January 2015

NCAA Division I-FBS Salary Determinants: A Look at New and Amended Contracts

Kellyn Fogarty
Mansfield Oil

Brian P. Soebbing
Louisiana State University

Kwame J.A. Agyemang
Louisiana State University

Follow this and additional works at: https://scholarcommons.sc.edu/jiia

NCAA Division I-FBS Salary Determinants: A Look at New and Amended Contracts

_____

Kellyn Fogarty
Mansfield Oil

Brian P. Soebbing, PhD
Louisiana State University

Kwame J. A. Agyemang, PhD
Louisiana State University

_____

Similar to executive compensation, college head football coaches' compensation receive scrutiny from both society and the academic community. Previous literature examining coaching salary determinants analyzed the individual's wage for each year. Unlike previous research which examined all seasons of compensation, the present research only looks at the initial season of new and amended coaching contracts from 2007 through 2010. Results indicated higher actual performance compared to expected performance both in the previous year and over the past five years led to an increase in total compensation. Also, non-performance characteristics such as market size and other university characteristics lead to an increase in compensation.

Keywords: coaching contracts; total compensation; performance appraisal; NCAA

The compensation of executives and other top management officials garnered significant attention from scholars across several academic disciplines (Gerhart & Fang, 2014; Jeppson, Smith, & Stone, 2009; van Essen, Heugens, Otten, & Oosterhout, 2012). Within the last few years, scrutiny has arguably reached an all-time high due to consumer distaste with the sizeable compensation packages afforded to executives during economic downturns and government bailouts (Callan & Thomas, 2012). Such is the intensity that public companies are now asked to report ratios between CEO pay and worker pay under the Dodd-Frank law (Smith & Kuntz, 2013). Moreover, a recent poll found that 66 percent of Americans believe executive remuneration packages are too high (Moore, 2014).

Given that sport is often considered a microcosm of society, it is no surprise the same issues exist within the sport industry. Executive compensation is also a concern in sport contexts (Farmer & Pecorino, 2010); in this case, it may pertain to coaches' compensation packages. For instance, at the National Collegiate Athletic Association (NCAA) Division I-Football Bowl Subdivision (FBS) level, head coaching salaries continue to escalate, much to the chagrin of faculty and other stakeholders (Brady, Berkowitz, & Upton, 2012). Similar to the occurrences described above, the increasing salaries come during economic hardships. To illustrate, colleges and universities have been forced to reduce funding, ultimately leading to faculty layoffs (Inoue, Plehn-Dujowich, Kent, & Swanson, 2013). To justify the rate at which head coaching salaries rise, proponents typically cite increased wages being solely due to good performance. Farmer and Pecorino (2010) also said that coaches are paid a high wage due to players not being compensated at their market rate. Thus, coaches end up going to the teams that offer him the highest wage.

Cunningham and Dixon (2003) provided a theoretical framework in which to evaluate college head coach performance taking into account on- and off-field performance. Past empirical research has examined different components of this model with mixed results related to head football salary determinants. Inoue et al. (2013) found that most of the compensation for head football coaches for the 2006-2007 seasons was due to on-field performance. However, specific human capital factors also influenced a coach's compensation. Byrd, Mixon, and Wright (2013) found over a sample of six years of compensation data for Division I-FBS coaches that the size of the organization was the most important variable in determining compensation. Finally, Grant, Leadley, and Zygmont (2013) examined coaching compensation from 2006 through 2010 and found coach and firm specific variables influenced compensation.

Most studies looking at coaches and players compensation, including the Inoue et al. (2013), Byrd et al. (2013) and Grant et al. (2013), examine the individual's wage for each year and regress the wage on a variety of performance, human capital, and firm variables. As multi-year contracts are popular in professional and college sport, Jenkins (1996) noted this approach may be problematic as the assumption is that players and coaches sign new contracts prior to each season. Thus, Jenkins advocated for researchers to examine compensation only in the initial year of a contract in order to more accurately examine determinants of compensation. As a result, the present research examines Division I-FBS coaching salary determinants of new and amended coaching contracts during the period of 2007 and 2010. Our analysis found 172 new or amended coaching contracts during this sample period. Estimating a regression model controlling for various factors regarding performance, university characteristics, and individual

characteristics, our results find performance and non-performance factors influence a football coach's compensation.

We believe our contribution to the existing literature is four-fold. First, the use of only the beginning new and amended contracts for coaches compared to all seasons for all coaches is something that previous research has not used. Second, the incorporation of reference groups within the college coaching literature as an explanatory variable. The third contribution is the incorporation of performance expectations in examining on-field performance and the subsequent impact on compensation. Finally, the present research more thoroughly examines the framework designed by Cunningham and Dixon (2003) that looked at appraising the performance of college coaches.

Theoretical Framework and Literature Review

As Gerhardt and Fang (2014) stated, "[t]heories of compensation (e.g., reinforcement, expectancy, efficiency wage, agency) largely agree that incentives and reinforcement (central to any PFIP plan) are key drivers of important workplace behaviors such as employee performance and employee attraction/retention" (p. 42). Barkema and Gomez-Mejia (1998) lamented scholars' ability to study alternative explanations for executive compensation. Consequently, they formulated a general framework for understanding determinants of executive compensation. The authors divide this framework into criteria, governance, and contingencies. Criteria consist of performance, firm size, market forces, peer compensation, individual characteristics, and the executive's role or position (cf. Gomez-Mejia & Wiseman, 1997). Next, governance is comprised of ownership structure, board of directors, remuneration committee, market for corporate control, and the general public. Lastly, the authors mentioned numerous contingency factors that help to determine executive pay: strategy, research and development level, market growth, demand instability, industry regulation, national culture, and tax system.

While executive compensation has received considerable attention in the literature along these areas of inquiry, little work has been conducted within the sports context. Frick and Simmons (2008) conducted a study on the impact of managerial quality. Using a data set of German Bundesliga coaches, they found hiring better quality coaches increases a team's chance of achieving higher point totals; however, their results also showed higher point total did not translate to increased pay. Meanwhile, Kahn's (2006) study of black coaches in the National Basketball Association (NBA) found small but statistically insignificant results, while Smart et al's (2008) study within the Major League Baseball (MLB) also provided similar results.

The previous literature examining performance appraisal and salary determinants provides researchers with opportunities to build upon the prior research, particularly using college athletics as an empirical setting. Early research by Putler and Wolfe (1999) interviewed individuals regarding athletic department program outcomes. Their results revealed four major program outcomes: education, winning, ethics, and revenues. Cunningham and Dixon (2003) provided a theoretical framework for performance appraisals to evaluate coaches in intercollegiate sport. The framework included six dimensions, specifically athletic outcomes, team academic outcomes, ethical behavior, fiscal responsibility, recruit-signee quality, and athlete satisfaction. The authors argued NCAA member institutions should consider these factors when evaluating coaches. Research by Rocha and Turner (2008) examined how coaches' commitment and citizenship behaviors impacted these performance factors suggested by Cunningham and Dixon (2003). Surveying close to 250 Division I coaches, Rocha and Turner

(2008) found these behaviors had little impact on effectiveness across these performance dimensions.

Empirical research has looked at the total compensation of coaches within college sport settings. Humphreys (2000) investigated compensation of male and female Division I basketball coaches. Along with his finding that female coaches are paid more than their male counterparts within women's basketball, his analysis suggested better on-court performance lead to an increase in base salary of coaches. He also found that coaching experience did not influence base salaries. Wilson, Schrager, Burke, Hawkins, and Gauntt (2011) examined performance bonuses for the 65 of the men's basketball teams that made the 2009 NCAA Division I basketball tournament. Content analysis revealed far more incentives were provided for athletic success than academic success. These bonuses for athletic success were for postseason appearances and success within the basketball postseason along with receiving honors as coach of the year both in the conference and nationally. Academic bonuses would be earned by achieving graduation percentage, team grade point average, and from meeting a minimum score on the NCAA's Academic Progress Rate (APR) metric.

While the previous research examined college basketball coaching compensation, more recent work has examined college football coaching compensation. Inoue et al. (2013) found in their analysis of FBS head football coaches in 2006-2007 that total compensation improved with past performance. Furthermore, they found that coaching a Division I Football Bowl Subdivision (FBS) program into a Bowl Championship Series (BCS) Automatic Qualifying event lead to a positive increase in salary. However, career coaching experience was not significant for their sample period. Grant et al.'s (2013) examined head coaching salary determinants between 2006 and 2010. Similar to Inoue et al. (2013), Grant et al. (2013) found that a higher lifetime winning percentage increased total compensation of the head football coach. Winning percentage in the previous season did not affect compensation. They also found that recruiting success, career head coaching experience and revenue generated by the program increased compensation. However, a better graduation rate led to a decrease in compensation while the APR metric did not influence compensation. Finally, Byrd et al. (2013) examined college football head coaching salaries from 2006 through 2012. Their analysis found that on-field performance in the previous season or during a coach's college head coaching career effected compensation. However, total bowl appearances, coaching experience, revenues generated, and coaching at an automatic qualifying institution had a positive and significant effect on coaching salaries.

In summary, previous research looking at executive compensation encouraged future research to focus on other influences besides performance. Within the college sports setting, research by both Putler and Wolfe (1999) and Cunningham and Dixon (2003) looked at areas where college coaches are appraised in terms of their performance. Recent empirical research examining college coaching compensation found other influences such as firm characteristics that influence a coach's compensation besides performance. However, the previous research failed to incorporate many of the dimensions that Cunningham and Dixon (2003) described as important to fully examine a coach's performance. The present research seeks to build off this prior research on coaching compensation by looking at these various factors that influence compensation. Contrary to previous research which examined all coaching observations during the sample period, the present research specifically looks at compensation determinants in the first season of a new or amended contract.

Method

Data Collection

Jenkins (1996) stated the importance of examining compensation in the first year of new contracts as compensation in future years may not be predicated on updated performance variables. Thus, we examine head football coaching compensation from new and amended contracts during the period of 2007 through 2010. This time period covers the period in which *USA Today* made publicly available the coaching contracts. The unit of observation is a coach-season. Data regarding total compensation was gathered from the *USA Today* NCAA coaching salary database. The website defines total pay as the "sum of university and non-university compensation" (*USA Today* Sports, 2014, n.p.). During this time period, *USA Today* posted some of the coaching contracts, which allowed us to examine whether the coach's contract was either a new contract or an amended contract.

The dependent variable is the log of a coach's real total compensation for the observed year (*LNCOMP*). The use of logarithms is important in salary equations in sport due to the nonlinearity brought on by high earning individuals (Scully, 1974). The compensation amounts are converted to 2013 real dollars using the Bureau of Labor Statistics' Consumer Price Index (CPI) for all urban consumers.

Explanatory Variables

Within the literature examining performance appraisals of college coaches, several on- and off-field factors are identified (Cunningham & Dixon, 2003; Putler & Wolfe, 1999). These factors may influence the total compensation of a coach. The first factor is on-field performance, which is measured in two ways. The first is the difference in actual performance versus expected performance in the previous season ($PerfDiff_{(t-1)}$). Actual performance is measured by the winning percentage, which was gathered from the College Football Data Warehouse. Expected performance is measured examining the winning percentage against the point spread. Previous research has used point spreads as a proxy for performance expectations (e.g., Humphreys, Paul, & Weinbach, 2011; von Hanau, Wicker, & Soebbing, 2014). It should be noted many biases have been uncovered in the sports betting research, including favorite/longshot, "hot hand", and sentiment (Waggoner, Wines, Soebbing, Seifried, & Martinez, 2014). Despite these clear biases found in the literature, betting lines and the resulting probabilities still serve as unbiased forecasts regarding the outcome of games (Paul & Weinbach, 2009). Point spreads were gathered from various websites such as Sports Insights, Covers, and Goldsheet. The second on-field performance measure is the average difference between a head coach's actual and expected performance between two and five seasons prior to the observed season ($AvgPerfDiff_{(t-2:5)}$). This variable attempts to capture a coach's recent on-field performance compared to expectations of performance. Previous research found historical on-field performance influences college coaching dismissals (Holmes, 2011). A person would also anticipate historical performance compared to expected performance to influence a coach's compensation. The construction of both on-field performance variables allows one to directly compare actual performance against expected performance, something previous research examining college coaching dismissals did not incorporate (e.g., Holmes, 2011; Humphreys et al., 2011).

Research by Putler and Wolfe (1999) and Cunningham and Dixon (2003) described other factors affecting the performance appraisal and compensation of college coaches. These factors relate to program performance outcomes occurring off-the-field. The first performance outcome is student athlete education (*Academics*). We use the Academic Progress Rate (APR), a measure developed by the NCAA in 2003 to evaluate team academic performance (LaForge & Hodge, 2011), in the previous season to examine a team's performance in the classroom. The second performance variable outlined by Putler and Wolfe (1999) is athletic program ethics. Cunningham and Dixon (2003) suggested NCAA violations are an appropriate proxy for athletic program ethics. In the present research, we examine the cumulative number of major violations (*Ethics*) the observed coach has accrued throughout his career as a Division I-FBS head football coach until the beginning of the observed year. The major violations were collected from the publically available data published by the NCAA. We divide the cumulative number major violations by the total of number of college head coaching experience the observed coach has in the observed season.

Cunningham and Dixon (2003) noted recruiting performance was also important and suggested outside expert ratings of a team's recruiting class was one way to measure recruiting success. For the present research, the rankings developed by the Rivals recruiting service ranking the recruiting classes of all Division I-FBS teams each year are used. Similar to the on-field performance variable, we use the rankings of the coach's team in the previous season. In addition, a logarithmic transformation of the rankings is used since the ranking is a count variable ($RRank_{(t-1)}$).

Outside of on- and off-field performance variables, an individual's human capital may influence total compensation. Human capital is measured in many different ways. The first human capital variable is the age of the coach (*Age*) and captures generic skills according to Smart and Wolfe (2000) and Smart, et al. (2008). We control for experience both in the number of years being a college head football coach at any NCAA level (*CarExp*) and the number of years being the head football coach at the school in the observed year (*SchoolExp*). Smart and Wolfe (2000) and Smart et al. (2008) noted career experience proxies industry-specific skills (i.e., college head coaching) while years coaching the same team proxies firm-specific skills necessary for the coach to be successful. Experience variables were obtained from examining the histories of head coaches through multiple websites.

We also include a number of coach's individual characteristics. The first is the cumulative number of National Coach of the Year awards the coach has been awarded going into the observed season (*Award*). This variable is used to proxy not only a coach's star power, but also recognition of excellence in the profession. The number of awards is divided by the total years of Division I head coaching experience. In addition to the *Award* variable, we include a variable indicating whether the coach is a visible minority (*Minority*). To determine whether a coach was a visible minority, we examined pictures of these coaches which were available on the College Football Data Warehouse website.

The final set of variables specifically controls for various university factors that may affect a coach's total compensation. The first of these variables is the on-field performance variability of the university's football team (*OrgPerf*), measured by the standard deviation of a university football team's winning percentage over the previous five years. Previous research noted executive's pay increases when the business had higher performance variability (e.g., Gerhart, Rynes, & Fulmer, 2009). The second variable is market size (*MktSize*), operationalized by capacity of the coach's football stadium in the observed year. The reason for using the

stadium capacity is due to many big football universities being located in small towns. Instead of using the population of the town, we believe the size of the football stadium is a better indicator regarding a team's fan nation, alumni base, and overall drawing power. Due to the high variability in stadium capacities present within the sample period, we transform this variable to its natural logarithm.

The third university variable is an indicator variable for if the university in the observed year is a private university (*Private*). Information regarding private universities was also obtained through IPEDS. The final university variable looks at reference values. The fourth characteristic is whether the university was part of an automatic qualifying conference for the BCS bowl games (*BCSAQ*). Previous research by Byrd et al. (2013) found a positive and significant increase in coaching compensation for coaches who were at BCS automatic qualifying institutions. Finally, research by Rizzo and Zeckhauser (2003) noted the influence of reference values in compensation of executives. They used comparisons of peer-groups as a proxy for reference values. For the present research, two peer-groups are used. The first group is the average total compensation of the head football coaches in the university's conference in the previous season (*ConfValue*$_{(t-1)}$). The second group is the average total compensation of the head football coaches in the university's region as defined by IPEDS in the previous season (*IPEDSValue*$_{(t-1)}$).

Model

Equation 1 presents the basic regression model.

$$\text{LNWAGE}_{it} = \beta_0 + \gamma \text{Perf}_{it} + \eta \text{Coach}_{it} + \pi \text{Univ}_{it} + \theta_t + \mu_{it}$$

(1)

where i indexes coach, t indexes season, θ accounts for season fixed effects, and μ is the equation error term. γ is a vector of on- or off-the field performance variables, η is a vector of variables examining specific coach's characteristics, π is a vector of university characteristics, and θ_t is year fixed effects to account for the overall growing of coaching salaries throughout the time period.

Estimation Issues

When estimating a compensation equation, there are many potential estimation issues to consider. The first is multicollinearity, where critical correlations are only assumed if the coefficient is above 0.8 or 0.9 (Kennedy, 2008; Tabachnick & Fidell, 2007). Examining the correlation coefficients with the variables in Equation 1, the only potential issue is the correlation between the variables *BCSAQ* and *Confvalue* (0.84). As a result, we estimate two models. One model includes *BCSAQ* as an explanatory variable, and one model includes *Confvalue* as an explanatory variable. Second, we calculate the variance inflation factors (vif) for these two models. In both models, all vifs are less than 3.5. These values are below the threshold of 10 (Hair, Black, & Babin, 2006), which would indicate potential issues regarding multicollinearity. Thus, multicollinearity is not a problem within the two models estimated in the present research.

The second estimation issue to consider is endogeneity, where an explanatory variable is correlated with the equation error term. Generally, endogeneity is a concern when incorporating

performance variables. Given the present study uses actual performance minus expected performance along with the use of lagged performance variables, we believe an endogeneity problem does not exist. The final estimation issue is with the equation error term. Given the variability regarding the sizes and revenues of the universities within the sample, we cluster the standard errors by university. This approach has been used in other studies such as the demand for minor league baseball attendance (Agha, 2013).

Results

During the sample period, there are a total of 480 coach-season observations. Of these observations, we were able to find compensation figures for 451 coach-season observations (94%). Due to the empirical specification outlined in Equation 1, we exclude any coach who is entering his first career year as a head coach since he does not have any previous on-field performance to track. During the sample period, there were 49 observations of coaches entering their first career year. With the remaining 402 coach-season observations, we identified 172 coach-season observations of new or amended contracts.

Table 1 describes the summary statistics for the 172 coach-season observations in the present study. Examining Table 1, the average real total compensation is $1,308,644 with a range of just over $190,500 to almost $4.7 million. The average age of the coaches in the sample is 50. These coaches had an average of seven years of experience as a head coach with four years at the current school. Twelve percent of the sample observations were of coaches that were of visible minority. Seven and one-half percent of the observations were private schools, while close to 56 percent of the observations were with schools that can automatically qualify for a BCS bowl game.

Table 1
Summary Statistics

Variable	Description	Mean	Stnd Dev	Min	Max
Compensation	Total compensation for head coach as recorded by USA Today (in 2013 real dollars)	1,308,644	940,015	190,591	4,673,969
PerfDiff$_{(t-1)}$	Actual winning percentage minus winning percentage against the closing point spread in previous season	0.025	0.162	-0.462	0.559
AvgPerfDiff$_{(t-2:5)}$	A Coach average actual winning percentage minus winning percentage against point spread as a Division I-FBS HC two to five years prior to observed season	0.016	0.132	-0.449	0.385
Academics$_{(t-1)}$	Football APR score in previous season	941	19	869	983
Ethics	Coach's number of major violations divided by total coaching experience	0.007	0.027	0	0.167
Rrank$_{(t-1)}$	Natural log of Rivals recruiting rank in previous season	3.859	0.893	0	4.787
Age	Coach Age	50	9	34	82
CarExp	Number of years as college head football coach	7	8	1	43
SchoolExp	Number of years as head coach at current school	4	6	1	43
Award	Number of coach of the year awards divided by	0.006	0.020	0	0.1

	overall years of experience				
Minority	Coach is visible minority	0.122	0.328	0	1
OrgPerf	Standard deviation of schools actual winning percentage over previous five seasons	0.139	0.060	0.009	0.321
MktSize	Natural Log of stadium capacity	10.812	0.454	9.680	11.583
Private	School is private school	0.076	0.265	0	1
ConfValue$_{(t-1)}$	Average total head coach compensation in conference in previous year	1,258,278	706,081	226,416	2,864,062
IPEDSValue$_{(t-1)}$	Average total head coach compensation in IPEDS region in previous year	1,230,324	315,061	658,967	2,094,933
BCSAQ	School is a member of a BCS automatic qualifying conference	0.564	0.497	0	1
n=172					

Table 2 presents the season fixed effects regression model for the dependent variable *LNCOMP*. Recall that two models are estimated, one includes the conference reference values while excluding the BCS automatic qualifying variable while the other includes the BCS automatic qualifying variable while excluding the conference reference values. The regression models explain between 78.3 and 79.6 percent of the observed variation in the dependent variable. Examining Table 2, we find performance difference in the previous season, average performance difference in seasons two through five, market size, and the conference reference value to have a positive and statistically significant effect on total compensation. We do not find any statistical impact for academic and recruiting performance, university performance, human capital factors, minority candidates, coach of the year awards and coaching at a private school. These results are consistent with our alternative model which substitutes average compensation in the conference with average compensation in the IPEDS region except for the coach of the year variable which is positive and significant. In addition to substituting the reference value, we include an additional indicator variable for if the coach is at a BCS automatic qualifying institution. Coaching at a BCS automatic qualifying institution does lead to an increase in total compensation. In both models, the year dummies are not significant at the 95% confidence interval except for 2010 in Model 2.

Table 2
Regression Results: Dependent Variable is LNCOMP; *University clustered Stnd Errors*

Variable	Model 1				Model 2			
	Coef.	Std. Err.	p-value	Impact (%)	Coef.	Std. Err.	p-value	Impact (%)
PerfDiff$_{(t-1)}$	0.822	0.203	<0.001	127	0.688	0.223	0.003	98
AvgPerfDiff$_{(t-2:5)}$	0.868	0.256	0.001	138	0.974	0.285	0.001	164
Academics$_{(t-1)}$	0.001	0.003	0.616	---	0.002	0.003	0.389	---
Ethics	0.066	1.476	0.964	---	0.298	1.566	0.850	---
Rrank$_{(t-1)}$	-0.020	0.053	0.712	---	-0.015	0.055	0.789	---
Age	0.005	0.006	0.416	---	0.006	0.006	0.368	---
CarExp	0.002	0.009	0.812	---	-0.001	0.008	0.870	---
SchoolExp	-0.007	0.010	0.480	---	-0.010	0.010	0.309	---

Award	3.047	1.839	0.101	---	3.447	1.711	0.046	3,041
Minority	0.040	0.135	0.771	---	0.005	0.141	0.970	---
OrgPerf	0.182	0.596	0.760	---	-0.028	0.598	0.962	---
MktSize	0.533	0.129	<0.001	0.533	0.603	0.124	0.000	0.603
Private	0.233	0.185	0.210	---	0.199	0.202	0.326	---
ConfValue$_{(t-1)}$	<0.001	<0.001	<0.001	<0.001	---	---	---	---
IPEDSValue$_{(t-1)}$	<0.001	<0.001	0.449		0.000	0.000	0.031	<0.001
BCSAQ	---	---	---	---	0.579	0.116	<0.001	78
2008	0.132	0.076	0.087	---	0.161	0.084	0.057	---
2009	0.059	0.084	0.487	---	0.159	0.083	0.058	---
2010	0.086	0.087	0.323	---	0.201	0.087	0.023	22
β_0	5.772	2.252	0.012	---	4.171	2.355	0.079	---
R^2	0.796				0.783			

Discussion

In models such as the one presented in Equation 1 where the dependent variable has been log-transformed and some of the explanatory variables have not been log-transformed, where the dependent variable has been log-transformed and the predictors have not, the interpretation is as follows: the dependent variable changes by $((\exp(\beta)-1)*100)$ percent for a one unit increase in the independent variable, while all other variables in the model are held constant (Halvorsen & Palmquist, 1980). We find total compensation is increased when expectations regarding the team's on-field performance are exceeded in the previous season. A one unit change in the variable *PerfDiff$_{(t-1)}$* (e.g., going from winning and covering all your games [1.000-1.000] to winning all your games and not covering any of the games [1.000-0.000]) leads to a total compensation increase between 98 and 127 percent for the head coach. Examining the average performance difference across seasons two through five, we find a one unit increase leads to a total compensation increase between 138 to 165 percent. Taken together, these results mean coaches are compensated based on exceeding performance expectations both in the short- and long-term. In addition, these findings are consistent with the earlier research showing an increase in performance leads to an increase in total compensation for head coaches (e.g., Inoue et al., 2013; Grant et al., 2013). However, we contribute to the existing literature to show that performance above expectations leads to a positive salary increase. Previous literature did not incorporate expectations of performance.

Specifically looking at some other performance variables outlined by Cunningham and Dixon (2003), we find an increase in the team's academic performance does not lead to an increase in a coach's total compensation. The finding in the present study is consistent with Grant et al. (2013). We also find that recruiting success does not impact total compensation of coaches. This result is surprising given the amount of resources that football programs and coaches devote to recruiting (Dumond, Lynch, & Plantania, 2008). One potential reason for the insignificance could be that the recruiting rankings by Rivals is not consistent with a school's internal recruiting rankings of high school prospects. Another potential reason is one may not see the effects of a strong recruiting class right away. Research by Langelett (2003) looked at the relationship between recruiting performance and team performance. His research examined recruiting effects on team performance from 1991 through 2001. He found a successful

recruiting class can improve team performance for the next five seasons. In the present research, it could be that there will be positive performance effects, however, those effects will not statistically appear for another couple of seasons as the players from the recruiting class develops.

We also find the ethics of the coach, measured by the cumulative number of major violations the observed coach has accrued throughout his career as a Division I-FBS head football coach until the beginning of the observed year, did not impact his total compensation in the observed year. Examining sanctions is something recent research examining coaching compensation (i.e., Byrd et al, 2013; Inoue et al, 2013; Grant et al, 2013) has not examined. As Cunningham and Dixon (2003) stated, "any performance appraisal system of coaching staffs should include the extent to which the staff conducts its affairs in an ethical manner" (p. 185). Thus, while ethical behavior may be a part of the athletics departments' performance appraisal, the results in Table 2 find ethical behavior does not matter in terms of a coach's total compensation.

We find all variables capturing human capital (i.e., *Age, CarExp, and SchoolExp*) in Equation 1 does not impact total coaching compensation. This result adds to the literature looking at college coaches (e.g., Byrd et al, 2013; Grant et al., 2013; Inoue et al., 2013). Both Grant et al (2013) and Byrd et al (2013) found that career experience had a positive impact on compensation while Inoue et al (2013) found that career experience had no effect. A coach who is a visible minority is not impacted in terms of total compensation, consistent with some earlier research (e.g., Jones, Nadeau, & Walsh, 1999; Kahn, 1992). The reputation of the coach, as measured by the number of coach of the year awards divided by the total years of head coaching experience, does not impact coaching compensation at the 95 percent confidence level for model 1. For Model 2, however, the variable is significant. A one unit change (i.e., going from never winning the coach of the year to winning the coach of the year every year that you are a head coach) results in a compensation increase of over 3,000%. We anticipated that the variable would be significant in both models given that previous research regarding executive compensation have found significance when examining the CEO (Graffin, Pfarrer, & Hill, 2012). It could be the coach of the year award does not distinguish between high quality coaches like CEO of the year does for CEOs.

The final set of control variables deals with university characteristics. Examining Table 2, we find variability of the university football team's performance over the past five seasons (regardless of the head coach) does not impact total compensation. This result is not consistent with previous literature examining organizational performance variability in many different industries (e.g., Aggarwal & Samwick, 1999; Bloom & Milkovich, 1998; Gerhardt et al, 2009; Miller, Wiseman, & Gomez-Mejia, 2002). We do find the larger the market size, as measured by stadium capacity, positively impacts total compensation, consistent with previous research (e.g., Inoue et al., 2013). We also find that coaching at private schools do not impact total compensation compared to coaches at public universities. This result is consistent with Inoue et al. (2013) who did not find any impact on salary for head coaches at public schools during the 2006 and 2007 football seasons. Examining the reference values we find that an increase both in average total compensation throughout the conference and in the IPEDS region leads to an increase in total compensation. While consistent with previous research, we find the actual impact on total compensation is small (less than a 0.01 percent). Thus, while the result is statistically significant, there is little economic significance. Previous literature regarding coaching salaries did not incorporate reference values into their analysis even though previous

research examining CEO and upper management salaries did find reference values to have a significant effect.

Coaches at BCSAQ schools are paid 78 percent higher controlling for other factors compared to coach's at non-BCSAQ institutions. This result is consistent with research by both Byrd et al. (2013) and Inoue et al (2013). The result is also expected given the amount of revenue generated by automatic qualifying institutions from sources such as bowl payouts and television contracts.

Overall, our results provide two other broad contributions to the existing literature. The present research more thoroughly examines the framework designed by Cunningham and Dixon (2003) that looked at appraising the performance of college coaches. Their model proposed six broad categories to evaluate the performance of coaches. Previous literature examined a couple of elements of the model, but did not attempt to cover all dimensions. The present research examined 4 of the 6 dimensions outlined by Cunningham and Dixon (2003), which presents the most thorough examination of their model to this point in the literature. The second contribution is the use of only the beginning new and amended contracts for coaches. The research by Inoue et al (2013), Byrd et al. (2013), and Grant et al. (2013) examined all the observations throughout their sample periods. Our results, using the method advocated by Jenkins (1996), provide some additional information not know in the prior studies such as the role of human capital, ethical behavior, and recruiting at the point at which a new contract is entered into or an existing contract is modified.

Conclusion

Though executive compensation has garnered a great deal of attention from researchers, less consideration has been given to investigating alternative explanations for executive compensation (Barkema & Gomez-Mejia, 1998). Following Jenkins (1996) methodology, the purpose of the present research was to examine coaching salary determinants looking only at new and amended coaching contracts. Examining performance for head coaches as well as non-performance factors using the framework outlined by Cunningham and Dixon (2003) and other previous research, the present study examined determinants of total compensation for Division I-FBS head coaches from 2007 through 2010. Results showed exceeding performance expectations for on-field performance both in the previous year and over the past five years led to an increase in total compensation. Furthermore, non-performance characteristics such as market size and other university characteristics lead to an increase in compensation. For practitioners, the results from the present study provide indications regarding the current determinants of coaching pay. If the determinants of pay do not necessarily align with how athletic directors and other university official evaluate the coach's job performance, it provides an opportunity for university officials to adjust pay in order to better align with the mission of the university and the expectations of performance.

The present study contributes to the existing literature by empirically testing the various components of head coaching performance appraisal as outlined by Cunningham and Dixon (2003). While previous research has examined components of the Cunningham and Dixon (2003) model, we could not find one that comprehensively examined each component of their model.

The present research is not without its limitations. While the present research looks at total compensation as defined by *USAToday*, there are other types of compensation such as base

salary and performance bonuses that may provide additional insight in terms of the determinants of each one of those salary types. For example, in a study by Marburger (2013) examining athletic director compensation, he found that different characteristics affected base compensation compared to performance bonuses. Another limitation is the sample period, as only 172 coach-season observations were found for new and amended contracts. Future research should attempt to expand the sample years to test the robustness of the results presented in Table 2. In addition, the study excludes first time head coaches since they lack previous Division I-FBS performance records. Thus, future research should explore factors influencing total compensation of these individuals.

There are many additional avenues for future research. One avenue for future research is further examining superstar coaches. Future research could examine the number of social media followers a coach has on his own individual Facebook or Twitter accounts or the number of Google search citations which have been used in player compensation studies (e.g., Franck & Nüesch, 2012).

The second area of future research is to understand the coaching efficiency-salary relationship. Smart et al. (2008), in their investigation of MLB managers, found inefficiency in managerial compensation in that salary was correlated with experience but not efficiency. As such, they stated future research would need to determine decision makers definition of efficiency along with the priorities used to compensate coaches. Even though the present study does not find any statistical significance between a coach's career experience and his total compensation, the question regarding the efficiency-salary relationship can provide a better understanding regarding the decisions and behaviors of all parties involved in the salary negotiation process in Division I-FBS.

References

Aggarwal, R., & Samwick, A. (1999). The other side of the tradeoff: The impact of risk on executive compensation. *Journal of Political Economy*, *107*, 65-105.

Agha, N. (2013). The economic impact of stadiums and teams: The case for minor league baseball. *Journal of Sports Economics*, *14*, 227-252.

Barkema, H. G., & Gomez-Mejia, L. R. (1998). Managerial compensation and firm performance: A general research framework. *Academy of Management Journal*, *41*, 135-145.

Berkowitz, S., & Schnaars, C. (2013, December 18). Some college coaches paid over $1M per win this season. *USA Today*. Retrieved from http://www.usatoday.com/story/sports/ncaaf/2013/12/17/ncaa-college-football-coaches-pay-salary-per-win/4080057/

Bloom, M., & Milkovich, G. T. (1998). Relationships among risk, incentive pay, and organizational performance. *Academy of Management Journal*, *45*, 33-42.

Brady, E, Berkowitz, S., & Upton, J. (2012, November 20). College football coaches continue to see salary explosion. *USA Today*. Retrieved from http://www.usatoday.com/story/sports/ncaaf/2012/11/19/college-football-coaches-contracts-analysis-pay-increase/1715435/

Byrd, W. J., Mixon, P. A., & Wright, A. (2013). Compensation of college football's head coaches: A case study in firm size's effects on pay. *International Journal of Sport Finance, 8,* 224-235.

Callan, S. J., & Thomas, J. M. (2012). Relating CEO compensation to social performance and financial performance: Does the measure of compensation matter? *Corporate Social Responsibility and Environmental Management*, *21*, 202-227.

Cunningham, G. B., & Dixon, M. A. (2003). New perspectives concerning performance appraisals of intercollegiate coaches. *Quest*, *55*, 177-192.

Dumond, J. M., Lynch, A. K., & Platania, J. (2008). An economic model of the college football recruiting process. *Journal of Sports Economics*, *9*, 67-87.

Farmer, A., & Pecorino, P. (2010). Is the coach paid too much? Salaries and the NCAA cartel. *Journal of Economics & Management Strategy, 19*, 841-862.

Franck, E., & Nüesch, S. (2012). Talent and/or popularity: What does it take to be a superstar? *Economic Inquiry, 50*, 202-216.

Frick, B., & Simmons, R. (2008). The impact of managerial quality on organizational performance: Evidence from German soccer. *Managerial and Decision Economics, 29*, 593-600.

Gerhart, B., & Fang, M. (2014). Pay for (individual) performance: Issues, claims, evidence and the role of sorting effects. *Human Resource Management Review*, *24*, 41-52.

Gerhart, B., Rynes, S. L., & Fulmer, I. S. (2009). Pay and performance: Individuals, groups, and executives. *Academy of Management Annals, 3,* 251-315.

Gomez-Mejia, L. R., & Wiseman, R. M. (1997). Reframing executive compensation: An assessment and outlook. *Journal of Management*, *23*, 291-374.

Graffin, S. D., Pfarrer, M. D., & Hill, M. W. (2012). Untangling executive reputation and corporate reputation: Who made who? In M. L. Barnett & T. G. Pollock (Eds), *The Oxford Handbook of Corporate Reputation* (pp. 221-239). Oxford: Oxford University Press.

Grant, R. R., Leadley, J. C., & Zygmont, Z. X. (2013). Just win baby? Determinants of NCAA Football Bowl Subdivision coaching compensation. *International Journal of Sport Finance, 8*, 61-74.

Hair, J., Black, W., & Babin, B. (2006). *Multivariate data analysis*. New Jersey: Pearson Prentice Hall.

Halvorsen, R., & Palmquist, R. (1980). The interpretation of dummy variables in semilogarithmic equations. *American Economic Review*, *70*, 474-475.

Holmes, P. (2011). Win or go home: Why college football coaches get fired. *Journal of Sports Economics, 12*, 157-178.

Humphreys, B. R. (2000). Equal pay on the hardwood: The earnings gap between male and female NCAA Division I basketball coaches. *Journal of Sports Economics*, *1*, 299-307.

Humphreys, B. R., Paul, R. J., & Weinbach, A. P. (2011). *CEO turnover: More evidence on the role of performance expectations*. University of Alberta Working Paper Series. Retrieved from http://ideas.repec.org/p/ris/albaec/2011_014.html

Inoue, Y., Plehn-Dujowich, J. M., Kent, A., & Swanson, S. (2013). Roles of performance and human capital in college football coaches' compensation. *Journal of Sport Management, 26,* 73-83.

Jenkins, J. A. (1996). A reexamination of salary discrimination in professional basketball. *Social Science Quarterly, 77*, 594-608.

Jeppson C. T., Smith, W. W., & Stone, R. S. (2009). CEO compensation and firm performance: Is there any relationship? *Journal of Business and Economics Research*, *7*, 81–93.

Jones, J. C. H., Nadeau, S., & Walsh, W. D. (1999). Ethnicity, productivity, and salary: Player compensation and discrimination in the National Hockey League. *Applied Economics*, *31*, 593-608.

Kahn, L. M. (1992). The effects of race on professional football players' compensation. *Industrial and Labor Relations Review*, *45*, 295-310.

Kahn, L. M. (2006). Race, performance, pay, and retention among National Basketball Association head coaches. *Journal of Sports Economics*, *7*, 119-149.

Kennedy, P. (2008). *A guide to econometrics*. Cambridge, MA: Wiley-Blackwell.

LaForge, L., & Hodge, J. (2011). NCAA academic performance metrics: Implications for institutional policy and practice. *Journal of Higher Education*, *82*, 217-235.

Langelett, G. (2003). The relationship between recruiting and team performance in Division IA college football. *Journal of Sports Economics*, *4*, 240-245.

Marburger, D. R. (2013). How are athletic directors rewarded in the NCAA Football Bowl Subdivision? *Journal of Sports Economics*. (in press). doi: 10.1177/1527002512474280

Miller, J. S., Wiseman, R. M., & Gomez-Mejia, L. R. (2002). The fit between CEO compensation design and firm risk. *Academy of Management Journal*, *45*, 745-756.

Moore, P. (2014, February 10). Poll results: One percent. *YouGov*. Retrieved from https://today.yougov.com/news/2014/02/10/poll-results-one-percent/

Paul, R. J., & Weinbach, A. P. (2009). Sportsbook behavior in the NCAA football betting market: tests of the Traditional and Levitt Models of sportsbook behavior. *Journal of Prediction Markets 3,* 21-37.

Putler, D., & Wolfe, R. (1999). Perceptions of intercollegiate athletic programs: Priorities and tradeoffs. *Sociology of Sport Journal*, *16*, 301-325.

Rizzo, J. A., & Zeckhauser, R. J. (2003). Reference incomes, loss aversion, and physician behavior. *The Review of Economics and Statistics*, *85*, 909–922.

Rocha, C. M., & Turner, B. A. (2008). Organizational effectiveness of athletic departments and coaches' extra role behaviors. *Journal of Issues in Intercollegiate Athletics*, *1*, 124-144.

Scully, G. (1974). Pay and performance in Major League Baseball. *American Economic Review, 64,* 915-930.

Smart, D., Winfree, J., & Wolfe, R. (2008). Major League Baseball managers: Do they matter? *Journal of Sport Management*, *22*, 303-321.

Smart, D. L., & Wolfe, R. A. (2000). Examining sustainable competitive advantage in intercollegiate athletics: A Resource-Based View. *Journal of Sport Management*, *14*, 133-153.

Smith, E. B., & Kuntz, P. (2013, May 2). Disclosed: The pay gap between CEOs and employees. *Business Week*. Retrieved from http://www.businessweek.com

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Allyn & Bacon.

USA Today Sports (2014, November 19). 2014 NCAA football head coaches salaries methodology. Retrieved from http://sports.usatoday.com/2014/11/19/2014-ncaa-football-head-coach-salaries-methodology/ (n.p.).

van Essen, M., Heugens, P., Otten, J., & van Oosterhout, J. (2012). An institution-based view of executive compensation: A multilevel meta-analytic test. *Journal of International Business Studies*, 43, 396-423.

von Hanau, T., Wicker, P., & Soebbing, B. P. (2014). The influence of the league schedule on match outcome: An examination of the German Bundesliga. *Soccer and Society* (in press). doi: 10.1080/14660970.2014.882823

Waggoner, B., Wines, D., Soebbing, B. P., Seifried, C. S., & Martinez, J. M. (2014). "Hot Hand" in the National Basketball Association point spread betting market: A 34-year analysis. *International Journal of Financial Studies*, *2*, 359-370.

Wilson, M. J., Schrager, M., Burke, K. L., Hawkins, B. J., & Gauntt, L. (2011). NCAA Division I men's basketball coaching contracts: A comparative analysis of incentives for athletic and academic team performance. *Journal of Issues in Intercollegiate Athletics*, *4,* 396-410.