How Does the Amount of Spending on Coaches' Salaries and Recruiting Budgets Affect Win Percentage in College Football?

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How Does Spending Affect Winning in College Football

How Does the Amount of Spending on Coaches’ Salaries and Recruiting Budgets Affect Win Percentage in College Football?

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Abstract

College football has become much more than a sport for the athletes who play it and entertainment for the fans who watch it. In college football, especially for Football Bowl Subdivision (FBS) schools, winning has become a way to make money. However, in order to make money, people must spend money. In a college football program money is spent on a multitude of things. This study focuses on two important factors, coaches’ salaries and recruiting budgets. Specifically, this study looked to find out how the amount of spending on coaches’ salaries and recruiting budgets affected win percentage in college football. Correlational tests, including a t-test and Pearson Correlation, helped determine if spending more money on coaches’ salaries and recruiting budgets helps schools win more games. The results indicated that in 2010 both coaches’ salaries and recruiting budgets were significant contributing factors in regards to winning percentage, but in 2011 only coaches’ salaries was significant. The possible reasons for these differences and the implications this study could have on college football are presented in the data and analysis below.

Introduction

Many previous studies have been done on college football and what contributes to a winning team; however, most of the studies do not include multiple variables in their data. Coaches’ salaries and recruiting budgets have been looked at individually in respect to winning and importance, but not together. Looking at these two variables side by side allows for a more comprehensive and complex study into the world of spending money and winning in college football. The goal of this study was to look at both variables together to further the findings of previous researchers and find how spending more money affects win percentage in college football. The hypothesis is that the results will indicate both variables help boost win percentage.

Literature Review

Winning a college football game includes a lot of different factors ranging from players to coaches to pure luck. The two chosen factors examined in this study were coaches’ salaries and recruiting budgets. These are not the only things that should be considered when predicting
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winning; however, for the purpose of this study these two variables, coaches’ salaries and recruiting budgets, were looked at in greater detail. The problem is that these variables are also very complex. One of the main ideas found a few times in previous researchers’ work, was that recruiting budgets and coaches’ salaries may be on a never ending cycle. The idea that you have to spend money in order to make money can also apply to winning. Teams have to be winning in order to attract other players and coaches who are going to also help them win (Langelett, 2003). But it is easier said than done. Spending money, however, has been proven to help get teams there and keep them there (Caro, 2012).

Coaches’ Salaries

Knowing what makes up a coach’s salary will make it easier to understand coaches’ salaries and how it can affect winning in college football. According to USA Today (2013), there are four main categories that make up a FBS coach’s salary. These categories include school pay, other pay, maximum bonus, and buyouts. School pay is the base salary the coach gets paid from the school. This money also includes payments that are guaranteed by affiliated organizations like apparel, television or radio contracts, as well as payments given if predetermined attendance numbers and tickets sales are reached. Other pay is any pay that is not guaranteed by the university. These figures come from an athletically related outside-income report made by the coaches themselves. This could include things like media appearances, speaking engagements, or non-institutional sports clinics (University of Notre Dame Department of Athletics, 2010). The third category is maximum bonus. Examples of which include but are not limited to how much money can be made if the team reaches all of its on-field performance goals like championships, bowl appearances, or total wins. Lastly, buyouts are paid on behalf of new coaching hires. This is money that the school pays to the coach’s previous university for terminating his contract. This
report also lists the staff pay as a separate category which is the total of all assistant coaches’ salaries (USA Today, 2013). All of these categories together make up what a FBS college football coach’s salary consists.

A college football coach’s salary can be decided by many factors, and because of this Division I coaches’ salaries have an extremely wide range of pay. Currently in 2013, the highest paid coaches are getting over $5 million, while the lowest paid are getting less than $400,000 (Berkowitz, Upton, Schnaars, Dougherty, 2013). Some of the highest paid coaches include Nick Saban at Alabama making $5,545,852, Mack Brown at Texas making $5,453,750, and Bret Bielema at Arkansas making $5,158,863. A few of the lowest paid coaches include Larry Coker at Texas San Antonio making $351,150, Jeff Quinn at Buffalo making $325,000, and Todd Berry at Louisiana Monroe making $288,268 (Berkowitz et al., 2013). All of these men are doing the same thing, coaching college football. So what makes this discrepancy in pay so big?

Byrd, Mixon, and Wright (2013) from Troy University examined the connection between performance and salary for the head football coach. While performance was a main contributing factor to coaches’ pay, there were a lot of other factors found that affected salaries. Some of these included revenue generated by the program, number of wins in the current year, the number of final Associated Press Poll Top 25 rankings, school size, and coaching a bowl automatic qualifying team. The results of the study found that 5 factors were positive impacts in determining a head football coach’s salary. These factors were revenue generated, coaching a bowl automatic qualifying team, years of experience, bowl appearances, and the athletic department size (school size) (Byrd et al., 2013).

All of these factors influence how much a head football coach is paid. This relates back to the purpose of this study, by examining if paying a coach more money helps his team win
more. The study done by Byrd et al. (2013) helps prove the theory that it is an endless cycle. One of the main factors of pay was bowl appearances, and in order to make a bowl game, the team has to have ranked in the top portion of winning programs. Therefore, coaches who are paid higher salaries win more, and winning more helps coaches get paid more.

**Recruiting Budgets**

Recruiting is defined by Dumond, Lynch, and Platania (2007) as the effort by colleges and universities to attract new players. In college football this is a long, complicated, and extensive process. There are a multitude of rules that have to be followed and are strictly enforced. Colleges and universities are vying for the attention of athletes all over the country. This process can also be expensive. When schools start going after high school students after their junior year, the food, travel, and lodging expenses can add up quickly (Dumond et al., 2007). When a school has a higher recruiting budget, this can allow their recruiting team the opportunity to go after better players.

In order to recruit better talent, a school’s recruiting team can use a higher budget to travel farther in search of prospective student-athletes. They can spend more money per athlete, meaning more frequent and higher quality visits for or to the prospective athlete. A college can also increase the number of overall recruits they expend money on. The more money a school has, the better chance they have at bringing in the better athletes. Caro (2012) researched the relationship between recruiting and winning. The study states that good recruiting does help teams win. Caro also says that spending money on recruiting is vital in being able to having success in the sport of football (Caro, 2012).

There are some researchers who disagree with the findings of Caro. A study discussed by Dumond et al. (2007), found that major college football programs in an area with less
competition did a better job of recruiting. This suggests that schools closest to the highest quality recruits were the most successful in recruiting them. This was because the schools were closer to the prospective athletes and could spend less money contacting and visiting the players (Dumond et al., 2007). That being said, Caro (2012) does a great job in disputing these findings by creating a formula called average recruiting stars. The formula had variables for the athletes like height, weight, and speed. The most talented players should have the highest recruiting star rating. The Bowl Championship Series conferences were looked at to find their overall recruiting star ratings. Regression analysis then helped prove that for many conferences there was a positive correlation between their average recruiting stars and winning. The results showed that the conferences with the best recruiting won national championships, and that conferences with better average recruiting stars won more (Caro, 2012). Therefore college football programs need to focus more attention and funds on recruiting in order to win.

There are other studies that agree with Caro’s findings. Langelett (2003) also found that recruiting significantly affects team performance over the next five years after a recruiting class has been signed. This leads to the conclusion that teams who get better recruits will perform better, and those with worse recruits will perform more poorly. But Langelett (2003) also states that recruiting goes in a continuous circle, and teams that finish in the top 25 are going to get better recruits. These results show that better recruits equal better teams, and better teams equal better recruits. This could help explain why many of the top teams will stay at the top, and inferior teams will have a harder time fighting their way up the totem pole. These findings just magnify that point made by Caro that, “The ability to attract and sign the best high-school football players is an important piece of the success formula” (2012).
Coaches’ salaries and recruiting budgets are important parts of winning in college football. Both of these variables can help bring in the best coaches and players in the country. The purpose of this study was to find out how the amount of money spent on coaches’ salaries and recruiting budgets affects winning in college football. The following is an explanation of the study and its results.

Methods

Data Collection

Data for this study was gathered from three main sources. Coaches’ salaries were found on USA Today’s database online which lists all available FBS coaches and their salaries for many years past. Recruiting budgets were found on ESPN’s website in an article titled “Balancing the Recruiting Budget” which lists numbers for the 99 schools who reported them in the years 2010 and 2011. Teams’ win/loss records and win percentages were found on the National Collegiate Athletic Association’s (NCAA) website. The data were researched and found during the fall of 2013. Once reviewed the data were then entered into two separate Excel spreadsheets for the years 2010 and 2011. Teams were categorized in the spreadsheets by current conference affiliation.

Only two years of data with information strictly from FBS schools were collected. The main reason for both of these was availability of data. Coaches’ salaries and win/loss records were found for many more years than 2010 and 2011; however, finding recruiting budget numbers was much more difficult. The article from ESPN, “Balancing the Recruiting Budget”, was the only place found that listed the recruiting budget for specifically the sport of football. Other sources with recruiting numbers had all male sports combined for their total athletic recruiting budget. Trying to find data for Football Championship Subdivision (FCS) teams was
not as convenient. None of the same sources for FBS teams had the similar data listed for FCS teams. Finding more years of data and including FCS teams would add a lot to this study, but was not able to be accomplished.

**Participants**

While as much data was collected as possible for the 125 FBS teams, tests were only run on the 97 schools that had all categories of the data. Many schools do not have to report their data, like private schools or schools in Pennsylvania. Private universities like Notre Dame and Stanford do not have to submit the same reports as public schools. They send information to the U.S. Department of Education which requires less data. Pennsylvania has laws that do not require the same amount of data be reported for public schools (Sherman, 2012). All other public Division I universities must submit their financial records every January to the NCAA, which is where much of this study’s data was gathered (Sherman, 2012).

**Data Analysis**

Descriptive and inferential statistics were used to examine both coaches’ salaries and recruiting budgets. Descriptive statistics are only for analyzing the data gathered and help summarize or find patterns (Laerd, 2013). Descriptive statistics were used to create a clearer picture of both variables for all of the schools. The mean and standard deviation were found for both years of data. These are called measures of spread which summarize this study’s data. Inferential statistics use the data from samples to make generalizations about the entire population (Laerd, 2013). The sample in this study is the list of schools that provided all necessary data, while the results are generalized for all FBS schools, or the population. Inferential statistics were used to determine if a significant difference was found between
coaches’ salaries and recruiting budgets. The inferential statistics used in this study were a t-test and a Pearson Correlation.

A t-test was run to show the significance of the difference between the means of two correlated variables, in this case coaches’ salaries and recruiting budgets. A 2-tailed test was run because the results would be interesting if they turned out positive or negative (Stockburger, n.d.). The significance is shown by the value of $p$. A variable is considered significant if its $p$ value is .05 or less. The $p$ stands for the probability that the null hypothesis is true. A Pearson Correlation was run to find out the relationship between two quantitative sets of data. It measures the strength of the linear relationship between two variables. In this study, coaches’ salaries, recruiting budgets, and win percentage were all tested against each other. Pearson Correlation is shown by the value of $r$. $r$ values can range from 1 to -1 and a value of 0 means there is no correlation between the variables. Values from 0 to 1 indicate a positive correlation, while values from 0 to -1 indicate a negative correlation (Laerd, 2013).

**Results**

In the year 2010, the average coach’s salary for the 97 schools was $1,381,797.18. The standard deviation was 1,141,150.87. The average recruiting budget was $293,484.93. The standard deviation was 192,706.87. The average win percentage was .51 and standard deviation was .230. For coaches’ salaries in correlation with win percentage, $r = .455$ and $p < .000$. $r$ is significant at the 0.01 level which means there is a less than 1% chance the null hypothesis is wrong. For recruiting budgets in correlation with win percentage, $r = .232$ and $p = .022$. $r$ is significant at the 0.05 level which means there is a less than 5% chance the null hypothesis is wrong. For recruiting budgets in correlation with coaches’ salaries, $r = .540$ and $p < .000$. $r$ is significant at the 0.01 level. Table 1 displays the data for 2010.
Table 1:

<table>
<thead>
<tr>
<th>2010 Results</th>
<th>Coaches’ salaries</th>
<th>Recruiting Budget</th>
<th>Win Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaches’ Salaries: Pearson Correlation Sig. (2- tailed)</td>
<td>1</td>
<td>.540**</td>
<td>.455**</td>
</tr>
<tr>
<td>Recruiting Budget: Pearson Correlation Sig. (2- tailed)</td>
<td>.540**</td>
<td>1</td>
<td>.232*</td>
</tr>
<tr>
<td>Win Percentage: Pearson Correlation Sig. (2- tailed)</td>
<td>.455**</td>
<td>.232*</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

In the year 2011, the average coach’s salary for the 97 schools was $1,497,930.89. The standard deviation was 1,129,148.231. The average recruiting budget was $321,473.43. The standard deviation was 220,378.38. The average win percentage was .52 and standard deviation was .227. For coaches’ salaries in correlation with win percentage, \( r = .444 \) and \( p < .000 \). \( r \) is significant at the 0.01 level. For recruiting budgets in correlation with win percentage, \( r = .133 \) and \( p = .193 \). \( r \) is not significant. For recruiting budgets in correlation with coaches’ salaries, \( r = .594 \) and \( p < .000 \). \( r \) is significant at the 0.01 level. Table 2 displays the data for 2011.

Table 2:

<table>
<thead>
<tr>
<th>2011 Results</th>
<th>Coaches’ salaries</th>
<th>Recruiting Budget</th>
<th>Win Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaches’ Salaries: Pearson Correlation Sig. (2- tailed)</td>
<td>1</td>
<td>.594**</td>
<td>.444**</td>
</tr>
<tr>
<td>Recruiting Budget: Pearson Correlation Sig. (2- tailed)</td>
<td>.594**</td>
<td>1</td>
<td>.133</td>
</tr>
<tr>
<td>Win Percentage: Pearson Correlation Sig. (2- tailed)</td>
<td>.444**</td>
<td>.133</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level

The following charts show the averages for each conference for coaches’ salaries, recruiting budgets, and win percentage for 2010 and 2011. These figures can help show the substantial differences between conferences. While the main purpose of this study was not to see
these specific figures, this data can help to better understand what a difference conference affiliation can make. The conferences with the highest average salaries and recruiting budgets are the ACC, Big 12, Big Ten, and SEC for both years. These conferences are also in the top half for win percentages for both years. This could help explain why coaches’ salaries and recruiting budgets are shown to be significantly positively correlated in the previous tables.
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Recruiting Budgets

Win Percentages

2010  2011
Discussion

The results of this study render the null hypothesis to be incorrect and in reality spending more money on coaches’ salaries and recruiting budgets positively affects winning percentage in college football. In the year 2010, both variables were positively significant. This means that coaches’ salaries and recruiting budgets both aided teams in winning; however, in 2011 only coaches’ salaries was significant. Recruiting budgets was not significant. One of the main reasons that this change in significance could have occurred is through head coaching changes.

This study found a statistical link between more money being spent on coaches’ salaries and recruiting budgets and winning percentage in FBS college football teams. In the year 2010, both variables were significant, but in 2011 recruiting budget was not. One reason that this shift could have occurred is through coaching changes. Some major head coaching changes that happened from the 2010 to the 2011 season included Will Muschamp replacing Urban Meyer at Florida, Kevin Wilson replacing Bill Lynch at Indiana, and Randy Edsall replacing Ralph Friedgen at Maryland (ESPN, 2011). Head coaches are the face of a college football’s team and administrative staff. They have the final say in all decision making when it comes to the field. Head coaches are also a major part of the recruiting process.

When a high school player is being recruited, he may have several different colleges that are interested in him. A variety of factors will go into his deciding which school is right for him, but a large part of that decision involves the head coach. A player must feel a sense of commitment from the coach. Over that long period of time being in contact with prospective athletes, coaches begin to form relationships with the athletes. If a head coach decides to leave his team or gets fired, that relationship with those prospective athletes is no longer the same. The player may then decide to attend another college because its head coach is still there. This means
a new head coach could potentially lose the best recruits that school has been pursuing. All of the consequences of changing a head coach could help explain why the recruiting budget was not shown to be significant in 2011.

Some head coaching changes that occurred between the 2010 and 2011 college football season can help showcase these findings. Of the 21 new head coaches for the 2011 season, nine of them had teams with losing records. Those nine losing teams included Colorado, Connecticut, Indiana, Kent State, Maryland, Miami of Ohio, North Texas, Minnesota, and Pittsburgh (NCAA, 2011). Plus a few teams, including Miami (FL) and Ball State, had only a .500 win percentage (NCAA, 2011). While not all of these losing seasons could be attributed to the same thing, many of them could have been caused by the ripple effect that a new head coach can cause. These teams may have lost some of their most sought after recruits because of a coaching change. This in turn could have led to a decline in talent level which led to more losses. Coaching changes can also affect future years, because a new coach may not be given the same amount of money for a recruiting budget that previous coaches were given. A lower budget could tie the new coach’s hands for what options he really has in recruiting the best possible players. Therefore, it is possible that the recruiting budget did not positively impact winning percentage in 2011 because of coaching changes.

Many times a new coach is hired because a team is doing poorly, and schools think that a new coach will be able to turn a program around with a new perspective and game plan; however, this has been shown not to be the case. A study done on the effects of replacing coaches found that teams who hire a new coach because of poor performance will actually do worse than similar teams who keep their coaches. The study stated that changing a coach is merely a symbolic act and poor performance can be attributed to many different factors. Some of
these factors included quality of opponents and loss of key players (Adler, Berry, Doherty, 2012).

**Improvements**

This study does have some weaknesses that could be improved. If this study were to be done again, it would be beneficial to make three important changes. The first would be to add more years of data. The more years of data that can be collected, the better the results will be in determining an overall reliable correlation between the variables. Next, would be to look at significant rule changes that may have occurred for the recruiting process over the period of time on which the study focuses on. If there were some major differences in recruiting these could have impacted and altered the results. Lastly would be to come up with a more complex multivariate model that includes not only coaches’ salaries and recruiting budgets but coaching changes as well. These changes could help greatly improve this study.

Consequently, it was found that coaches’ salaries are correlated to win percentage. Recruiting budgets only positively affected win percentage in 2010 and did not impact win percentage as much as coaches’ salaries. This is thought to be the result of the effects of head coaching changes. This study indicates that coaches’ salaries and recruiting budgets are integral parts of being a winning program, but coaches’ salaries may be more strongly correlated to win percentage. FBS college football programs, as well as other sports and divisions, could use these results to take into consideration how they spend their athletic budgets. If winning is their ultimate goal, it seems that it would behoove them to spend more money to hire the best coaches, spend more time and money on their best recruits, and not make immediate coaching changes when things are not perfect.
References


This study completed by three professors looked at how coaching changes affected team performance in college football. Three different types of tests were run, including two types of matching and a regression analysis, on data that was compiled on teams from 1997 to 2010. The data was collected only on head coaching changes. In the end the researchers found that teams who were already performing poorly were not affected much by the coaching change; however, teams that were more middle of the road in performance were negatively affected by the coaching change compared to teams that kept their head coach. Their conclusions stated that hiring a new coach because of poor performance may not always be the best choice.


Football Bowl Subdivision college head coaches’ salaries were retrieved from this site. *USA Today*’s database with a list of all teams, their coaches, and coaches’ salaries when available was a great source of data. Each school differed, but many of them had multiple years and salaries listed for their coaches; however, some schools (sixteen) did not have salaries listed. This could be for a few reasons including being private or
independent schools that do not have to report data.


This case study was about finding out how pay for college head football coaches affects performance. Two different equations were used in regression analysis in order to obtain the results of this study. The researchers from Troy University found that there were a lot of factors that contributed to coaches’ pay and therefore better performance. These factors included revenue generated, years of experience, athletic department (school) size, bowl appearances, and coaching a bowl automatic qualifying team. It was found that the better all of these factors were the greater the coach’s pay was.


Recruiting is a main part of being successful in the sport of football. Caro helps prove this in his study on the relationship between recruiting and winning in college football. Only FBS bowl automatic qualifying conferences were examined in the study. Data on recruiting were collected for 2004 to 2009 and conference records for 2005 to 2010. Regression analysis was used to find the results that teams in the Southeastern
Conference, the Big Ten, and the Big Twelve could contribute 63% to 80% of their success to recruiting. Recruiting was found to affect winning.


This article looks at the recruiting process from a player’s point of view. It talks about what factors the recruits take into consideration when trying to decide which school to attend. The researchers put together a few equations to come up with their results. Some of their variables for the decision making process include geographic location of the school, if the school is in a BCS conference, and its football rankings. The study also found that playing time and academics are important parts of the recruits’ decision.


This article from ESPN is just a listing of the head coaching changes that happened from the 2010 season to the 2011 season. The chart includes the name of the school, the former coach from the 2010 season, and the new coach for the 2011 season. There are 21 coaching changes recorded for FBS schools that year.

The difference between descriptive and inferential statistics is explained in this article. Just describing the data and looking for patterns is done with descriptive statistics. Making generalizations about an entire population using a sample is done with inferential statistics. The article also includes answers to some frequently asked questions about these two types of statistics including things like their similarities and limitations.


The Pearson product-moment correlation test is described and explained in this article. Multiple parts of the test are described including values, variables, strength of the relationship between variables, the slope of the line, outliers, and significance. Many graphs are labeled well and color coded to help ensure the reader understands the article’s material.


This study done by Langelett is about how recruiting affects team performance in football. He believes that recruiting and performance both affect each other. So two equations are made, one including the factor that team performance affects recruiting and one without. Regression analysis is used to find his ultimate results that recruiting and team performance are on a continuous circle. With better recruits come
better teams, but better teams can acquire better recruits. Langelett comes to the conclusion that this may be why good teams stay at the top, and bad teams have a hard time clawing their way out of the bottom.


The NCAA has a whole database of football statistics for all levels of collegiate football including FBS, FCS, Division II, and Division III. This specific report came under the NCAA Leaders section and includes all of the wins, losses, ties, and win percentage for all FBS teams. I looked at the 2010 and 2011 results.


This article by ESPN lists FBS schools and their recruiting budgets for the 2010 and 2011 fiscal years. Only 99 of the 120 schools reported budget numbers. The other 21 schools did not report numbers because they are either in Pennsylvania or private schools; neither of which have to submit the same reports as public schools elsewhere. Multiple parts of recruiting and budgeting are discussed, as well as how they are affected by things like coaching changes and scholarships.

A t-test is run to show the significance of the difference between the means of two correlated variables. There are one and two-tailed t-tests. Stockburger explains the difference between a one and two-tailed t-test in this article. If the results are exciting only if they come out in a certain direction, then a one-tailed test is used. If the results are fascinating in either the positive or negative direction, then a two-tailed test is used. Stockburger also uses graphs in his article to further explain the two types of t-tests.


This article from the Athletics Compliance Office at the University of Notre Dame helps define the who, what, and when aspects of an athletically-related outside income report. It explains that all non-clerical staff must turn in a report. It also has a specific deadline for when the report is due for that year. Some of the most important information of the article describes what should or should not be included on the report.


This article by *USA Today* accompanies their database of college football’s coaches’ salaries. It explains each category that coaches could possibly be making money from. There are 4 categories that could comprise the total pay for each head coach including school pay, other pay, maximum bonus, and buyouts. Total staff pay for assistant coaches is given in the report as well.