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Managerial Turnover in the English Premier League and the Subsequent Results

Jarrod Connally
Western Kentucky University, jarrod.connally255@topper.wku.edu

MANAGERIAL TURNOVER IN THE ENGLISH PREMIER LEAGUE AND THE SUBSEQUENT RESULTS

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Jarrod Connally

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CE/T Committee:

Dr. Dennis Wilson, Advisor

Dr. Shane Spiller

Dr. James Navalta

Approved by

_____

Advisor

Department of Economics

ABSTRACT

Efficient productivity often relies upon the matching of managerial skills and the resources available for production. Often, poor production outcomes can be attributed to those not directly involved in the production: the managers. Similarly, poor results in professional sports are often attributed to the men and women who never play a minute of a game: the managers/coaches. Managers are routinely blamed for performance and are often the first change an owner or a club will make to improve results. This paper will attempt to determine the performance effects of changing a club's manager in soccer's English Premier League (EPL). Further, this paper will attempt to determine the length of time an EPL manager can reasonably expect to remain employed by his club based upon his and the team's characteristics. Utilizing panel data from seasons spanning the EPL era, we attempt to analyze if clubs act rationally or emotionally in deciding to terminate their managers.

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VITA

March 28, 1990……..……..……Born – Bowling Green, Kentucky

2008 ……Bowling Green High School,
Bowling Green, Kentucky

2012…….Senior Fellow in Entrepreneurship & Economics
Western Kentucky University

FIELDS OF STUDY

First Major: Entrepreneurship

Second Major: Economics

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CHAPTER 1

INTRODUCTION

The Barclay's Premier League in England (EPL) is the equivalent of the NFL to the United Kingdom and in a growing sense the rest of the world. As such, managerial positions in the English Premier League are some of the most grueling and scrutinized jobs coaches undertake. These highly influential individuals are the leaders of their team and are expected to produce results that satisfy the owners, the players and the fans.

The pressure associated with these positions is ever expanding. As clubs search for new ways to push forward financially, the coaching staff is expected to do the same on the field. Having a position of great influence over the make up of the team and having the final say in setting up for each game, means that coaches who do not produce will be removed. Even though they prepare and organize the team for every game, the coaches, the men who never play a minute are the ones who usually let go first. It is wide spread belief that if the team is not performing up to standard then a coaching change is needed.

The question should be asked, does changing your manager really better your shot at a title? Intuition says poor performance usually leads to a change in management, as does a decrease in attendance when fan support begins to waiver but firing your manager should have a negative impact on the team. Thus, we expect to find that teams at the bottom end of the table are more likely to change their manager than a team at the top of the table, everything else held constant.

CHAPTER 2

LITERATURE REVIEW

When considering the ability to analyze managerial change within a firm it is very difficult to create metrics to measure firm dynamics. In sports however it is far easier to gain a sense of the performance levels associated with a club (Koning 2003). Data from sports teams offers us this opportunity to measure and quantify the effect of coaching changes. One of the drawbacks is the limited number of opponents possible when comparing a soccer league to a market segment. Also, turnover among players acts much in the same way as turnover of office subordinates. Likewise, changes in ownership and directors will be viewed as a proxy for changes in a firm's senior management team. Being able to evaluate sports data can give us an insight into the ideas behind why an underperforming club or firm would change their manager and the short-run effects of said changes.

In terms of sports, soccer appears to have a higher turnover rate than American sports due to the perceived share of control a soccer manager has compared to a baseball or basketball coach (Audas, Dobson, and Goddard 1999). In soccer, coaches are generally relied upon more to have the final say in player acquisitions, player releases, and day-to-day operations not generally associated with a head coach in America. The expected result from this increased share of power is greater reward when things go right or a larger portion of the blame when things go wrong. In essence the manager is the first to be praised and the first to go when performance changes, as previous research shows (1999).

One of the difficult aspects of sports economics is determining what the firm's, or in this case, the club's ultimate goal is. As stated by the Premier League, "The principal objective of the Premier League is to stage the most competitive and compelling league with world class players and, through the equitable distribution of broadcast and commercial revenues, to enable clubs to develop so that European competition is a realistic aim and, once there, they are playing at a level where they can compete effectively." The league gives a good starting point, but determining an individual club's goals is far more difficult when compared to the goals of the league. With goals set by: the owners, the coaches, players, media and the fans, determining success and failure are always subjective and usually biased.

In terms of viewership the EPL is the largest grossing domestic league based upon the number of unique viewers. According to the Premier League website, with 212 different territories represented, TV contracts with 80 different broadcasters, and with expansion into new countries almost every year, the EPL is the fastest growing league for aggregate unique viewers. With centralized revenues exceeding £1.2 billion in 2011 the EPL is one of the largest grossing sport governing bodies in the world. TV along with other forms of revenue is allotted equally before and after the season to each team. However postseason rewards are given based upon a teams final table position. For example, at the end of the 2012 season the 1st place team will receive around £16 million while the 20th placed team will receive £800,000, as reported by the Daily Mail. The disparity between first place and last place in terms of the total money received from the league over the entirety of the season is nearly £35 million. These vast differences in compensation can and do alter the competitive balance in the league.

Realistically the goal for each club varies. For example Manchester United Football Club and Everton F.C. have both been in the Premier League since its inception. However, United has

a much higher revenue stream, more of a global standing and has challenged for the Premier League title and the Champions League title every year since 1992. Everton on the other-hand has a much smaller budget, considerably smaller revenue stream, and smaller goals such as finishing in the top four of the league and qualifying for the Champions League, as much for the prestige but more for the lucrative cash incentives provided. Manchester United sees them selves as a global brand building short successes every year by maintaining their status; where as Everton's long run goal is to be a Champions League mainstay but short run success is qualification.

The goals set forth by each club vary based upon the funding they have available to them and by in large, many clubs outside of the top 5 do not have significant amounts of funding outside of the money set aside by the league. Without available cash from the owner(s) and other possible outside funding from European competitions and lending institutions, challenging for a Premier League title has become limited to the top teams who continually qualify for the Champions League. The amount of money available to the Champions League teams creates a virtual oligarchy atop the Premier League and stifles competition for the league title.

To expand on the Champions League, the top 3 teams in England qualify automatically and the 4th plays in a playoff to get into the group phase. At each qualifying round teams receive a payment which progressively increases through each phase. Qualification for the group phase is an automatic payout of around £15 million with qualification for the knock out stages being a second payment of around £20 million (Johnson). Total prize money from the Champions League, cumulatively, is around £50 million for the winner. In comparison, the fifth place team in England qualifies for the Europa League, the secondary international club competition in Europe, but if they were to win it they would only receive around £10 million in prize money

(Train). This financial gap between international tournaments and domestic leagues creates a disparity between the mega-rich oligarchs who continually qualify for the Champions League and the minnows that scrap for positions, hoping for a taste of European money.

CHAPTER 3

DATA & METHODS

The major sources of data for this project were acquired from a soccer database website, soccerbase.com, that gathers information from each major league across Europe. Also the official Premier League website, premierleague.com, supplied a vast amount of data. All data begins with the season starting in 1992, the year the Premier League was established and runs through 2010, the last completed season at the time of this paper. Each data point is specific to a team and a year. The variables measuring performance include final table position, where they team finishes the season, i.e. 1, 2, 3, etc. Also measuring performance is points per game, where three points is earned for a win, one point for a draw and zero for a loss. Other performance factors include goals per game and goals against per game, counting the number of goals scored divided by the number of games placed and the same for number of goals conceded during a season. To measure a club's history and the level of prestige associated with each club, trophy history measures the number of trophies, up to the given year, and counts the League titles, European Cups, UEFA Cups, FA Cups, and League Cup championships. Average attendance, used as both a dependent and independent variable, is a control for club size where more prestigious clubs tend to have bigger stadiums. Also included in the test are several discrete dummy variables. For example offseason change and in-season change both count if the manager left the club either in the prior offseason or during the season. Other discrete variables comprise of teams competing in a European league competition, such as the

Champions League or Europa League. The last discrete variable "Big Four" consist of Arsenal, Chelsea, Liverpool and Manchester United; the teams that dominated the top four spots in the league for nearly a decade. Also, within the study 134 different coaches changes took place.

The following models were tested:

- Final table position as a linear function of goals per game, goals against per game, $position_{t-1}$, offseason change, in-season coaching change and trophy history.
- Average attendance as a linear regression function of $position_{t-1}$, goals per game, goals against per game, offseason change, in-season change and trophy history.
- A logit model with coaching change as a function of position, $position_{t-1}$, goals per game, goals against per game, trophy history and average attendance.
- A multinomial logit model with the four coaching change options as a function of position, $position_{t-1}$, goals per game, goals against per game, goals per $game_{t-1}$, goals against per $game_{t-1}$, trophy history and average attendance.
- An ordinal logit model split into three categories for final table position as a function of preseason coaching change, in-season change, postseason change, pos_{t-1}, goals per game, goals against per game, trophy history and attendance.
- The Cox model and Kaplan-Meier are both survival analysis models. Coaching tenure was measured by the number of games coached as well as the number of years the tenure lasted in each model. The independent variables associated with each model include, age, nationality, whether they were English, Scottish or European, number of teams coached over their career, whether or not they coached the "Big 4", and the variables of interest were either average

points per game or the difference in the current point per game compared to the tenure average points per game.

Tests were run for heteroskedasticity and a White's Correction was run on each necessary model with the detection of heteroskedasticity.

Figure 2.1 Descriptive Statistics

Variable	Mean	Std Dev	Minimum	Maximum
Position	10.6709	5.8888	1	22
Wins	14.4213	5.3252	1	29
Draws	10.4352	2.8770	3	18
Loses	14.4213	5.1031	0	29
Goals For	50.5777	13.3140	20	103
Goals Against	50.5777	12.6265	15	100
Goals PG	1.3074	.3429	.53	2.71
Goals APG	1.3073	.3230	.39	2.38
Points	52.7777	15.3988	11	95
Points PG	1.3645	.3970	.2984	2.5
Avg Attendance	31228.47	12221.84	8405	75835
Total Attendance	601121.8	229385.9	176505	1440857
Trophy History	9.7279	9.7427	0	40
Promoted	.1398	.3473	0	1
Preseason Change	.0259	.1592	0	1
In-Season Change	.2545	.4361	0	1
Postseason Change	.1506	.3581	0	1
Europe	.2279	.4200	0	1
Big Four	.1968	.3981	0	1

CHAPTER 4

ASSUMPTIONS

The turnover rate of managers and coaches in professional sports looks to be on the rise to many spectators. With short-term financial incentives increasing from lucrative deals such as: TV contracts, merchandising and image rights, along with other sources of funding, professional sport franchises need to win at all cost in the short-run to maintain a competitive advantage.

Assumption 1: Intuitively, the expectation is that coaching changes will negatively impact team performance, subsequently lowering their final position in the table.

Assumption 2: Alternatively attendance should not be affected by coaching changes. Intuition says that fans come to see players play matches not coaches on the touchline and as such, attendance figures should not be affected.

Assumption 3: In the multinomial logit model, four outcomes are possible: no coaching changes, preseason changes, in-season changes, and postseason changes. Here we expect goals for and against as well as final table position to be significant when determining which variables lead to coaching changes.

Assumption 4: The ordinal logit model determines the effects of each independent variable on

three dependent categorical variables. The dependent variable is three ordered categories, teams finishing 1-5, teams finishing 6-15 and teams finishing 16-20 in each season. The expectation for the model is that the top category of teams, 1-5, and the bottom category of teams, 16-20, will be affected by coaching changes.

Assumption 5: The hazard model is used to predict the length of time a manager will remain in-charge of a club from the time he is hired. The expectation is that managers who perform at or above the baseline points per game measure will increase their tenure as well as the number of games coached.

CHAPTER 5

FINDINGS

MODEL #1

This model was run to test the relationship between a team's final position at the end of the season and the effects of the three coaching change variables. The null hypothesis was one of no relationship; the theory was that coaching changes would have a negative correlation towards team performance, ceteris paribus.

As shown in figure 4.1 we do not find any significance between our variables of interest, the different coaching changes, and the regressand. According to the ordinary least squares model, neither in-season nor off-season changes are statistically significant when measuring a team's final position in the league table. The signs of all other variables are as expected. When comparing the previous year's final position to the current year's final position we do find a positive relationship. The expectation is that teams will finish in relatively similar positions from season to season, all other things constant, and that is why the coefficient is relatively small. Also with three teams being relegated and promoted each season we expect the coefficient to be positive due to the fact that the same three teams are changing each season. Also, as expected, when goals per game increase one's final position moves towards first place and as goals against per game increase one's final position moves towards last place. Average attendance however is positive and the expected sign was negative. The assumption is that stadium size increases with the size of the club and as clubs increase in size it tends to finish better in the table.

The R squared in this situation is not surprising. When determining a team's final table position goals scored and goals against are going to be highly correlated. As is obvious, when more goals scored and fewer given up, more games are won. These two variables account for a large amount of variation in the model and are both high statistically significant.

Figure 5.1 OLS Position Model

Variable	Coefficient	T-Value
Intercept	7.432423	5.79
$Position_{t-1}$	.0140317	.34
Goals Per Game*	-8.488782*	-.13.03*
Goals Against Per Game*	9.912721*	17.32*
In-Season Change	.3228055	1.03
Off-Season $Change_{t-1}$	-.3531479	-.97
Trophy History	-.0197572	-1.10
Average Attendance*	.0000445*	3.10*
$R^2 = .8238$		

Here we don't find any evidence to suggest that coaching changes correlate to changes in performance levels. That is to say firing your coach does not statistically increase or decrease the team's final position in the league. From the aforementioned table all indications suggests that final position is determined by the average number of goals scored and conceded as well as the size of the club, controlled for by average attendance. The conclusions gathered here do not show any significance between firing the coach and the performance of the team leading us to believe that changing coaches in the EPL does not significantly affect a club's position at the end of the season.

Multicollinearity expected to be an issue with this model. One of the checks run for multicollinearity was a correlation matrix. In the matrix both goals per game and goals against per game had a collinearity rating greater than .80, showing positive correlation between the variables. Next, both goals per game and goals against per game were run as dependent variables

in OLS models, with the independent variables from the Position model remaining the same. In both models where goals per game and goals against per game were the dependent variable nearly every independent variable used again was significant. Repeating the idea that multicollinearity is an issue. However without any variable to replace goals per game or goals against per game they will remain in the model since they are the best available option.

MODEL #2

The second model is designed to test the influence of in-season and off-season changes on average attendance. The null hypothesis was that of no relationship, the rationale behind the theory for the second model is that the amount of criticism a coach receives from both supporters and the uproar caused in the media when a team performs poorly could leading to a change in management.

As shown in Figure 4.2 there once again is no significance between coaching changes and the regressand. Here using ordinary least squares model, we find there is no statistical significance for either in-season or off-season coaching changes, ceteris paribus. Both variables are positively correlated and show very small increase in average attendance, but as previously stated neither is statistically significant. Also insignificant is the final position from the previous year. On the other hand goals per game and goals against per game are highly statistically significant. As expected, when goals per game increases attendance increases. As goals against per game increases, attendance figures fall. Similarly, as trophies are won and trophy history grows, attendance will increase, ceteris paribus.

The R squared seems reasonable at 49.57 and is expected with the variables present. As anticipated goals per game and goals against per game, along with trophy history, were the only significant variables. All are significant at the 99% level.

Figure 5.2 OLS Average Attendance Model

Variable	Coefficient	T-Value
Intercept	23423.02	4.21
$Position_{t-1}$	-129.5638	-.96
Goals Per Game*	10034.51*	3.94*
Goals Against Per Game*	-6533.702*	-3.06*
In-Season Change	329.5961	0.28
$Offseason\ Change_{t-1}$	627.331	.52
Trophy History*	434.0196*	6.06*
$R^2 = .4957$		

In this model we don't find any statistical differences in average attendance when a change in coaches occurs. These findings lead us to believe that coaching changes do not affect attendance. One idea generated from the attendance model is that teams who rely on attendance revenue will typically have a shorter time frame that they will allow coaches to underperform before a change occurs. Coincidentally, attendance figures may actually improve once the coach changes, regardless of whether or not the team actually improves. This can be seen with Blackburn Rovers in this current season, 2011-12. As the team's performance has dropped and the club has been in the relegation zone nearly the entire season, attendance figures have declined as fans boycott games until the coach, who they believe to be the root of the poor performances, is terminated. So far this season the manager has yet to be fired and it is almost certain the team will be relegated.

MODEL #3

The third model consisted of a logit and multinomial logit function with coaching change as a function of current and prior performance variables. The logit and multinomial logit tests are designed to determine which variables significantly affect the chance a coaching change occurs. In each model coaching change, a discrete variable, is the dependent variable and as such OLS is no longer appropriate.

In the logit model the previous years position and average attendance are the two variables of significance. Surprisingly the previous years position influence is negative. Here we would not have expected the likelihood of a change to decrease as position increases. The other variable of significance, average attendance is also negative. Here the expected sign is correct. We would expect increases in average attendance to decrease the likelihood of a coaching change. The logit does not seem to be the best model here. As shown in previous models we would expect goals per game and goals against per game to be significant as well. Instead we will focus more attention on the results from the multinomial model.

Figure 5.3 Marginal Effects on Coaching Change in the Logit Model

Variable	Marginal Effects	Z-Score
Position	.0719977	1.29
$Position_{t-1}$*	-.1214777*	-3.09*
Goals Per Game	-1.040753	-1.47
Goals Against Per Game	.5076062	.60
Trophy History	.0057535	.32
Average Attendance*	-.0000241*	-1.65*

The possible coaching change outcomes of the multinomial model include, in order: no change, preseason change, in-season change, and postseason change. For preseason changes, figure 4.5, we don't find anything of interest regarding manager's turnover likelihood. As expected the only variables of significance are the previous season's final position as well as

previous season's goals per game and goals against per game. As seen in previous models, off-season changes are due to the previous year's performance and a manager is .9% more likely to change for each position their team drops in the league.

For in-season changes we find that the previous season's final table position, the current season's goals per game and goals against per game, plus the previous season's goals against per game rate are all statistically significant. As the previous season's position increases it leads to a 1.75% decrease in the likelihood of a change. This is further proof that teams finishing higher in the table are less likely to change managers.

As goals per game increases by 1 goal per game, on average the likelihood of changing coaches decreases by 31.1%. Likewise as goals against per game increases by 1 goal per game the likelihood of changing in-season increases by 29.46%. Goals per game from the previous season are significant and the likelihood of a change decreases by 21.28% as the current rate drops by one goal per game.

Lastly with postseason changes we find that the difference in current final position versus the previous season is significant and as the team's performance decreases the likelihood of a change increases by .09%. Similarly with goals against per game, as performance from the current to previous season declines by 1 goal per game the likelihood of a change increases by nearly 24%. Somewhat surprising is that average attendance is very close to being significant and shows that as attendance falls the likelihood of a change increases.

Figure 5.4 Marginal Effects on Preseason Coaching Changes in the Multinomial Model

Variable	Marginal Effects	Z-Score
Position	-.0001574	-.18
$Position_{t-1}$	.0006765	1.03
$Position_{t-2}$*	-.0096863*	-1.94*
Goals Per Game	-.0015612	-.12
Goals Against Per Game	.0014658	.09

Goals Per Game$_{t-1}$*	-.007956*	-2.01*
Goals Against Per Game$_{t-1}$*	-.0057846*	-2.00*
Trophy History	.0000653	.23
Average Attendance	1655.9160	1.39

In Figure 4.4 we notice that each one of the marginal effects outcomes that is statistically significant the percent change in the likelihood of a change is less than one percent. One of the reasons this is believed to be as such is that most teams do not seem to make rational decisions when firing coaches. In addition, most coaching changes do not occur during the preseason. The preseason is expected to be calm in terms of managerial turnover as teams are preparing for the upcoming season. We don't normally expect to see much turnover here and as such changes appear to be made using short-term data and not based off an entire seasons results. Favoring the idea that changes are not rational decisions. Each statistically significant factor for why a coach would be changed in the preseason changes the likelihood by less than 1%. This leads to the conclusion that there must be another reason why coaching changes occur not included in the current model.

Figure 5.5 Marginal Effects on In-Season Coaching Changes in the Multinomial Model

Variable	Marginal Effects	Z-Score
Position	-.0020643	-0.21
Position$_{t-1}$*	-.0175094*	-2.73*
Position$_{t-2}$	.1075218	0.61
Goals Per Game*	-.3111143*	-2.44*
Goals Against Per Game*	.2946016*	2.04*
Goals Per Game$_{t-1}$	-.0521364	-.68
Goals Against Per Game$_{t-1}$*	-.2128964*	-8.08*
Trophy History	.001375	0.47
Average Attendance	1424.1036	-1.27

In-Season changes are not too different from preseason changes in terms of the significant variables effects. For example, goals against per game plays a huge role determining the likelihood of a coaching change. Over the entirety of the table as goals against per game

increase by 1 goal, on average, the percent likelihood of a coaching change increases by nearly 29.5%. Once again this shows that poor performance can cause a managerial change but we have yet to see any significance from the change.

Figure 5.6 Marginal Effects on Postseason Coaching Changes in the Multinomial Model

Variable	Marginal Effects	Z-Score
Position*	.0174023*	3.23*
$Position_{t-1}$*	-.0084946*	-2.32*
$Position_{t-2}$	.0585411	0.65
Goals Per Game	.0526009	0.81
Goals Against Per Game*	-.1963113*	-2.38*
Goals Per $Game_{t-1}$*	-.0496549*	-1.67*
Goals Against Per $Game_{t-1}$*	-.087489*	-4.78*
Trophy History	-.0001832	-0.09
Average Attendance	-794.7547^{t}	-1.50^{t}

For postseason changes, even though it falls just outside of the ninety-percent confidence interval, decreases in average attendance do tend to increase the likelihood of a change in the offseason. Once again we find that team performance is the main component taken into consideration when changing a manager. Here as goals against per game increase by one goal, the likelihood of a change increases by 19.6%. However this does not entirely explain why coaching changes occur after the season.

MODEL #4

The fourth model is an ordinal logit model with final table position separated into three categories, teams 1-5, teams 6-15 and teams 16-20, as a function of $position_{t-1}$, goals per game, goals against per game, trophy history, average attendance, in-season change and previous off-season change. The ordinal logit is designed to test the effects of each independent variable on a group of dependent variables; in this case the final table position groupings are the dependents.

The goal of ordinal logit model is to determine if different variables affect specific groups in the final table.

Here the final table position is separated into 3 ordered groups of the first 5 teams, the middle 10 and last 5 teams. Once again we don't find any significance towards any of the groupings for coaching changes. Neither in-season nor off-season changes affect the performance of the team. The only variable that is of any significance is trophy history relative to the top five and bottom five teams. The expected signs for each performance variable is correct, position, $position_{t-1}$, goals per game and goals against per game. Strangely trophy history and average attendance were negative. Both coaching change variables were negative as expected though. With an R^2 of .1817 we find that this model is acceptable but does not explain a great amount of variation.

Figure 5.7 Ordered Logistic Regression Results

Variable	Coefficient	Z-Score
$Position_{t-1}$	.0375837	1.20
Goals Per Game*	-1.065202*	-1.89*
Goals Against Per Game*	1.431225*	2.85*
Trophy History*	-.04846*	-2.70*
Average Attendance	-.000017	-1.20
In-Season Change	-.1563029	-0.55
Previous Off-Season Change	-.3811264	-1.04
Psuedo R^2 = .1800		
Cut 1 = -1.657335	Cut 2 = 1.025353	

Figure 5.8 Marginal Effects Outcome for teams 1-5

Variable	Coefficient	Z-Score
$Position_{t-1}$	-.0066715	-1.20
Goals Per Game*	.1890586*	1.90*
Goals Against Per Game*	-.2540588*	-2.78*
Trophy History*	.0086022*	2.67*
Average Attendance	1218.3549	1.18
In-Season Change	.0283461	0.45
Previous Off-Season Change	.072276	0.97

The varying goals set forth by club presidents and owners are typically the same in similar sections of the league. The top tier in England, the top 4 or 5, typically challenge for the league title and for European success as well. These clubs are the some of the biggest clubs in England as well as the world, including Manchester United, Arsenal, Liverpool plus nouveau riche Chelsea and more recently Manchester City. At the top of the table we typically find that the teams are competing for multiple trophies and the managers are required to continually maintain the team at the highest level by qualifying for the lucrative Champions League spots. Within the data coaching changes are not found to have any effect on performance, attendance, or more specifically teams that finish in the top four spots. As shown by the first two least squared model regressions analyzing performance and average attendance, the variables for coaching changes which occurs in-season or during the off-season do not significantly affect either model. The ordinal logit model however, measures the effect each independent variable has on the specific category represented in the model. In this model it was again found to be that teams finishing in the top five were less likely to change their coach. Seeing that it is highly unlikely for coaching changes to take place within the top four position in the table due to poor long-term performance results and poor attendance, it is far more likely that coaching changes are being made here by owners and senior management for emotional or short-run performance related causes. Typically what we have seen in recent years is that Champions League glory is the ultimate goal for clubs at this level and failure to achieve success in the league as well as in European competition simultaneously can lead to a coaching change.

Chelsea is a prime example of a top-level team that consistently qualifies for the Champions League. They have won numerous league titles and domestic trophies in the Premier

League era since their new billionaire owner took over the club and flooded it with cash. Before Roman Abromovich took over the club in 2003, the club could compete for the Champions League spots but never assumed qualification. With a huge influx of expensive new players in 2004, Chelsea became a powerhouse in England. With over £100 million spent on new players and new coaches brought in as well, the new goal set forth by the owner was the Champions League title or bust. Since then Chelsea has not finished outside of the top 4 places; having won the Premier League three times, finishing second 4 times, third once, and fourth once in 2004 (the first year of the Abromovich era). Throughout these last eight seasons Chelsea has had 4 seasons when coaches were fired but has had eight coaches in the last nine years. The mean performance standard throughout this time period was set by the owner and if the coach did not maintain that mean level and progress at least to the next round of the Champions League, when compared to the previous season, he was fired.

The exact opposite can be seen at Manchester United. Here Sir Alex Ferguson was hired in 1986 and has just completed his 25th year in change at United. Ferguson was hired and raised the performance standards of Manchester United each season until he won his first title in 1992, unlike with Chelsea. Ferguson was given six years to take a middle of the road United squad and turn them into the most dominant team the Premier League has seen. Winning twelve titles in the Premier League era, 18 seasons. Also Manchester United has not finished outside of the top 3 in that same time period. Sir Alex Ferguson changed the culture at United and created a new performance level and has been given full control, so long as he maintains his current level throughout each season.

Figure 5.9 Marginal Effects Outcome for teams 6-15

Variable	Coefficient	Z-Score
$Position_{t-1}$	.00099	0.83

Goals Per Game	-.0280595	-1.02
Goals Against Per Game	.0377012	1.06
Trophy History	-.0012765	-1.05
Average Attendance	-4912.9165	-0.80
In-Season Change	-.0053145	-0.42
Previous Off-Season Change	-.0192438	-0.65

Moving down into the middle of the table, these teams typically rotate between the sixth through the fifteenth spot. Here we have the perennial churning of the teams to challenge for Europa League spots, domestic cup competitions and the teams hoping to stay above the relegation fight. These teams typically set goals of moving into the top half of the table, maintaining their current position, challenging for domestic cups (FA and League Cup) and the occasional European spot when one of the top five slip up. These teams are typically run more like American sports franchises in that they try and breakeven financially each year while maximizing performance levels. As previously noted the variables not being controlled for include player talent levels, player transfers and ownership changes along with many other omitted variables that go into determining a team's status. We typically find that teams hover around a certain performance mean and coaching changes occur when the team either falls or rises for a considerable amount of time around the mean. When the team's performance falls we find coaches being fired, and conversely when teams stay above their mean performance level bigger clubs pick up their managers. This cycle of coaching changes typically keeps middle of the table clubs in their respective positions unless one team has an unusually good or bad year. As seen in the OLS regressions on performance and attendance there is no statistical significance showing that firing one's manager changes either dependent variable significantly, leading us to believe seasonal averages are not the best predictors for determining managerial turnover in terms of percent likelihoods. Seasonal data seems to be considered long-run data for most teams.

Many of the decisions determining managerial change, player acquisitions, trades and releases typically are based on short-run data. This typically encompasses a run of bad form where a team does poorly for a month or two, not the entire nine-month season.

Figure 5.10 Marginal Effects Outcome for teams 16-20

Variable	Coefficient	Z-Score
$Position_{t-1}$	.0056815	1.20
Goals Per Game*	-.1610261*	-1.87*
Goals Against Per Game*	.2163576*	2.83*
Trophy History*	-.0073257*	-2.72*
Average Attendance	-1169.9435	-1.20
In-Season Change	-.0230316	-0.56
Previous Off-Season Change	-.0530232	-1.14

Lastly at the very bottom of the table we find teams in 16 and 17 in addition to the relegation teams 18, 19 and 20. Since the bottom three teams are relegated to the next league, the Championship division, we no longer have data for them unless they reappear in the Premiership. This churning of teams at the bottom typically results in similar teams being relegated and promoted quite often. This allows for them to bounce back and forth for a number of years until their mean performance level either improves enough for them to remain in the Premiership or falls and keeps them perennially in the Championship, or worse, relegates them to lower leagues.

Owners and club directors at this level typically plan to either increase the clubs infrastructure in terms of both players and stadia or choose to remain at their current level as a Championship level club. When clubs choose to fight for survival in the Premiership we typically see an overhaul of the playing squad, improvements to facilities and/or sometimes changes in the coaching staff. Failure to stay up typically results in the manager being sacked

either before the season is over or soon thereafter. However, teams that choose not to spend the influx of Premier League money immediately but instead invest it in the youth of the club typically do not have turnover rates like the previously mentioned clubs. These clubs typically have more long-term oriented plans built around financial stability and in doing so keep their managers longer.

MODEL #5

In the Hazard models we are able to test several different factors associated with determining the length of time a manager remains employed after the hiring date. First the Kaplan-Meier model is a graphical representation of the length of time a manager remains tenured with a club. It shows the percentage of coaches still tenured after each season. The second model, the Cox model, measures the affects of each independent variable on each coach's tenure. Also the Cox model takes into account the length of the tenure and controls for when a coach was hired and leaves.

We tested the length of employment in tenured years and the number of games coached as the dependent variables. The independent variables included age, nationality, number of teams coached, if they coached any of the "Big Four" (Arsenal, Chelsea, Liverpool, Manchester United) and the variables of interest, either current season points per game or the difference in their current points per game minus their average points per game over their tenure. The variable for difference in ppg versus tenure ppg is statistically significant in each Cox hazard model and is positive. As expected when the current points per game increased in comparison to the average over the tenure, we typically see coaches last longer. Logically this makes sense. Coaches who perform better than average receive contract extensions as well building goodwill within the

organization, which will help them if their average ppg dips below their tenure's average. As previously stated Sir Alex Ferguson is an excellent example of a coach who raised the standard at a club and has maintained an unprecedented level of success over his tenure of 26 years.

The chart listed to the right is, Figure 5.11, a Kaplan-Meier survival estimate displaying the difference between tenure time for English managers and European continental managers. The graph indicates that European managers typically don't last as many seasons in their tenure as English managers. The first steep drop occurs for both English and Continental managers around the second season where it levels off of a year for English but continues to drop for the European managers.

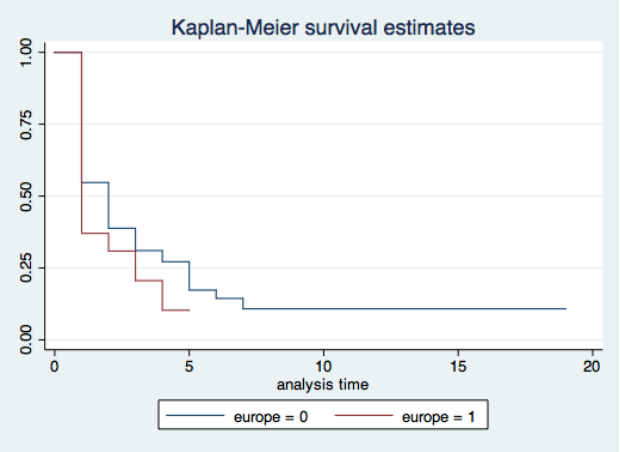

Figure 5.12 Cox Model for Tenure by Number of Games

Variable	Coefficient	Z-Score
Age	.0150277	.32
Scottish	.0377857	.06
European*	1.581507*	2.26*
Number of Teams Coached	-.1122099	-0.95
Points Per Game Differential*	-2.369321*	-4.92*

However, when analyzing the Cox model results for the tenure based upon the number of games coached and measuring the points per game differential, we find that being European is positive and significant. Showing that in the Cox model being a European coach actually improves your longevity, compared to English, where as the Kaplan-Meier says otherwise. In the Cox model one assumption is that European managers in England who are perceived to have

performed above average have the option of returning to the continent to possibly a bigger salary and/or a more prestigious club. Some of the drop off in the Kaplan-Meier can be explained by this siphoning off of international talent from the English league. One observation we don't see though is English coaches moving abroad. It is quite rare to see an English coach take a first division job in another country, while it is not rare to see a high profile Spaniard, Portuguese, Italian, Dutch or other continental European manager take a job in a foreign league. For this reason we expect over performing foreign managers in the UK to either return to their native league or another continental league for a more prestigious and often higher paying job. This assumption is inline with the idea that as the difference in ppg-ppg tenure becomes positive we see an increase in longevity of the coaches. But as shown buy the Kaplan-Meier, English coaches still tend to have a slightly longer tenure than other continental European coaches in the EPL.

CHAPTER 6

CONCLUSIONS

After a close analysis of the managers in the Barclays Premier League we can conclude that there is no statistical link between coaching change and the teams final position in the league. Similarly coaching change does not statistically affect average attendance. Also with the outcomes form the logit and multinomial models we come to the conclusion that seasonal data is not the best measure for determining coaching change. Using information over the last 18 years from the EPL and the different models to measure performance, attendance and tenure, the assumption is that the decision making process used for changing managers comes from short-run data.

From the literature and the results taken from the different models we find that rational decision-making process based upon season data no longer holds true. Managerial changes now appear to be short-run decisions that are made to appease owners and fan. As shown by the Chelsea F.C. case, the League was ownerships second priority and the Champions League was considered first. This oligarchy atop the Premier League has rendered long-term data irrelevant as managers are required to maintain the high performance standards associated with Champions League qualification. As shown by the Cox model it is short-run deviations from the tenure average that determine a managerial change now, not full seasons.

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