

EXAMINING THE RELATIONSHIP BETWEEN ATHLETICS SPENDING AND
DIRECTORS' CUP STANDINGS

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ABSTRACT

JUSTIN K. FREEMAN: Examining the Relationship Between Athletics Spending and Directors' Cup Standings
(Under the direction of Barbara Osborne, J.D.)

A prevailing thought fueling the current athletics arms race is that increased spending is meant to generate and sustain competitive success. The purpose of this study was to determine whether a relationship exists between institutions' relative competitive success and: (a) overall total expenses, and total expenses per participant, (b) the number of teams sponsored, (c) total team operating expenses, and operating expenses per participant, (d) recruiting expenses and, (e) average coaches' salaries.

EADA data and Directors' Cup standings were used for the years 2003-04 through 2010-11. Bivariate correlation and simple regression analyses found significant relationships between Directors' Cup points and each independent variable. Multiple regression analyses found Total Recruiting Expenses, Average Head Coaches' Salary, Total Number of Head Coaches, and Total Expenses per Participant to be significant predictors of Directors' Cup points. However, taking practical significance into account, careful consideration should be taken before making decisions based on these findings.

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CHAPTER 1

INTRODUCTION

In 2009, the Knight Commission surveyed 119 presidents of Football Bowl Subdivision (FBS) institutions to garner their “views on the financial state of college athletics and the implications of the cost pressures associated with participation in the FBS” (Knight Commission, 2009b, p. 1). As presidents “scramble for resources to cover increasing athletics costs” roughly half those surveyed described the current financial climate in intercollegiate athletics as “an ‘arms race that is driving up costs for athletic programs” (p. 27). One president explained, “There are pressures to do more in order to compete with other conferences. We’ve doubled athletics expenditures in the last five-year period. That’s unchecked and starts to challenge the integrity of the enterprise” (p. 27). Other university presidents expressed similar concerns:

- The pressure to join the arms race is a real concern, especially for very successful mid-majors. How do you keep up with the big dogs? Of course the coaches tell us all it takes is money, which is in short supply around here these days.
- The problem is, it’s such big money. It’s an arms race that’s self-perpetuating.
- The so-called arms race in college athletics and the kind of money that is spent on facilities and accoutrements is a real arms race. (Knight Commission, 2009 p. 27)

This arms race is characterized by a continual increase in athletic spending, in spite of the fact that the colleges and universities sponsoring those athletic programs are struggling financially. One prevailing reason given for the phenomenon of escalating athletic expenditures is the belief that athletic departments must spend more in order for their teams to have more success (Jones, 2012).

This drive for athletic success is the very essence of intercollegiate athletics. While “many athletic directors would likely proclaim that one of the primary goals of their athletics expenditures is to field successful intercollegiate athletic teams” (Jones, 2012, p. 2), success in athletics can be contagious to other areas of the institution at large. According to a *New York Times* report, university administrators have carried that competitive athletics mindset off the field as well:

“If we are going to compete in something, we want to win at it — whether it is in pediatrics or women’s gymnastics,” said J. Bernard Machen, the University of Florida president. “It is important to our supporters, both financial and among our community. It is part of our culture. We want people to know that Florida is a place for winners” (Drape & Thomas, 2010, para. 6).

To incentivize this winning attitude, athletic departments are adding goals of conference titles and improved rankings in Directors’ Cup standings in their strategic planning (Jones, 2012). Institutions are also providing their athletic directors and coaches with contract bonuses worth hundreds of thousands of dollars, thus increasing the incentive, and pressure, to produce winning teams (Drape & Thomas, 2010). All of this is being done with an eye on the competition. According to one athletic director, “We compete for a living. If we’re going to compete on the field on Saturday, we want to have every advantage they have” (Wieberg, et al., 2009, para. 54).

This attitude of wanting to have whatever the competition has is what fuels the arms race in intercollegiate athletics. Orszag & Israel (2009) defined an “arms race” as “a situation in which the athletic expenditures by a given school tend to increase along with expenditures by *other* schools in the same conference” (p. 11). Through their research, they found that:

In particular, a \$1 increase in the average athletic operating expenditure by other schools in a given school’s conference is associated with roughly a (statistically

significant) \$0.60 increase in spending by the school. For football/basketball expenditures, a \$1 increase in average conference spending is associated with a \$0.55 increase at a given school. (Orszag & Israel, 2009, p. 11).

And this athletics arms race has continued through a time of national and global economic challenges.

“The college sports arms race remains one of the few recession-proof industries,” says one writer, reporting that while nonresidential public construction has decreased, universities continue to build expensive athletic complexes (Bennett, 2012, para. 8). In fact, while in 2005 Division I athletic department were spending the most money on scholarships, within four years student aid had been replaced at the top of the list by coaches' compensation. By 2009, total Division I coaches' compensation was in excess of \$1 billion, with severance packages not being included in that figure (Gillum, 2010). “On average, major-college football head coaches received a 46% increase in pay between 2006 and 2009, making the average salary \$1.36 million” (Upton, Berkowitz, & Gillum, 2010, para. 11), and salaries for their offensive and defensive coordinators are escalating in a manner that has never been seen before in college athletics (Berkowitz, 2010).

This phenomenon is seen in Olympic sports as well, with one athletic director in the Big Ten Conference mentioning to his colleagues at a 2009 conference on athletics spending, “We talk about football coaches' salaries, we talk about basketball coaches' salaries [...] The salaries in many of our Olympic sports have tripled since 1994” (Drape & Thomas, 2010, para. 8). And in addition to salary increases, from 1997 to 2007, almost half of Division I athletic programs saw their recruiting expenses at least double, with some of those programs actually tripling the size of their recruiting budgets (Sander, 2008).

In light of all the spending increases that characterize this arms race, university administrators worry about whether or not they will be able to continue to sustain athletics programs if costs maintain their upward trend (Knight Commission, 2009b). So success comes at what cost? Does all the money spent translate into success? Previous studies have examined this question, with varying results. If increased spending is motivated by a desire to have more success on the field than all peers, and no relationship between spending and winning exists, how would the arms race be justified? On the other hand, if there is a positive relationship between spending and winning, then, given the pressure to succeed on the field, one would expect administrators to increase athletics spending if given the opportunity (Jones, 2012).

The late Myles Brand, as president of the National Collegiate Athletic Association (NCAA) said:

Recent studies conducted under the auspices of the NCAA cast serious doubt on the claim that continued increases in expenditures results in improved competitiveness or in an enhanced ability to satisfy the principle of self-support. These studies [...] show, for example, that for every dollar invested in football or men's basketball in Division I, the institution can expect a dollar back. That is, the rate of return is 0%. These studies also show that there is no correlation between winning teams and funds for operational expenditures. Overall, the studies do not support the rationale often given for increased expenditures on athletes. (Brand, 2006)

But further studies have been conducted since that statement was made, and some researchers may now disagree with the studies Mr. Brand was drawing his conclusions from. However, in some of these more recent studies, which will be discussed later, key arms race issues were not examined, and the research methods that were used in some previous studies can be improved upon. This study adds to, and fills gaps in, the body of literature in examining this continually relevant issue.

Statement of Purpose

The purpose of this study was to determine whether a relationship exists between institutions' relative competitive success and each of the following factors: (a) how much institutions spend on athletics overall, and per participant, (b) the number of teams they sponsor, (c) their total team operating expenses, and operating expenses per participant, (d) institutions' recruiting expenses and, (e) their average coaches' salaries. This study also sought to determine the strength of significant relationships, the amount of variance in points earned that is explained by each factor, and the predictive value of each significant explanatory variable.

Research Questions

- Is there a relationship between the amount of Directors' Cup points an institution earns and:
 1. the number of varsity teams it sponsors,
 2. how much it spends on athletics overall,
 3. how much it spends per athletics participant,
 4. its total team operating expenses,
 5. its team operating expenses per participant,
 6. its recruiting expenses,
 7. its average head coaches' salaries, and
 8. its average assistant coaches' salaries?
- How much variance in Directors' Cup points earned is accounted for by these variables?
- Are any of these variables significant predictors of Directors' Cup points earned?

Research Hypotheses

1. A relationship exists between number of varsity athletic teams an institution sponsors and its finish in the final Directors' Cup standings.
2. There is no relationship between how much an institution spends on athletics overall and its finish in the final Directors' Cup standings.
3. There is no relationship between how much an institution spends per athletics participant and its finish in the final Directors' Cup standings.
4. There is no relationship between an institution's total team operating expenses and its finish in the final Directors' Cup standings.
5. There is no relationship between an institution's total team operating expenses per participant and its finish in the final Directors' Cup standings.
6. There is no relationship between an institution's recruiting expenses and its finish in the final Directors' Cup standings.
7. There is no relationship between an institution's average head coaches' salary and its finish in the final Directors' Cup standings.
8. There is no relationship between an institution's average head coaches' salary and its finish in the final Directors' Cup standings.

Delimitations

This study only examined expenditures by the institutions listed in both the final Division I Directors' Cup standings and the EADA data for the 2003-2004 academic year through 2010-2011. Rather than using all reported EADA data, this study used the reported grand total expenses, total team operating expenses, unduplicated number of participants (male and female), recruiting expenses, total number of head coaches (for men's, women's

and coed teams), total number of assistant coaches (for men's, women's and coed teams), average head coaches' salary (for men's, women's and coed teams) and average assistant coaches' salary (for men's, women's and coed teams).

Limitations

While the data set for this study was intended to include all institutions who, in any given year, both earned Directors' Cup points and had available EADA data, this was not the case. Institutions that scored Directors' Cup points but had incomplete or missing EADA data were not included. Also, for the 2004-2005 and 2005-2006 academic years, the available Directors' Cup final standings only include the 100 highest scoring institutions, so only those institutions were included for those two years.

Not all institutions examined were public institutions, therefore, with the salaries of coaches at private institutions not being a matter of public record, exact figures on coaches' compensation were not available. As such, salary comparisons were made using average coaching salaries data reported in the institution's EADA report. It was assumed that these EADA reports were accurate. Accuracy of the report notwithstanding, the reported salary averages only reflect base pay, and do not include all aspects of total compensation packages that head coaches may be offered. Therefore, institutional rank order for actual coaches' compensation may differ from the rank order for average (base) pay that was used in this study.

Additionally, while the EADA data provides the number of head coaches an institution has, it does not include the number of teams sponsored. Feasibly, one individual could be an institution's head coach for men's cross country, women's cross country, men's indoor track and field, women's indoor track and field, men's outdoor track and field, and

women's outdoor track and field. The same is true for swimming and diving. However, the EADA screening questions seem to try to accommodate for that. In the sections for head coaches, which are separated by gender, each sport (e.g. cross country, indoor track and field, outdoor track and field) is listed separately. There is also a "Track and Field and Cross Country (combined)" option which allows up to three head coaches, and a "Swimming and Diving (combined)" option which allows for up to two head coaches (U.S. Department of Education, n.d.a).

Assumptions

For the purposes of this study, it was assumed that:

- EADA information provided by institutions was complete and accurate.
- The available EADA data was entered exactly as submitted by the institution.
- Each head coach counted on the EADA report represented one team.
- Each team had only one head coach counted on the EADA report.

Definition of Terms

- Relative Competitive Success: An institution's competitive success was determined by its points in the final Directors' Cup standings, relative to all other schools in the final standings.
- Average Head Coaches' Salary: An institution's head coaches' salary figure was the average salary of all head coaches, using figures the institution disclosed in its annual report to the United States Department of Education pursuant to the Equity in Athletics Disclosure Act (EADA report).

- Average Assistant Coaches' Salary: An institution's assistant coaches' salary figure was the average salary of all assistant coaches, using figures the institution disclosed in its annual EADA report.
- Recruiting Expenses: The recruiting expenses were determined by the "Total" figure the institution discloses under "Recruiting Expenses" in its EADA report. For EADA reporting, recruiting expenses are defined as:

All expenses an institution incurs attributable to recruiting activities. This includes, but is not limited to, expenses for lodging, meals, telephone use, and transportation (including vehicles used for recruiting purposes) for both recruits and personnel engaged in recruiting, and other expenses for official and unofficial visits, and all other expenses related to recruiting. (U.S. Department of Education, n.d.a)

- Total Expenses: The institution's total athletic expenses were determined by the "Grand Total Expenses" figure the institution disclosed under the "Revenue and Expense Summary" in its EADA report.
- Total Expenses per Participant: The institution's total athletic expenses per participant were determined by the "Grand Total Expenses" figure the institution disclosed under the "Revenue and Expense Summary" in its EADA report, divided by the sum of the "Unduplicated Counts of Participants in Men's Team and Coed Men's Team" and the "Unduplicated Counts of Participants in Women's Team and Coed Women's Team" figures in that same report.
- Total Operating Expenses: The institution's total operating expenses were determined by the "Total Operating Expenses Men's and Women's Teams" figure the institution disclosed under the "Operating Expenses by Team" heading in its EADA report. For EADA reporting, operating expenses are defined as:

All expenses an institution incurs attributable to home, away, and neutral-site intercollegiate athletic contests (commonly known as "game-day expenses"), for (A) Lodging, meals, transportation, uniforms, and equipment for coaches, team members, support staff (including, but not limited to team managers and trainers), and others; and (B) Officials. (U.S. Department of Education, n.d.a)

- Total Operating Expenses per Participant: The institution's total operating expenses per participant were determined by the "Total Operating Expenses Men's and Women's Teams" figure the institution disclosed under the "Operating Expenses by Team" heading in its EADA report, divided by the sum of the "Unduplicated Counts of Participants in Men's Team and Coed Men's Team" and the "Unduplicated Counts of Participants in Women's Team and Coed Women's Team" figures in that same report.
- Number of Varsity Teams Sponsored: The institution's number of varsity sports sponsored was determined by the sum of the number of Men's Teams Head Coach positions and the number of Women's Teams Head Coach positions for a single institution as listed in their EADA report.

Significance of the Study

This study addresses whether spending in certain areas corresponds with competitive success, and offers perspective on the current "arms race" in intercollegiate athletics. The findings of this study should provide a reference to athletic administrators when considering the costs and benefits of increasing spending in certain areas in an effort to enhance their teams' competitive performance. Specifically, this study could provide a reference to administrators who are considering adding or reducing the number of teams to sponsor, increasing coaches' salaries, or how much of their budgets they might want to allocate to recruiting, and whether any of these courses of action would possibly impact competitive

success. While studies similar to this have been previously conducted (Esten, 2003; Jones, 2012; Lawrence et al., 2009), none were as extensive in scope, so perhaps this study provides a more accurate picture regarding the strength of the relationships that were examined. It has also produced a compilation of data that can be further broken down and analyzed for future research, should interest arise in exploring similar relationships.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

This study compares money spent by National Collegiate Athletic Association (NCAA) Division I athletic departments with how well their teams fare in post-season competitions, and examines whether there are relationships between the two. As data from each school's annual Equity in Athletics Disclosure Act (EADA) report will be used, a brief history of its use in previous research will be covered in this section, followed by a brief history of the National Association of Collegiate Directors of Athletics' (NACDA) Directors' Cup competition. The current economic conditions of Division I athletics will also be discussed, including spending focuses, such as coaches' salaries and recruiting expenses, which feed these conditions. Finally, other studies examining spending and competitive success will be discussed, identifying limitations of those studies in order to illustrate how this study will contribute to the current body of knowledge.

Equity in Athletics Disclosure Act of 1994 (EADA) Reporting

The EADA was enacted in response to congressional findings of discrimination faced by females in intercollegiate athletics (National Women's Law Center, 2007). This act requires an annual report from all coeducational colleges and universities that sponsor intercollegiate athletics and receive Title IV federal funding for student financial aid, disclosing revenues and expenses relative to gender demographics (U.S. Department of

Education, n.d.b). The annual report is submitted to the Department of Education, and contains information such as how many males and females participate in intercollegiate athletics, coaches' gender and employment status, average coaches' salaries, athletics-related financial aid awarded to males and females, athletic department revenue, and athletic department expenses. These reports are required to be available to the public at large, and are available on the Department of Education's website (National Women's Law Center, 2007). This ease of access allows EADA reports to be used by anyone seeking to analyze athletics spending.

However, scrutiny of EADA data has revealed flaws in the system. One issue is that "the financial data in these reports lack comparability because the law requires colleges to report information in overly broad categories, permitting wide variation from institution to institution" (Knight Commission, 2010, p. 11). According to an investigation by *USA Today*, there have also been complaints from schools that EADA reporting "wanders too far from standard accounting practices and has little to do with how departments function" (Upton & Brady, 2005, para. 9). That same investigation uncovered a multitude of errors of varying degrees in the EADA record when it was compared with information provided to the newspaper by the schools themselves. Education Department officials admitted that they did not have a process to clean old files and never went back to correct old data, rather they "just collect the data, post it, and move on. We don't question or edit it" (para. 29).

The NCAA also collects financial information from member schools which is more detailed than the EADA report, and, unlike the Department of Education, the NCAA hires consultants to check their financial reports for errors, making corrections when necessary (Upton & Brady, 2005). The Knight Commission recognized that these audited NCAA

reports, while not perfect, were the most accurate athletic financial reports, and called for them to be made publicly available, saying

These standardized reports on athletics spending and revenues are already used by the NCAA to provide presidents and chancellors with a set of metrics in the form of “dashboard indicators” to assess their athletics programs’ financial health and their revenue and expense patterns relative to peer institutions. However, these institutional data are rarely seen by the general public. (Knight Commission, 2010, p.11)

The NCAA does not provide school-by-school data to the general public, as it considers the data not as the NCAA’s property, but the property of the individual schools (Hosick, 2005). Therefore, the EADA reports are the only publicly available, all-encompassing database containing athletic departments’ financial information.

Recently, a study compared data from the EADA database with data from the *USA Today* College Athletics Finance Database (Jones, 2012). Differences in means and standard deviations were noticed between the two data sets, with the *USA Today* data reporting greater expenditures than what was reflected in the EADA data. Those differences were attributed to the fact that the *USA Today* database was compiled through open records requests, thus including only public schools. However, even though the *USA Today* database lacked the private school information contained in the EADA database, the correlation between the two was “an extremely high .989” (p.11). The author noted:

While there was some difference in the amount reported to the two data sets, the very high correlation between EADA and *USA Today* data and the fact that regression analyses yielded very similar results when using both sets of data suggest that this difference may not be enough to affect the research findings. This should assuage some of the concerns of individuals who question the reliability of EADA data. (Jones, 2012, p. 18)

Therefore, if the conclusions of this study are correct, EADA reports can be considered a valid data source, despite previous reservations, when trying to explain success in the Directors’ Cup competition.

The National Association of Directors of Collegiate Athletics (NACDA) Directors' Cup

Called “the crowning achievement in college athletics” (National Association of Collegiate Directors of Athletics, n.d.b), the Directors' Cup was launched jointly by the NACDA and *USA Today* in 1993 and “has since grown into a highly recognized mark of distinction among collegiate institutions” (Learfield Sports Directors' Cup, n.d.). Currently sponsored by Learfield Sports, it has also been sponsored by Sears and the United States Sports Academy. The Directors' Cup program seeks to honor “institutions maintaining a broad-based program, achieving success in many sports, both men's and women's” and its scoring structure equally treats all sports for which the NCAA sponsors a championship event, as well as Football Bowl Subdivision (FBS) football (National Association of Collegiate Directors of Athletics, n.d.a).

In all sports except FBS football, a pre-determined number of points are earned based solely on a team's finish in an NCAA championship. For “individual” sports (e.g. track/field, swimming, wrestling, golf), the national champion earns 100 points, with points being awarded incrementally to all other teams depending on final standings and how many teams were in the championship field, with all teams finishing 65th or lower receiving five points. In “bracketed” championships, the champion earns 100 points and points are earned incrementally in accordance with how far each team advanced, with each team that loses in the first round receiving 25 points. For FBS teams, points are awarded incrementally to the top 25 teams in the final *USA Today* poll, with the top team earning 100 points and 25th team earning 49 points. Unranked bowl game winners receive 45 points and unranked bowl game losers receive 25 points. A Division I institution can earn points from up to 20 teams, only counting a maximum of 10 teams from both men's and women's sports. If more than 10

teams per gender earn points, the 10 highest scoring teams within that gender are counted for that institution's Directors' Cup standings (National Association of Collegiate Directors of Athletics, n.d.a). A crystal trophy is awarded annually to the institution earning the most points in their respective division's Directors' Cup standings (National Association of Collegiate Directors of Athletics, n.d.b).

The University of North Carolina-Chapel Hill won the inaugural Directors' Cup, with Stanford University winning it every year since (National Association of Collegiate Directors of Athletics, n.d.c). Soon after the Directors' Cup program began, it became a competition between athletic directors to measure who had the best broad-based program (Drape & Thomas, 2010). But an athletic department's finish in the Directors' Cup standings can result in more than just "bragging rights," as reported by Drape and Thomas in a September 3, 2010 *New York Times* article (para. 4). Institutions are also providing their athletic directors and coaches with contract bonuses worth hundreds of thousands of dollars, thus increasing the incentive, and pressure, to produce winning teams (Drape & Thomas, 2010).

But whether driven by financial motives or the prestige of winning, this competitive spirit drives administrators to explore ways to optimize their chances for success. As one athletic director remarked, "We compete for a living. If we're going to compete on the field on Saturday, we want to have every advantage they have" (Wieberg, et al., 2009, para. 54). Of course, this particular administrator is not alone in this mindset, as evidenced by how this attitude seems to fuel the economic challenges prevalent in intercollegiate athletics today.

The Economic Climate of NCAA Division I Athletics

The Knight Commission on Intercollegiate Athletics has summarized the financial predicament of college sports as thus:

To the reality of burgeoning budgets and growing deficits, of heightened commercialism and aggressive marketing, add the layer of the global recession of 2008-09, which has affected state appropriations, private giving, and enrollment at most colleges and universities. This has put big-time college sports in the eye of a perfect storm of economic challenges. (2009a, Chapter 1, para. 14)

Of course, these challenges are not limited only to intercollegiate athletic programs, but their sponsoring institutions as well. “Higher education is in crisis, staggered by a depressed economy that has shrunk state appropriations, endowments, and overall institutional budgets” (Wieberg, Upton, Perez & Berkowitz, 2009, para. 4). But though similar financial conditions strain both the institutions at large and their athletic programs, the spending behaviors of the two are not so similar.

According to a June 2010 report issued by the Knight Commission, “Median athletics spending per athlete at institutions in each major athletics conference ranges from 4 to nearly 11 times more than the median spending on education-related activities per student” (2010, p. 4). However, not everyone was alarmed by those findings. Jim Isch, who had been the chief financial officer for the NCAA for 11 years, and was its interim president at the time, suggested that those numbers were not so much an indication that athletic department spending was out of control, as much as they were an inevitability in the economic crisis that was facing the country as a whole. His thinking was that “most schools typically plan for future expenses several years in advance, which in this case meant fiscal projections that didn’t account for a prolonged recession” (Associated Press, 2010, para. 4). One athletic director from a Big 12 Conference school explained:

[Athletic departments are] spending what they have to. What's happened is the revenues, because of the economy, are going one way and our expenditures — travel, all those kinds of things — are going up and up and up. Tuition goes up. You have no control over it” (Upton, Gillum, & Berkowitz, 2010, para. 33).

Regardless of whether or not the Knight Commission's 2010 report was cause for alarm, or whether or not the increased spending was within the power of athletic departments to control, escalating athletics spending was having a negative effect. The report declared:

Indeed, reliance on institutional resources to underwrite athletics programs is reaching the point at which some institutions must choose between funding sections of freshman English and funding the football team. And student-athletes in non-revenue sports risk seeing their teams lose funding or be cut entirely. These threats extend well beyond universities with high-budget athletics programs: it is clear that the spending race that too often characterizes major football and basketball programs is creating unacceptable financial pressures for everyone. (Knight Commission, 2010, p. 6)

This could be seen as a warning that increased spending which is intended to build athletic programs up may actually eventually result in those same programs' financial downfall.

The 2010 report laments that "The costs of competing in big-time intercollegiate sports have soared. Rates of spending growth are breathtaking. This financial arms race threatens the continued viability of athletics programs and the integrity of our universities. It cannot be maintained" (Knight Commission, 2010, p. 1). But lately, as one writer noted:

The college sports arms race remains one of the few recession-proof industries. According to the U.S. Census Bureau, nonresidential public construction decreased 10.3 percent from 2009 to 2011, despite the influx of federal stimulus money. Yet universities keep breaking ground on expensive athletic complexes, like Tennessee's soon-to-open \$45 million practice center (complete with a 22,000-square foot weight room and MMA cage) or California's \$321 million stadium overhaul. One reason why is the influx of TV money. (Bennett, 2012, para. 8)

But while more lucrative media contracts provide a revenue stream to counter increased costs, the Knight Commission lists the pursuit of television contracts as a "destabilizing influence on athletics programs" and notes that "the intensely competitive environment at the top levels of college sports has prompted [several] rounds of realignment among athletic conferences since 1994; a bidding war for prominent coaches; and accelerating expenses across the board" (Knight Commission, 2010, p. 3).

Regarding this situation, one university chancellor whose athletic program was reclassified from NCAA Division I to Division III remarked, "Division I athletics has truly become the tail that wags the dog... You've got to keep up with the Joneses. Everybody wants to build better facilities. They spend more money on coaching" (Wieberg, 2010, para. 4). In fact, while in 2005 Division I athletic department were spending the most money on scholarships, within four years student aid had been replaced at the top of the list by coaches' compensation. By 2009, total Division I coaches' compensation was in excess of \$1 billion, with severance packages not being included in that figure (Gillum, 2010). Writing for *USA Today*, Upton, Berkowitz, and Gillum reported that between 2006 and 2009, the average salary for football head coaches rose 46%, reaching \$1.36 million. While admitting the claim that most of that amount was paid from outside sources (e.g. media, shoe, and apparel contracts) rather than school subsidies, they pointed out that the outside income was money that was going to coaches rather than the universities (Upton, Berkowitz, & Gillum, 2010).

This being the case, escalating coaches' salaries have become "a 'lightning rod' issue for many university presidents," who have also identified this issue as "a key contributor to the 'arms race' in intercollegiate athletics" (Knight Commission, 2009b, p. 10). In 2009, the Knight Commission surveyed 119 presidents of Football Bowl Subdivision (FBS) institutions to garner their "views on the financial state of college athletics and the implications of the cost pressures associated with participation in the FBS" (Knight Commission, 2009b, p. 1). When asked about football and basketball coaches' salaries overall, over 85% of their sample considered compensation to be excessive. Closer to home, 60% of the presidents of schools belonging to a conference with Bowl Championship Series (BCS) automatic qualifying status considered the total compensation of the football and

basketball coaches at their own institutions to be excessive (Knight Commission, 2009b). As a group, the presidents viewed the trends for coaches' climbing salaries as "one of the greatest threats to sustainability" (Knight Commission, 2009b, p. 34).

Moreover, referencing their 2009 survey, the Knight Commission reported that college presidents have called the increases in coaches' salaries "the single largest contributing factor to the unsustainable growth of athletics expenditures," but also mentioned that nothing can be done by the NCAA to restrain or cap escalating salaries because of federal antitrust laws (Knight Commission, 2010, p. 18). The overall frustration of these presidents is exemplified in the following statements. One president mentioned, "The budget crisis that's hit the world doesn't seem to even have registered with some of our coaches. But I don't see a dramatic shift: If the market isn't shifting now, I don't know when it will" (Knight Commission, 2009b, p. 34). Similarly, another president mentioned, "The escalation of salaries is a great concern, but it's not clear there are any mechanisms to deal with it. It's hard for me to explain these salaries, but I will pay them" (Knight Commission, 2009b, p. 34).

Athletics directors, on the other hand, feel justified in paying higher salaries to football and men's basketball because a large portion of their departments' revenue is generated by those two sports (Upton, Gillum, & Berkowitz, 2010). The argument being made is that it is a good investment to pay successful coaches more because success on the field will lead to more fan interest (i.e. higher ticket sales). More interest also leads to more opportunities for marketing and sponsorship deals, thus administrators are justifying that these revenue streams from football and basketball will help fund the smaller sports (Wieberg, et al., 2009). "But paying a winning coach to be a rainmaker won't do much for

the department's bottom line, because new money is plowed back into the program to keep up with the spending arms race” (Upton, Gillum, & Berkowitz, 2010, para. 16). In fact, though a study commissioned by the NCAA found “a positive and statistically significant relationship between finishing the season in the top 25 of the AP football poll and revenue [...] that finishing the season in the top 25 is associated with roughly \$3 million more in revenue” (Orszag & Israel, 2009, p. 8), the same study also found that there is a “one-for-one relationship between athletic expenditures and revenues,” or in other words, every dollar increase in expenditures resulted in roughly a dollar increase in revenue, meaning there was zero net effect on the bottom line (p. 7).

Revenue-related justification attempts aside, there is also an underlying fear of what would happen if those large salaries were not being paid. Speaking of a specific football coach, one BCS athletic director remarked “If we let him go because we’re not willing to pay market, we’ll pay a huge price because I don’t know that we can go out and find another coach with that combination of skills and (academic) emphasis” (Wieberg, et al., 2009, para. 28). However, agreeing to pay that “market price” creates its own set of problems, according to a university president in the Knight Commission survey:

Coaches go out and get competing offers. That leads to a new salary structure. Then women’s basketball says, “Me too.” They want gender equity in every sport. You’re negotiating everything that spins off the initial large contract. Then we have to compete with the pros. Boosters say, “You can’t lose that coach.” It’s a cycle that has become unconscionable. (Knight Commission, 2009b, p. 34)

And the trend is not exclusive to football and basketball. In 2009, a prominent athletic director in the Big Ten Conference mentioned to his colleagues at a conference on athletics spending “We talk about football coaches’ salaries, we talk about basketball coaches’ salaries

[...] The salaries in many of our Olympic sports have tripled since 1994” (Drape & Thomas, 2010, para. 8).

Compensation levels for assistant coaches are rising as well. For example, nearly 10% of FBS schools spent at least 38% more in 2010 on their football team’s offensive or defensive coordinator than they did the previous year (Berkowitz, 2010). For over 15 years the Division 1A Athletic Directors’ Association has monitored the salaries of athletic directors, football coaches, and men’s basketball coaches, and Dutch Baughman, the association’s executive director, has observed that salaries for football offensive and defensive coordinators are escalating in a manner that has never been seen before in college athletics, "a very much higher level very much more quickly than I've seen in other positions" (Berkowitz, 2010, para. 5).

Assistant coaches’ salaries have been rising as head coaches are convincing athletic departments to increase salaries and perks for their assistants in an effort to maintain coaching staff stability, with one FBS athletic director calling the trend “‘the next frontier’ in college athletics’ spending arms race” (Wieberg, et al., 2009, para. 32). In 2009, Wieberg et al. studied the salaries of assistant football coaches for *USA Today*, finding that many assistants were not only being paid more than full professors, they were even being compensated more than university presidents (Wieberg, et al., 2009). By their count, no less than 66 assistant football coaches were paid at least \$300,000, and they reported that “perks once reserved for head coaches are commonplace: multiyear and rollover deals, supplemental income from TV and radio, performance bonuses, retention bonuses, cars, complimentary tickets and country club memberships” (para. 8).

Another justification for escalating compensation is the coaching staff's ability to recruit talented athletes, with the rationale that well-known coaches who have been successful can be attractive to high caliber recruits who will perpetuate that success (Tsitsos & Nixon II, 2012). This idea of paying "big name" coaches high salaries in order to retain them as an attraction to prospective student-athletes has been dubbed the "star wars arms race":

Institutions [...] seek the star, or rising star, coaches who will be able to recruit the talented athletes needed to win and attract more talented recruits in the future. In other words, the star wars arms race exists because athletic directors and their institutions feel compelled to spend "whatever it takes" to hire and retain coaches with records or prospects of major success because they will attract the most talented recruits who are the ultimate key to competitive success. (Tsitsos & Nixon II, 2012, p. 71)

And increasing coaching salaries as an indirect recruiting device is only one way institutions spend money on recruiting efforts.

Langelette (2003) was able to produce evidence linking top recruiting classes in FBS football to "top 25" finishes, and vice versa, explaining why institutions are willing to spend significant amounts each year on recruiting efforts. But recruiting budgets are affected by economic conditions mentioned previously, as well as other factors. "Conference realignment, coaching moves, schematic adjustments and philosophical changes affect recruiting budgets in ways that wins and losses and signing-day success stories cannot measure" (Sherman, 2012, para. 5).

From 1997 to 2007, almost half of Division I athletic programs saw their recruiting expenses at least double, with some of those programs actually tripling the size of their recruiting budgets (Sander, 2008). To examine trends in recruiting budgets, ESPN.com gathered from FBS schools the financial information that those schools had submitted to the

NCAA for fiscal years 2010 and 2011 (Sherman, 2012). When comparing those two years side by side, 71% of the institutions had increased their recruiting budgets from 2010 to 2011. Though more research on recruiting expenditures is needed, early indications point to the same trends seen with coaches' compensation and expenditures in general.

With these trends of increased recruiting budgets, coaches' salaries, and athletic spending in general, the question is raised as to whether or not that spending translates to competitive success. Several studies have been conducted in attempting to answer that question, with varying findings.

Examining Ties Between Finances and Competitive Success

The results of studies examining spending and success have included findings of no relationship, mixed results, and findings of a definite relationship. A study that found no relationship examined recruiting expenditures in a single sport, measuring success in a single conference. Stroman (1986), using budget numbers gleaned from surveys, found no significant relationship between women's basketball recruiting expenditures in the Atlantic Coast Conference and win-loss records over a five year period. But those results were not replicated by a later study with a larger sample. Warner (2001) expanded the scope of her study, examining all women's teams in 51 athletic programs, including two conferences each in NCAA Divisions I, II, and III. Looking for what effect coaches' salaries and recruiting expenditures had on conference success, she found that in Division I only, recruiting expenditures did have a significant relationship to conference success two years later. Additionally, Warner did not find a significant relationship between coaches' salaries and conference success at any level. But she only examined a single year of financial data, and

though Warner's study was more inclusive than Stroman's, it also only included women's sports, so the results may not be applicable to an entire athletic department.

Like Warner, Tsitsos and Nixon II did not find a strong relationship between coaches' salaries and success. Using *USA Today* salary databases and poll results, Tsitsos and Nixon II (2012) compared football and men's basketball coaches' pay with Top 25 finishes from 2003-2004 through 2010-11. Roughly 50% of the 25 highest paid football coaches had Top 25 teams in that span, while 44% to 60% of the 25 highest paid basketball coaches had teams finishing in the Top 25. Between the 2007-2008 season and the 2001-2011 season, less than one third (28%) of the highest paid football coaches experienced "upward mobility" into the Top 25, with nearly one fourth of the highest paid coaches actually dropping out of the Top 25. The results for basketball coaches were nearly identical. In this same time frame, 12% of the 25 highest paid football coaches, and 8% of the 25 highest paid basketball coaches never had a team finish in the final Top 25 (Tsitsos & Nixon II, 2012).

This lack of a definite relationship between coaches' salaries and team ranking corresponds with a study by Orszag and Israel (2009), which did not find a significant relationship between coaching salaries and a team's winning percentage (p. 8). However, in contrast with previous studies, Orszag and Israel did "find a small positive and statistically significant relationship between greater operating expenditure on football and team success" (p. 8). But they found that this relationship applied to football only, and that "the only category of spending that has a statistically significant effect on performance is 'team expenditures' – a category in which we include recruiting, travel, equipment, and other game-day expenses" (p. 8). According to their report:

we find that an extra million dollars of operating expenditure on football is estimated to increase the team's winning percentage by 1.8 percentage points and the chances of finishing in the top 25 of the season ending AP poll by five percentage points. (p.8)

However, as with Warner's study, the findings of Tsitsos and Nixon II as well as those of Orszag and Israel may not hold true when examining overall athletics spending.

In contrast, Esten (2003) conducted a study including comprehensive athletic departmental spending data over multiple years. Using Directors' Cup total points in aggregate over three years (1999-2000, 2000-2001, and 2001-2002), he separated 25 highest point earners and the 25 lowest, comparing their point totals with EADA and capital expenditure data obtained directly from each institution. On analysis, he found that six variables (recruiting expenditures, student aid, coaches' salaries, team operating expenses, administrative operating expenses, and capital expenditures) accounted for 90% of the variation in Directors' Cup point accumulation. Esten found significantly positive relationship between overall spending and Director's Cup points ($r = 0.801$, $p = .000$), reporting "a 0.868 increase in SDC (Sear's Directors' Cup) success with every unit of increase in intercollegiate athletic expenditures" (Esten, 2003, p. 67). He was also able to link Directors' Cup "success" to the percentage of the total budget that was allocated to each variable, finding significance with two predictor variables: recruiting expenditures ($\beta = 0.470$, $p=.001$) and team operating expenditures ($\beta = .718$, $p=.000$). Thus, he concluded, "success in the SDC (Sears Directors' Cup) can be accounted for by relative increases in recruiting expenditures and team operation expenses" (p. 76).

Further, Esten was able to draw conclusions regarding the prevalent concerns of the existence of an arms race:

This study also validates concerns of an "arms race" in intercollegiate athletics by empirically reporting a significant difference between successful and unsuccessful

intercollegiate programs, not only in terms of total budget, but also budget allocation. This, coupled with a significant relationship between a gross budget amount and success in the SDC, supports claims that certain Division I universities have a distinct financial advantage over others and that disparity leads to success in the SDC. (p. ii)

It should be noted, however, that his EADA analyses included 23 schools in the top 25 in aggregate Directors' Cup points and 13 schools from the bottom 25, while his capital expenditure samples were 19 of the top 25 and 10 from the bottom 25. So even with a 69% response rate on his surveys, he had a relatively small sample size ($n=36$) when compared with later studies in this review. Further, one would expect to see differences when studying extremes as Esten did, but the athletic departments between the extremes were not included in the sample, though they comprise most of the population the study was supposed to apply to.

Rather than only examining extremes, Wright (2004) studied the full range of schools earning Directors' Cup points. Using 255 Division III schools that had earned Directors' Cup points for the 2001-2002 academic year, he divided his sample into quartiles according to total points earned. For that single season, Wright found a significant relationship between mean expenditures per sport and Directors' Cup points earned ($R^2=.086$), with those expenditures accounting for nearly 9% of variance in total Directors' Cup points earned. The top quartile also sponsored significantly more teams, and logically had significantly higher mean total expenditures than the other three quartiles (Wright, 2004). But these findings based on a Division III sample may not be applicable to Division I institutions.

In a study comparable to Wright's, Albert (2006) found similar results with a Division I sample, using only Olympic sports. For the 2003-2004 year, he classified the 331 Division I schools that sponsored all of the seven sports included in the study by each respective sport's NCAA Championship according to how far they advanced. The sports

included baseball, softball, men's and women's soccer, men's and women's tennis, and women's volleyball. The teams in each sport were further classified as elite (top 16), successful (17-32), qualifying (lost in the first round), and non-qualifying based on championship results found on the NCAA Championships website. Operating expenditures was the only variable used from the EADA database, and that data was used to rank each classification group within each sport. If the success rankings matched the expenditure ranking, the hypothesis was supported, but if less successful teams were found to have spent more, the hypothesis was rejected (Albert, 2006).

For all seven sports, the results suggested differences in median expenditures relative to different levels of success:

With few exceptions, athletic teams at the highest levels of national success also reported the greatest median expenditures. In all seven sports, the Non-qualifying schools had the lowest median operating expenditures and trailed the median expenditures of all other groups by a significant margin. These findings support the existence of a relationship between athletic expenditures and athletic success in NCAA Division I Olympic sports. (Albert, 2006, p. 48)

But of course the findings of this study only apply to those seven Olympic sports, so again, as with studies discussed earlier, the findings may not represent what would be seen over an entire athletic department. Furthermore, studies such as Warner's, Wright's, and Albert's that capture a single year's data are open to the possibility that the particular year being studied is atypical, not reflecting normal conditions.

Jones (2012) accounted for both these considerations by including all Division I schools listed in the EADA database for four years (2006-2007 through 2009-2010). While still using total Directors' Cup points, as Esten did, Jones's scope was limited to those four years as they were the most recent and there were no changes in the scoring structure over that span. His primary independent variable was overall departmental expenditures and his

findings suggested that any impact of expenditures on success is conditional on NCAA

Division I subdivision:

When using EADA data, it was found that among FBS institutions a 1% increase in athletics expenditures was correlated with a 1.08 increase in Directors' Cup points ($\beta = 107.67$, $r < .01$). Among FCS (Football Championship Subdivision) institutions, however, this relationship was significantly more negative ($\beta = -109.21$, $r < .02$). This finding suggests that the Directors' Cup points earned by FBS and FCS athletic departments are affected very differently by changing in athletic expenditures. (Jones, 2012, p. 13)

Further, Jones found no statistical significance in the relationship between athletic expenditures and Directors' Cup points among FBS institutions compared with that same relationship among Division I Non-Football schools, suggesting that both subdivisions yielded "an overall positive relationship between athletic expenditures and team on-field success" (Jones, 2012, p. 13). But while Jones made several significant findings in his study, his spending analysis focused on overall spending, without examining any categorical variables that may directly contribute to athletic success.

This was not the case with a study conducted by Lawrence, Li, Regas, and Kander in 2009, which examined more variables than any of the studies discussed previously. Using 2006-2007 EADA data, they sampled the top 100 Directors' Cup point earners in Division I, Division II, Division III, and NAIA, looking for predictors of success. They found significance only in Division I, reporting that 64.7% of the total variance in Directors' Cup points was accounted for by three variables: total expenses per team for women of all sports (except football and basketball) combined, total expenses not allocated by gender or sport, and average annual institutional salary per full time employee for men's teams. "Total expenses per team for women of all sports (except football and basketball) accounted for

58.4% of the variance with the other two significant variables adding 3.3% and 2.9% respectively” (Lawrence, et al, 2009, p. 20).

Stepwise regression analysis was used to identify these predictors. But with 385 cases being examined, and 47 independent variables, this nearly 8 to 1 ratio is well below the 40 to 1 ratio recommended for stepwise procedures (Tabachnick & Fidell, 2012). One researcher cautioned readers to be “very wary of an article that does not at least meet the rough guideline of 10 to 15 events per predictor—an all too common feature of many published articles” (Babyak, 2004, p. 415). Speaking further on stepwise procedures, that same researcher advised:

If an article reports the results of a regression model that has used an uncorrected stepwise selection process, be extremely skeptical of the conclusions. The model and consequent conclusions may indeed be correct—but there is simply no way of being certain. (Babyak, 2004, p. 416)

Statistical methods notwithstanding, as with several of the studies discussed previously, Lawrence et al. studied data for a single year which may or may not show an accurate reflection of true relationships. It is only by identifying true relationships that the results of any study can be confidently applied to the problem being examined, in this case, athletics spending.

Conclusion

Athletics spending has increased over the past decade, as schools compete with each other not only in their scheduled events, but in their monetary expenditures as well. This growing trend has caused collegiate administrators, both in and outside of athletic departments, to wonder about whether or not the importance placed on athletics is worth the vast monetary resources that their institutions continue to devote to them (Drape & Thomas, 2010). Logically, the best coaches coaching the best players should achieve the best results.

Increases have been made in the money spent on coaches' salaries and recruiting efforts, but if the goal is to have a more successful athletic program than their conference or national peers, are athletic departments really getting what they are paying for? In attempting to answer that question, this study examined post-season success of Division I schools, as compared with their peers, and the athletics spending of those same schools, as compared with their peers.

Like previous studies, this one used EADA and Directors' Cup data to explore these relationships, focusing specifically on the issues discussed in this review of literature. However, the gaps in the literature examining the salaries of both head coaches and assistant coaches in the same study, as well as expenses per participant, were filled by this study. Also, rather than taking a small sample over a few years, or looking at a single year's data, this study examined an entire population of available data, creating a data merge that can be used to study a variety of relationships in the future.

CHAPTER 3

METHODOLOGY

Methods

The method of research for this study was to collect information from pre-existing, publicly available databases. This study collected data from the DOE website, as well as the NACDA website. As the intent of this study was to examine general departmental spending categories, gender-separated data was combined to obtain departmental data that was then used for the analysis.

Sample

The subjects for this study were all schools listed in both the final NCAA Division I Directors' Cup standings and the downloaded EADA data for the 2003-2004 academic year through 2010-2011. NACDA data listed only schools that scored points in any given year, whereas EADA listed all schools that were required to report. However, there were some schools that scored Directors' Cup points, U.S. military service academies for example, that are not required by law to file EADA reports. Also, the 2004-2005 and 2005-2006 files of final Directors' Cup standings only listed the top 100 finishers. This study included all institutions that were listed on both data sources in any given year.

Though data on Directors' Cup standings date back to the 1993-1994 year, and include the most recently completed semester, when this study was conducted, downloadable EADA data only dated from 2000-2001 through 2010-2011. Due to missing data and

inconsistencies in the 2000-2001 and 2001-2002 years, those two years were not included in the study. Additionally, the 2002-2003 EADA data did not include numbers for unduplicated participants, so that year was not included either.

Data Collection

All files were downloaded in their entirety. From the NACDA website, the link labeled “Final” under Division I Directors’ Cup standings was downloaded for the 2003-2004 academic year through 2010-2011. These pdf files were then converted to Excel files and sorted alphabetically. For each year, columns containing school name, rank, and total points for all schools, were copied to a Full Data spreadsheet.

Since the Directors’ Cup scoring system has not been consistent throughout all the years included in this study, all point totals were converted to a standard system, thus allowing all eight years of data to be used in one data set, thus still comparing “apples to apples.” This was done for each year by converting the top total point score to a score of 1000, establishing a “conversion factor.” This conversion factor was then used to adjust all lower scores to the 1000 point scale. Analyses were based on these converted “Adjusted Total” scores.

For example, in the 2003-2004 year, Stanford finished first with 1337.3 total points. That same year, Michigan was second with 1226.3 points, and Wright State was tied for 274th place with 5 total points. As the top finisher, Stanford’s point total was converted to 1000 points. The conversion factor was established by dividing 1000 by Stanford’s 1337.3 total points ($cf = 1000/1337.3 \approx .7477754$). Michigan’s point total was adjusted by multiplying by this conversion factor ($1226.3 \times .747754 \approx 916.997$). That same conversion factor adjusted Wright State’s score from 5 to 3.739. This conversion factor was different for

each year (e.g. since Stanford earned 1238.75 points in 2004-2005, the cf for that year was .8072654).

From the DOE website, even though Excel, SAS, and SPSS files were all available for download, only the “Institution Level” Excel files (and their associated codebooks) were downloaded for each year studied. Each year’s file was first sorted by classification, and all non-Division I institutions were deleted. The remaining entries were sorted alphabetically.

The EADA data used the official name of each institution, while the NACDA data used the school’s common name. In order to more easily match the NACDA data with the EADA data, another column, labeled “Nickname,” was added next to the “Institution Name” column on each EADA spreadsheet. For example, in the cell adjacent to the one containing “University of North Carolina at Chapel Hill,” the name “North Carolina” was entered. Only schools listed on the associated NACDA file received entries in the “Nickname” column. All other schools were deleted. The remaining entries were sorted alphabetically by nickname, to be matched with the NACDA data on the Full Data spreadsheet. Columns containing data irrelevant to this study were deleted.

The data columns used from the EADA files included:

- Total recruiting expense/ Men’s and Women’s teams
- Annual salary per head coach/men’s
- Annual salary per head coach/women’s
- Annual salary per head coach/coed
- Number of men’s team head coaches
- Number of women’s team head coaches
- Number of coed team head coaches

- Annual salary per assistant coach/men's
- Annual salary per assistant coach/women's
- Annual salary per assistant coach/coed
- Number of men's team assistant coaches
- Number of women's team assistant coaches
- Number of coed team assistant coaches
- Unduplicated counts of participants men/men coed
- Unduplicated counts of participants women/women coed
- Total operating expenses men/women/coed men/women
- Total number of head coaches/ men/women/coed teams
- Grand total expenses

This data was then used to create a data set of the variables to be analyzed, as only total recruiting expenses, total operating expenses, and grand total expenses could be used as entered in the existing data file. "Total number of head coaches/ men/women/coed teams" was used to represent the number of teams sponsored.

After all the variables to be examined were calculated, the EADA data was added to the NACDA data on the Full Data spreadsheet. Calculation formulas were as follows:

$$\text{Average Head Coach Salary} = \frac{(\text{average men's salary})(\text{total \# men's}) + (\text{average women's salary})(\text{total \# women's}) + (\text{average coed salary})(\text{total \# coed})}{\text{Total \# men's} + \text{total \# women's} + \text{total \# coed}}$$

$$\text{Average Asst. Coach Salary} = \frac{(\text{average men's salary})(\text{total \# men's}) + (\text{average women's salary})(\text{total \# women's}) + (\text{average coed salary})(\text{total \# coed})}{\text{Total \# men's} + \text{total \# women's} + \text{total \# coed}}$$

$$\text{Total Expenses per Participant} = \frac{\text{Grand Total Expenses}}{\text{Unduplicated participants men and men coed} + \text{Unduplicated participants women and women coed}}$$

$$\text{Total Team Operating Expenses per Participant} = \frac{\text{Total Team Operating Expenses}}{\text{Unduplicate participants men/men coed} + \text{Unduplicate participants women/women coed}}$$

Data Reduction and Analysis

The Full Data spreadsheet contained all data for the entire eight year period. Data was analyzed using SPSS version 17.0 statistical software. A correlation matrix was generated showing correlations between all variables. Using the Adjusted Total Points as the criterion variable, a simple regression was run with each explanatory variable (Total Expenses, Total Expenses per Participant, Number of Teams Sponsored, Total Team Operating Expenses, Total Team Operating Expenses per Participant, Total Recruiting Expenses, Average Head Coach Salary, and Average Assistant Coach Salary). Then, again using the Adjusted Total Points as the criterion variable, a multiple regression was run using Total Expenses per Participant, Total Number of Head Coaches (Number of Teams Sponsored), Total Operating Expenses per Participant, Total Recruiting Expenses, Average Head Coach Salary, and Average Assistant Coach Salary as explanatory variables. In order to avoid multicollinearity, Total Expenses and Total Operating Expenses were not included in the multiple regression.

CHAPTER 4

RESULTS

EADA and Directors' Cup data were collected for every academic year from 2003-2004 to 2010-2011. After merging the data from both sources for each year, all eight years were combined into a single data set for analysis, comprised of 1,866 total cases. Descriptive statistics for the variables of interest are found in Table 1.

Table 1

Descriptive Statistics for All Variables

	Mean	Std. Deviation	N
Adjusted Total Directors' Cup Points	177.98	204.397	1866
Total Recruiting Expenses	\$467,162.12	\$373,970.39	1866
Average Head Coaches' Salary	\$135,961.66	\$114,282.64	1866
Average Assistant Coaches' Salary	\$54,584.95	\$50,302.82	1866
Total Operating (Game Day) Expenses	\$3,395,460.94	\$2,846,002.11	1866
Total # Head Coaches (# Teams)	16.70	4.936	1866
Total Participants	435.56	171.655	1866
Operating Expenses per Participant	\$7,447.21	\$4,942.90	1866
Total Expenses per Participant	\$56,736.28	\$36,920.02	1866
Total Expenses	\$26,048,576.80	\$21,894,856.38	1866

The large standard deviations relative to the means are indicative of the large differences between athletic departments in terms of their post-season success. For instance, the standard deviation in Adjusted Total Director's Cup Points was actually larger than the mean, which is to be expected with some schools earning as few as five points in any given year, while those near the top of the standings earn well over 1,000 points. Large standard deviations show the wide ranges in the amounts of money spent by athletic departments as well.

Correlation

The bivariate correlation analysis conducted to examine the relationships between the variables of interest revealed that all variables had a statistically significant positive relationship with Adjusted Total Directors' Cup Points ($p < .001$), as shown in Table 2. Total Expenses ($r(1864) = .838, p < .001$), Total Operating Expenses ($r(1864) = .782, p < .001$), and Total Recruiting Expenses ($r(1864) = .766, p < .001$) all showed a high correlation with Adjusted Total Directors' Cup Points. Average Assistant Coaches' Salary ($r(1864) = .393, p < .001$) and Total Number of Head Coaches ($r(1864) = .425, p < .001$) both had low correlations with Adjusted Total Directors' Cup Points, with all other variables showing a moderate correlation. Interestingly, with the exception of two relationships that will be addressed in the Discussion section, all other variables were significantly positively correlated ($p \leq .001$) with each other. See the Appendix for the complete correlation matrix.

Table 2

Correlations with Adjusted Total Directors' Cup Points (ADJ DC)

	PPM	Sig. (2-tailed)
Total Recruiting Expenses	.766**	.000
Average Head Coaches' Salary	.642**	.000
Average Assistant Coaches' Salary	.393**	.000
Total Operating (Game Day) Expenses	.782**	.000
Total # Head Coaches (# Teams)	.425**	.000
Total Participants	.557**	.000
Operating Expenses per Participant	.610**	.000
Total Expenses per Participant	.699**	.000
Total Expenses	.838**	.000

NOTE: PPM = Pearson Product Moment Correlation Coefficient (R)

** p < .001

Simple Regression

The original data set used dollars as its unit of value. Of course, using those single dollar units in regression analyses, the slope of the regression line (B) would be infinitesimal, making it impossible to see what increase in Adjusted Total Directors' Cup Points would be associated with a one dollar increase in an explanatory variable. Therefore, in order to see meaningful predictive relationships from simple regressions, "totaled" departmental expenses (i.e. recruiting, operating, total expenses) were analyzed using \$100,000 units for monetary

data, while “individualized” expenses (i.e. average salaries and expenses per participant) used \$10,000 units. A summary of results is seen in Table 3.

Table 3

*Simple Regression Results:
Regressing Adjusted Total Directors' Cup Points on explanatory variables*

	R	R ²	(Constant)	B	Beta	Sig.
Total Recruiting Expenses ¹	.766	.586	-17.533	41.850	.766	.000
Average Head Coaches' Salary ²	.642	.413	21.762	11.490	.642	.000
Average Assistant Coaches' Salary ²	.393	.154	90.882	15.956	.393	.000
Total Operating Expenses ¹	.782	.611	-12.618	5.613	.782	.000
Total # Head Coaches (# Teams)	.425	.180	-115.619	17.582	.425	.000
Total Participants	.557	.310	-110.817	.663	.557	.000
Operating Expenses per Participant ²	.610	.372	-9.779	252.115	.610	.000
Total Expenses per Participant ²	.699	.489	-41.582	38.698	.699	.000
Total Expenses ¹	.838	.702	-25.840	.782	.838	.000

¹ Expense units in \$100,000s

² Expense units in \$10,000s

As with the correlation analysis, regressing Adjusted Total Directors' Cup Points on each explanatory variable individually yielded significant results ($p < .001$) for all explanatory variables. Examining the coefficients of determination (R^2), over half of the variance in Adjusted Directors' Cup Points is associated with variability in each of the following three variables: Total Expenses (70.2%), Total Operating Expenses (61.1%), and Total Recruiting Expenses (58.6%). On the other end of the spectrum, variability in Average Assistant Coaches' Salary and Total Number of Head Coaches accounted for the lowest amount of

variance, associating with 15.4% and 18% of the variance in Adjusted Directors' Cup Points respectively.

Multiple Regression

To examine the combined effect of our explanatory variables, Adjusted Total Directors' Cup Points was regressed on Total Recruiting Expenses, Average head Coaches' Salary, Average Assistant Coaches' Salary, Total Number of Head Coaches, Operating Expenses per Participant, and Total Expenses per Participant. While the simple regressions used both \$100,000 and \$10,000 as units for the monetary variables, the multiple regression models were developed with only the data set using \$10,000 units. The resulting model, shown in Table 4, found that 66.6% of the variance in Adjusted Total Directors' Cup Points was explained by these six variables. However, Average Assistant Coaches' Salary ($p = .968$) and Operating Expenses per Participant ($p = .262$) were not found to be significant predictors. Average Head Coaches' Salary ($p = .023$) was a significant predictor at the 0.05 level, while Total Recruiting Expenses, Total Number of Head Coaches, and Total Expenses per Participant were all significant at the 0.01 level ($p < .001$).

Table 4

*Multiple Regression Model:
Regressing Adjusted Total Directors' Cup Points on explanatory variables*

	B	Beta	Sig.
(Constant)	-253.686		.000
Total Recruiting Expenses	1.324	.242	.000
Average Head Coaches' Salary	1.204	.067	.023
Average Assistant Coaches' Salary	-.030	-.001	.968
Total # Head Coaches (# Teams)	12.885	.311	.000
Operating Expenses per Participant	12.458	.030	.262
Total Expenses per Participant	22.768	.411	.000
Initial Model	R	R Square	
	.816 ^a	.666	

a. Predictors:(Constant), TOTEXPER, TOT HC, ACAVG, OPEXPER, RECRT, HCAVG

In order to find a more parsimonious model, Average Assistant Coaches' Salary and Operating Expenses per Participant were removed as predictor variables. As seen in Table 5, this new model still accounted for 66.6% of the variance in Adjusted Total Directors' Cup Points with two fewer variables. Approximately 30.8% of that variance is attributable to Total Expenses per Participant, with 18.9% being attributed to Total Recruiting Expenses. Total Number of Head Coaches accounted for 13.1% of the variance in Adjusted Directors' Cup Points, while Average Head Coaches' Salary accounted for 4.5%.

Table 5

*Parsimonious Multiple Regression Model:
Regressing Adjusted Total Directors' Cup Points on explanatory variables*

	B	Beta	Sig.
(Constant)	-250.579		.000
Total Recruiting Expenses	1.351	.247	.000
Average Head Coaches' Salary	1.253	.070	.005
Total # Head Coaches (# Teams)	12.765	.308	.000
Total Expenses per Participant	23.837	.431	.000
Parsimonious Model	R	R Square	
	.816 ^a	.666	

a. Predictors: (Constant), TOTEXPER, TOT HC, HC AVG, RECRT

According to this model, one would expect to see an approximate increase of 12.8 Adjusted Directors' Cup Points with each head coach (team) added, when controlling the other three predictor variables. A \$10,000 increase in spending in average head coaches' salaries, recruiting expenditures, or total expenses per participant would have similar effects, with expected increases in Adjusted Total Directors' Cup Points of approximately 1.25, 1.35, and 23.8 points respectively.

CHAPTER 5

DISCUSSION

Summary

Athletics spending continues to rise, with predictions that, “top programs are expected to have athletics budgets exceeding \$250 million by 2020” (Knight Commission, 2010, p. 7). A prevailing thought is that the spending is meant to generate and sustain competitive success. “The growing emphasis on winning games and increasing television market share feeds the spending escalation because of the unfounded yet persistent belief that devoting more dollars to sports programs leads to greater athletic success and thus to greater revenues” (Knight Commission, 2010, p. 3). With that in mind, the purpose of this study was to determine whether a relationship exists between institutions’ relative competitive success and each of the following factors: (a) how much institutions spend on athletics overall, and per participant, (b) the number of teams sponsored, (c) total team operating expenses, and operating expenses per participant, (d) institutions’ recruiting expenses and, (e) average coaches’ salaries.

Eight years of data were used, and statistically significant relationships were found between relative competitive success and each of the factors analyzed. Furthermore, Total Recruiting Expenses, Average Head Coaches’ Salary, Total Number of Head Coaches (i.e. number of teams), and Total Expenses per Participant were all found to be significant predictors of Total Adjusted Directors’ Cup Points. However, taking practical significance

into account, careful consideration should be taken before making decisions based on these findings.

Number of Varsity Teams Sponsored

This analysis identified 18% of the variation in points earned is associated with the variation in the number of head coaches reported on the EADA report, and the number of head coaches actually accounts for 13.1% of the variance in points. There is also a low, but statistically significant correlation between the number of head coaches an institution has and Adjusted Total Directors' Cup Points, suggesting that institutions sponsoring more teams would be expected to earn more points. Others have suggested this as well. "Given the scoring structure of the Directors' Cup, it is logical that those institutions investing in many sport programs, [...] would see an impact on their point totals" (Lawrence, et al., 2009, p. 21). Naturally, sponsoring more teams would give an institution more opportunities to score points. In fact, the results of this study predict that sponsoring one more team would result in an increase of almost 13 "adjusted" points. In practical terms, according to this prediction, a school that added one more team between 2010 and 2011 would have earned about 20 more points in the 2011 Directors' Cup standings, or the equivalent of a 27th place finish in a field of 32 (National Association of Collegiate Directors of Athletics, n.d.a). By comparison, an unranked football team that loses a bowl game and a team that loses in the first round of a bracketed tournament each earn 25 points (National Association of Collegiate Directors of Athletics, n.d.a). Considering this relatively small increase in the number of Director's Cup points, administrators are left to decide whether the expenses related to adding another team (e.g. coaches' salaries, recruiting budget, operating expense) would be justified by having one more team finish in the bottom 16% of an NCAA championship.

Total Expenses

Total Expenses easily had the strongest correlation to points earned of all the variables we examined ($r(1864) = .838, p < .001$), and the variability in the total amounts spent by athletic departments was associated with 70.2% of the variation in Adjusted Total Directors' Cup Points. While this study did not pursue a predictive value due to a desire to avoid multicollinearity in the multiple regression, a predictive value for total expenses was found in a similar study.

Jones (2012) found a positive relationship between total expenses and Directors' Cup points, calculating "that among FBS institutions a 1% increase in athletics expenditures was correlated with a 1.08 increase in Directors' Cup points ($\hat{b} = 107.67, r < .01$)" (Jones, 2012, p. 13). However, statistical significance in this case may not necessarily mean practical significance. For example, using the ratios of increase described above, a 1% increase to a \$26 million dollar budget (roughly the mean Total Expenses in this study) would amount to \$260,000 in additional spending. This "practically" significant spending increase would only predict an additional 1.08 Directors' Cup points for the athletic department, or almost 22% of the five points that are the minimum number of points awarded in the Directors' Cup scoring system. Five points would be earned by a team that finished 65th or lower in a non-bracketed NCAA championship (National Association of Collegiate Directors of Athletics, n.d.a). In other words, using Jones's ratio of increase it would take a spending increase of over \$1.2 million dollars to essentially get the equivalent of one more team finishing no better than 65th place in an NCAA championship. Again, taking into account departmental goals, the economic environment, and levels of funding, athletic administrators can determine whether it would be feasible or advisable for their particular department to make such a substantial

investment, with only the expectation of one more sport tying for last place in Directors' Cup scoring in return.

Team Operating (Game Day) Expenses

While yielding the second highest correlation with points earned ($r(1864) = .782, p < .001$), the variance in Total Team Operating Expenses is associated with 61.1% of the variation in Adjusted Total Directors' Cup Points. As with Total Expenses, this variable was left out of the multiple regression, but again predictive values of operating expenses have also been studied previously.

In a study commissioned by the NCAA, Orszag and Israel (2009) found that, in football and men's basketball, “‘team expenditures’ – a category in which we include recruiting, travel, equipment, and other game-day expenses” (p. 8) – had a significant relationship with both winning percentage and the probability of post-season play. But they were quick to point out an important consideration with that finding:

The relationship between team expenditures and winning percentage may reflect reverse causality, if, for example, more successful seasons lead to an extra (bowl) game and thus also lead to higher expenses [...] However, the reverse causality concern may be larger [in men's basketball], as basketball seasons can be extended several games by making the NCAA tournament, leading to higher team expenditures. (Orszag & Israel, 2009, p.8)

Furthermore, Orszag and Israel found a small predictive value in football expenses, “find[ing] that an extra million dollars of operating expenditure on football is estimated to increase the team's winning percentage by 1.8 percentage points and the chances of finishing in the top 25 of the season ending AP poll by five percentage points” (Orszag & Israel, 2009, p.8). However, statistical significance and practical significance would again have different implications. An extra million dollars is a lot to spend for only a 5% better chance of

finishing in the top 25, and the increase in winning percentage that would be expected to accompany that spending increase is too small, over a 12 to 15 game season, to amount to even one more win. Using this ratio of increase over a 13 game season, it would take an increase of over \$4.2 million to predict one more win, and that spending increase in this case would also predict a 21.4% greater chance of finishing in the top 25. It is important to remember, however, that the investment is the same whether a 6-7 record improves to 7-6, or an 11-2 record improves to 12-1. While some football programs may find these results to be worth the investment, many athletic departments may not be able to justify an increase of that magnitude.

Expenses per Participant

Adjusted Total Directors' Cup Points had a moderate relationship with both Total Operating Expenses per Participant ($r(1864) = .610, p < .001$) and Total Expenses per Participant ($r(1864) = .699, p < .001$). Nearly half (48.9%) of the variance in points earned was associated with variability in Operating Expenses per Participant, and 37.2% of the variance was associated with variability in Total Expenses per Participant. The impetus for examining these two particular variables came from an earlier study.

Yow, Bowden, & Messenger (2000) conducted a study to examine the "cost effectiveness" of the 25 highest point earners in the 1999 Division I Directors' Cup standings in order to see if the top schools spend the most on their athletic programs. Taking financial information from surveys, they rearranged the rankings to reflect expenditures by sport, rather than total points earned, and saw a "significant shift in the rank ordering" (Yow, Bowden, & Messenger, 2000, para. 7). For example, while Duke went from 7th to 1st, and Stanford only dropped from 1st to 3rd, California and Notre Dame each moved up 21 spots

(from 23rd to 2nd, and 25th to 4th respectively), and Florida fell from 4th to 22nd. “Not surprisingly,” they remarked, “economy of scale plays a role in those programs offering a multiplicity of sports. For example, because Stanford sponsors 33 sports, it benefits from some fixed costs shared by all its sports programs, thus lowering the cost per sport” (Yow, Bowden, & Messenger, 2000, para. 8).

This “economy of scale” concept may be more relevant than gross expenses in that it is a way to consider an institution’s peers based on participants rather than money. Also, roster sizes vary between sports, so depending on what sports are sponsored, the number of participants at two “peer” institutions that have the same number of teams could have different numbers of participants, thus different budget constraints. Considering expenses per participant allowed this study to explore predictive values of overall expense data without being concerned about whether our explanatory variables were contributing to each other.

Logically, one might think the number of teams at an institution would influence the number of participants, and thus affect expenses per participant. Interestingly though, in the bivariate correlation analysis, the Total Number of Head Coaches had non-significant relationships with both Operating Expenses per Participant ($R=.997$) and Total Expenses per Participant ($R=.141$). In fact, these two relationships were the only two non-significant correlations in the matrix (see Appendix). Therefore, including expenses per participant in the multiple regression models was deemed appropriate.

When combined with the other explanatory variables, Operating Expenses per Participant was not a significant predictor of points earned and was therefore excluded from subsequent models. On the other hand, this study found that Total Expenses per Participant alone accounted for 30.1% of the variance in Adjusted Total Directors’ Cup Points. Further,

this model predicts 23.8 more “adjusted” points for every \$10,000 increase in Total Expenses per Participant.

But putting this finding into perspective, using 435 participants, the mean in this study, a \$10,000 increase per participant would amount to \$4.35 million overall. In 2011, that immense budget increase would have expected an increase of 36.95 Directors’ Cup points, approximately corresponding with a 35th place finish in a field of 48 (National Association of Collegiate Directors of Athletics, n.d.a). By comparison, a bowl game victory by an unranked team earns 45 points and a first round win in a bracketed NCAA tournament earns no less than 50 points (National Association of Collegiate Directors of Athletics, n.d.a). So again, administrators are left to determine if an investment of that amount is feasible for their department, and if it is advisable in terms of whether the relatively small increase in points earned would actually make a significant contribution to accomplishing departmental goals.

Total Recruiting Expenses

The last of our highly correlated variables ($r(1864) = .766, p < .001$), Total Recruiting Expenses had its variance associated with over half (58.6%) of the variation in points earned. When combined with other variables, recruiting expenses were a larger contributor than the number of head coaches, accounting for 18.9% of the variance in Adjusted Total Directors’ Cup Points. The predictive value of recruiting expenses, though statistically significant, was not substantial. We found that a \$10,000 increase in Total Recruiting Expenses would yield 1.351 more “adjusted” points. Thus, a \$100,000 increase, or a 21% increase over our sample mean (\$467,162.12) would have resulted in almost 21 more Directors’ Cup points in 2011. While it may cost less money than adding another team, the effect is essentially the same in

Directors' Cup points. Being less than the points earned by losing a bowl game or losing in the first round of a bracketed tournament (25 points each), 21 points is the equivalent of a 53rd place finish in a field of 64 (National Association of Collegiate Directors of Athletics, n.d.a).

However, 21 points could be the difference in the performance bonus of an athletic director. According to Drape and Thomas, "Today, at least a dozen athletic directors at big-time sports programs receive bonuses that are tied to performance in the cup" (Drape & Thomas, 2010, para. 20). They go on to name three athletic directors who stand to receive monetary bonuses for a top five finish in the Directors' Cup standings, one of whom would receive \$100,000. Additionally, in the 2011 final standings, the 6th place finisher was only 10.75 points behind the 5th place finisher, so the predictive value of recruiting expenses could be more practically relevant than it initially seems.

It may be said that this same relevance observation could be made concerning the other variables discussed in this study, since other examined variables have predictive values as well. But, considering the smaller investment in recruiting expenses needed to predict a practical effect, increasing recruiting expenses seems to be a more feasible and more cost-effective investment than increased spending in the other areas examined in this study. Still, it remains at the discretion of administrators to determine if they expected outcome of such an investment is worth the cost to help them accomplish their departmental goals.

Average Head Coaches' Salary

A moderate relationship ($r(1864) = .642, p < .001$) exists between Average Head Coaches' Salary and Adjusted Total Directors' Cup Points, with the variance in average salaries being associated with 41.4% of the variance in points earned. Of the four predictors

in our final model, this variable accounted for the least amount of variance in points earned (4.5%), and predicted the lowest increase. Every \$10,000 increase in the average salary of head coaches would only result in an increase of 1.25 “adjusted” points. The mean Total Head Coaches was nearly 17, so if each head coach received a \$10,000 raise in 2011 it would cost the athletic department \$170,000, for which they could expect to earn about two more Directors’ Cup Points, or less than half of the minimum points possible. In other words, according to this model, giving each head coach in the athletic department a \$25,000 raise would only expect an increase in the department the point equivalent of no better than a 65th place finish in one non-bracketed NCAA championship. So, while contrary to previous studies that have found no significant relationship between coaches’ salaries and measures of success (Warner, 2001; Tsitsos & Nixon II, 2012; Orszag & Israel, 2009), the statistically significant relationship identified in this study does not seem to be functionally cost-effective.

Average Assistant Coaches’ Salary

Like all of the other explanatory variables, Average Assistant Coaches’ Salary was significantly correlated with Adjusted Total Directors’ Cup Points, but its relationship was the weakest ($r(1864) = .393$, $p < .001$). Approximately 15.4% of the variance in points earned can be associated with variance in what assistant coaches are paid, but when combined with other variables, Average Assistant Coaches’ Salary is not a significant predictor of Adjusted Total Directors’ Cup Points ($p = .968$). Based on the literature discussed previously, this is not surprising. That literature focused on football assistants, particularly offensive and defensive coordinators (Berkowitz, 2010; Wieberg, et al., 2009), but these coaches’ salaries are only a relative few when pooled with all the other teams’

assistant coaches. If assistants' salaries department-wide also increase over time, following the trend set by football assistants, this may be an interesting variable to revisit.

Future Research

As this study only analyzed overall departmental data with total Directors' Cup points, future research could examine whether or not similar relationships exist within and between gender groups, or NCAA Division I classifications. Contributions of specific sports to Directors' Cup totals would be interesting to study as well.

The sample in this study was comprised of eight years of data combined. Future studies could examine trends, changes, and differences over time. The data set could be expanded as well to include all Division I institutions, and more variables (e.g. capital expenditures, revenue) could be included.

Conclusions

This study supports the existence of statistically significant relationships between Directors' Cup points and department-wide expense variables. Though the strength of the correlations differed, every variable analyzed was significantly related to Directors Cup Points. But while this study revealed statistically significant correlations between spending and one measure of athletic success, it would be wise to remember that correlation is not causation. In other words, while the correlation is strong, it cannot be concluded that increased spending directly causes an increase in Directors' Cup points. Thus, there is no guarantee that increased spending in any of the areas examined will actually result in greater competitive success. This should not be surprising, given the nature of athletics. As one coach noted:

“At the end of the day [...] games are decided between the lines. They're not decided by budget sheets. When we played last year against teams with bigger budgets, I can

guarantee you our kids didn't care, and our coaches didn't care." (Adelson, 2012, para. 14)

Another coach agreed, "When you roll the ball out to play, having a bigger budget doesn't give you any more points. The starting score is still 0-0" (Adelson, 2012, para. 27).

Nevertheless, significant statistical findings should not be ignored. Speaking to the ramifications of finding significant correlations, the author of a study similar to this one concluded, "If, as the results of this study indicate, spending is correlated with winning, then athletic directors at the FBS level would be expected to spend more on their athletic programs if given the opportunity" (Jones, 2012, p.18). While we agree that administrators look to maximize opportunities for their teams' success, as they should, we would caution them against using our findings as a justification to spend more in the categories we've discussed. In essence, regardless of the overwhelming statistical significance of our analyses, their applicability to the "real world" of intercollegiate athletics may be dependent on an athletic department's philosophy, goals, and resources. After a practical analysis of our statistical findings, we conclude that a thorough cost-benefit analysis is warranted before labeling our findings "significant."

Appendix

Bivariate Correlation Matrix

	ADJ DC	RECRT	HC AVG	AC AVG	TOTOEXP	HC TOT	TOTPAR	OPEXPER	TOTEXPER	TOT EXP
Adjusted Total Director's Cup Points ADJ DC	1	.766** 1866	.642** 1866	.393** 1866	.782** 1866	.425** 1866	.557** 1866	.610** 1866	.699** 1866	.838** 1866
Total Recruiting Expenses RECRT	.766** 1866	1	.748** 1866	.463** 1866	.830** 1866	.384** 1866	.569** 1866	.726** 1866	.807** 1866	.875** 1866
Average Head Coaches' Salary HC AVE	.642** 1866	.748** 1866	1	.668** 1866	.784** 1866	.094** 1866	.325** 1866	.756** 1866	.833** 1866	.823** 1866
Average Assistant Coaches' Salary AC AVE	.393** 1866	.463** 1866	.748** 1866	1	.451** 1866	.079** 1866	.194** 1866	.443** 1866	.482** 1866	.473** 1866
Total Operating (Game Day) Expenses TOTOEXP	.782** 1866	.830** 1866	.784** 1866	.451** 1866	1	.318** 1866	.537** 1866	.888** 1866	.808** 1866	.914** 1866
Total # Head Coaches (# Teams) HC TOT	.425** 1866	.384** 1866	.094** 1866	.079** 1866	.318** 1866	1	.842** 1866	.000 1866	.034 1866	.335** 1866
Total Participants TOTPAR	.557** 1866	.569** 1866	.325** 1866	.194** 1866	.537** 1866	.842** 1866	1	.179** 1866	.211** 1866	.544** 1866
Operating Expenses per Participant OPEXPER	.610** 1866	.726** 1866	.756** 1866	.443** 1866	.888** 1866	.000 1866	.179** 1866	1	.859** 1866	.772** 1866
Total Expenses per Participant TOTEXPER	.699** 1866	.807** 1866	.833** 1866	.482** 1866	.808** 1866	.034 1866	.211** 1866	.859** 1866	1	.900** 1866
Total Expenses TOT EXP	.838** 1866	.875** 1866	.823** 1866	.473** 1866	.914** 1866	.335** 1866	.544** 1866	.772** 1866	.900** 1866	1

** . Correlation is significant at the 0.01 level (2-tailed).

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