used. The Howell Rating incorporates both calculations, weighted equally. When arriving at O using the reverse calculation, the result is either higher or lower than the expected result calculating O from the current power ratings. Assuming that the reverse calculation is higher than expectations, this difference is attributed to some combination of the P team not being rated high enough or the Q team being rated too high. The system assumes both and modifies each power rating to account for one-half of the difference. This modification is the performance aspect of the system and counts for 50% of the rating. The other 50% of the rating is the win-loss record modified by strength of schedule. H and R are also recalculated through each iteration. The system is iterative and runs until the maximum absolute change in any power rating is insignificant.

The Howell system is similar to the Stewart Huckaby's ARGH Power Ratings in approach, except the Howell Rating evaluates on a game-by-game basis, while Huckaby only analyzes averages. R is also variable in the Howell system, while the Huckaby system uses a fixed square root. The problem with trying to calculate power ratings, in general, is that weak teams in strong conferences tend to be slightly underrated and strong teams in weak conferences slightly overrated. The Howell Rating tends to have less of a problem in this regard than many other systems that try to compensate—usually making the problem worse. Sagarin, for example, tried to compensate and a few years ago ended up with Purdue, who had a 3-8 record, in the top 25. A few systems also try to factor in margin of victory without keeping it in context of total points scored—eg. they value a ten point win in a game in which 20 points are scored less than a 20 point win in a game in which 90 points are scored. Using a ratio of $\frac{PF}{TP}$, Howell is able to build a diminishing return for running up the score.

Source: Explanation from *The Howell Power Rating System—A Brief Discussion* by James Howell.

A.2 The Measuring University Performance (MUP) Ranking System

The Center for Measuring University Performance (MUP) is made up of researchers at Arizona State University and the University of Massachusetts Amherst, with further support from the University of Florida Foundation and the University of Buffalo. The MUP Center produces an annual report entitled *The Top American Research Universities*, which provides data on over 600 institutions in the country. The overall rank of each institution is determined by its ranking on each of nine different indicators:

1. Total Research
2. Federal Research
3. Endowment Assets
4. Annual Giving
5. National Academy Members
6. Faculty Awards
7. Doctorates Granted
8. Postdoctoral Appointees
9. SAT Scores

The MUP then ranks the Top 25 American Research Universities (from which I generated my *Conference Top 25* variable) based on how many times an institution appeared in the top 25 in one of these nine categories. The annual report also offers analysis that is useful for understanding how to evaluate university performance.

Source: Measuring University Performance (2000-2011)

A.3 Description of Other Data Sets

The Equity in Athletics Disclosure Act

The Equity in Athletics Disclosure Act (EADA) is a federal law that passed in 1994. The act requires any co-ed college or university that participates in intercollegiate athletics and participates in a Title IV federal student financial aid program to provide an annual report to the Department of Education on their athletic programs. In particular they must report:

- Sports teams and participation by gender
- Athletic scholarships and financial aid awarded by gender
- Average salaries of coaching staff for men's and women's teams
- Recruitment expenses for men's and women's teams
- Revenues for men's and women's teams
- Operating expenses for men's and women's teams
- Overall expenses for men's and women's teams

Source: U.S. Department of Education (2009)

The Annual Survey of Colleges

The Annual Survey of Colleges, organized by College Board, is a web-based survey in which over 4,000 undergraduate colleges and universities in the U.S. participate. The information collected in the survey includes topics that are primarily of interest to prospective college students. If reported, survey information for each institution appears on that institution's profile page, that appears on the College Board's College Search engine, as well as the college guidebooks the organization publishes each year. Survey topics include:

- Programs available
- Costs
- Student-body profiles
- Application requirements

- Application and enrollment statistics from the previous year

I supplemented this data with data from the “Best College Rankings” published annually by *U.S. News and World Report*, which also contains student-body profiles and application and enrollment statistics.

Source: College Board (2012)

The Voluntary Support of Education Survey

Since 1957, the Council for Aid to Education has conducted an annual survey on fundraising in education. They publish an annual report, *Voluntary Support of Education*, which includes information on charitable support of higher education at around 1,000 colleges and universities, both public and private, in the U.S.

Source: Council for Aid to Education (2014)

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