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An Analysis of Managerial Retention Decisions Using Major League Baseball

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AN ANALYSIS OF MANAGERIAL RETENTION DECISIONS USING MAJOR LEAGUE BASEBALL

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ABSTRACT

Major League Baseball managers are often blamed for the poor performance of a baseball team. In the past two years alone, there have been eight midseason managerial firings and six postseason managerial firings. While this number may seem high, these numbers have actually been consistent with probabilities of managerial retention since 1930, when baseball was still in the early stages of its development as a professional sport. In the following study, I examine the factors that are taken into account during these managerial firing decisions and what conditions are present when changes do take place. Using Major League Baseball managerial data from 1988-2011, I find that poor team performance with respect to other teams in its division, consecutive seasons of losing records, high age of the manager, and the presence of an interim tag on the manager are all factors that decrease the likelihood that a manager will be retained. On the other hand, recent success at the highest level, in the form of a World Series championship, increases the likelihood of a manager being retained into the next season.

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I. INTRODUCTION

In a game of baseball, a manager has a limited number of resources at his disposal. An effective manager allocates his scarce resources so as to maximize their potential output. Before and during a game, a manager must make many decisions about how to use his players so that their production matches their potential. These strategic decisions include, but are not limited to, determining a batting order, deciding on appropriate times to bunt or steal, and efficiently utilizing the team's relief pitching.

In many ways, a baseball manager acts as an on-field CEO. Just as a CEO is responsible for the day-to-day success of a company, the baseball manager is responsible for the day-to-day success of a baseball team on the field.

Furthermore, a manager must be able to play the role of player motivator, emotional leader, team cheerleader, and team psychologist. Baseball researcher Chris Jaffe (2010) notes, "Managers are first and foremost managers of men." Just as he must make sound on-field decisions so that his players produce to their maximum potential, he must also lead so that his players are in a motivated, invested, and

confident emotional state to perform. In order to be successful, the manager must make sound decisions in all areas.

At the same time, however, without sufficient resources, a team will not win. The output of these resources, the players that comprise a team's roster, is the primary determining factor in whether or not a team will be successful. If a team does not have good players, the manager can only do so much to overcome this inherent disadvantage. His contributions, although numerous, are, at the same time, limited. In most instances, despite a manager's motivational tactics or in-game strategy, the team with the players that play the best will win the game.

While a manager generally has some say in the acquisition of talent, the responsibility for these decisions is spread out across an organization. Upper management and a franchise's scouting department are equally involved in these decisions, if not more so, than a team's on-field manager. In some extreme cases, the manager is completely left out of the decision-making process in acquiring the personnel that he will be responsible for managing. There is the famous scene shared by Michael Lewis (2003) in *Moneyball: The Art of Winning an Unfair Game*, in which we are taken into the Oakland

Athletics' war room on the day of the Major League Baseball Amateur Draft in 2002. Lewis's work allows us to examine the inner workings of the Oakland Athletics and the player acquisition philosophy of general manager Billy Beane. Repeatedly, Lewis unveils the separation between Beane and Oakland's manager Art Howe. This strained relationship is never more apparent than in the scene on draft day when Beane, other executives, and his scouting department are together in the war room. Howe arrives just before Oakland's first round selection is about to be made, stands quietly in the back of the room, and contributes nothing to the decision making process. It is Beane and his scouts that make the decisions entirely, yet the field manager often takes a significant portion of the blame when events on the field go badly. In fact, Art Howe was fired and replaced by Ken Macha the following offseason.

To be fair, a portion of the blame for this firing was attributable to a difference in game management philosophy between Howe and Beane. Still, Howe's lack of contribution to player personnel decisions is noteworthy. It can be assumed that all Major League teams share a similar decision making hierarchy. While not all field managers are as absent in the process as Howe, there is no doubt that there is an allocation of influence to be seen in the process. With this in mind, a

team's success is highly dependent on the ability of a team's scouting department and its general manager.

Even more importantly, the level of player talent can only reach a certain level over a consistent length of time if a team's ownership is not willing to invest in it. The absence of a salary cap in Major League Baseball makes it a reality that in most cases, not taking into account the variation in the ability of talent scouts across organizations, the owner willing to spend the most money will have the best players.

From 2004-2008, organizations in the top 10 percent of payrolls for their Major League team reached the playoffs eighty percent of the time.[1] In contrast, organizations in the bottom fifty percent of payrolls only made the playoffs thirteen percent of the time. While there are numerous examples during this time period of small market teams outperforming expectations and earning playoff berths, the numbers indicate that a higher payroll leads to a much greater likelihood of team success.

Even so, an on-field manager is often blamed for his team's failures when the talent level of his players is comparatively low. In 2010

[1] Salary information is taken from the USA Today online MLB salary database found at http://content.usatoday.com/sportsdata/baseball/mlb/salaries/team.

alone, six different franchises made midseason managerial changes, with the Baltimore Orioles making two. With the exception of Lou Piniella's retirement from the Chicago Cubs, all were performance related firings. Five of the other six franchises can be found in the bottom half of the league's payrolls. At the end of the 2010 season, there were three more performance related firings, three retirements, and one interim manager hired in the middle of the 2010 season that was not retained. The New York Mets, with the 6th highest payroll, the Milwaukee Brewers, with the 18th highest payroll, and the Pittsburgh Pirates, with the lowest payroll, all made performance related decisions.

Pittsburgh dismissed field manager John Russell after three seasons, in which he produced a combined record of 186-299 with the lowest payroll in the National League Central Division in all three seasons. For the most part, a team with such a low payroll is comprised of either veterans with a relatively low talent level, aging veterans at the very back end of their careers, or talented young players without enough experience at the Major League level to be offered arbitration or free agency. These three groups of players all have deficiencies in the form of lack of talent, diminishing skills, or lack of experience. With Pittsburgh's ownership investing to such a small degree in players,

some would argue that Russell won just as many games as expected. For a comparison to the rest of the league, the New York Yankees, baseball's biggest spender in 2010, had a total payroll almost nine times greater than that of the Pittsburgh Pirates. Even in their own division, the St. Louis Cardinals outspent the Pirates by 2.34 million dollars per player on the twenty-five man roster. Still, however, blame was placed on the field manager for the team's failure to win.

The recently completed 2011 season saw more managerial changes. The Oakland Athletics, Florida Marlins, and Washington Nationals all made midseason swaps, although the decisions in Florida and Washington were classified as resignations. While Florida's change was seen as performance related, Washington's situation was mainly dependent on their refusal to discuss a contract extension with manager Jim Riggleman in the middle of the season. Again, these decisions were made with poorly performing teams with low payrolls. Oakland's payroll was the tenth lowest in baseball in 2011, while Florida made a midseason change for the second consecutive year, this time with the league's seventh lowest payroll.

At the end of 2011, there were three more performance related firings. Mike Quade, just one full year into his tenure with the Chicago Cubs,

was dismissed when a new general management group arrived. The Chicago White Sox made a managerial change, and the Boston Red Sox fired Terry Francona, after narrowly missing the playoffs with the third highest paid team in Major League Baseball.

With all of these recent situations in mind and looking back at the entire history of Major League Baseball, it is obvious that many times the manager takes the brunt of the punishment for a team's failures on the field. Whether those responsible for hiring and firing decisions believe that the manager is actually at fault or that there just needs to be a public show of reprimand remains to be seen. All of this leads to the question of what circumstances are needed for a manager to be dismissed. What causes a manager to get fired? Is it a prolonged period of losing seasons? Is it a streak of seasons without a playoff berth? Is it being at the helm of a team that fails to meet expectations as put forth by ownership? Is it being around when fans stop buying tickets to come to the ballpark? Just in the previous two seasons, we have seen a manager get fired for guiding the lowest paid team in baseball to another last place finish and the manager of a team with World Series expectations be dismissed for failing to lead his team to the playoffs. To be sure, the conditions in which dismissals occur are various.

In hopes of analyzing these conditions further, the thesis will proceed as follows. In Section II, I will summarize the literature performed on CEO turnover to date. This CEO turnover literature will be valuable in that it will show us what circumstances are present during the dismissal of managers and leaders outside of the baseball world and then compare these practices to the treatment of Major League Baseball managers. In Section III, I will present a brief history of field managers in Major League baseball. In Section IV, I will introduce some statistics on tenure length of managers, and in Section V I will develop a model of the probability of manager retention.

II. BACKGROUND LITERATURE

A baseball manager and a company's CEO are similar in their responsibilities and goals. A baseball manager is charged to make decisions that will enable his resources, his players, to produce at their maximum output, which in turn will determine the overall success of the team represented in the form of the win/loss record. As the players perform at a higher level, the team will win more games and the manager will be seen as having been successful. Similarly, a CEO is responsible for making decisions in hopes of producing the maximum earnings for his company. Just as a manager is judged almost entirely on winning percentage, a CEO is judged on the company's bottom line.

Also, both positions are under significant pressure from various outside parties to produces success in these areas. A manager faces pressure from his team's fan base who desire wins and championships, and a CEO faces pressure from his company's stockholders, who desire profits. Both of these groups, the fans and stockholders, also have the power to apply pressure to those making hiring and firing decisions. The fans apply it in the form of decreased ticket sales, while the

stockholders will sell shares. In either form, these actions affect the decision makers financially and oftentimes bring about change.

With all of these similarities, it is useful to first consider the economic research that has already been performed regarding CEO turnover, when examining the dynamics of Major League Baseball manager turnover.

As expected, many studies have found that the likelihood of CEO turnover is driven, to some degree, by firm performance. (Coughlan and Schmidt, 1985; Warner, et al, 1988,; Weisbach, 1988; and Parrino, 1997) In short, a CEO is less likely to be retained when his firm is performing poorly. Coughlan and Schmidt (1985) use stock price performance from 1977-1980 to analyze the likelihood of CEO turnover under different conditions. They find that a firm's board will use the threat of compensation changes and the threat of termination to control top executives, and, using the stock price data as an indicator, find that when a firm is performing poorly enough, the CEO will be dismissed. Similarly, Warner, et al (1988) find that the probability that a top executive will be retained and the firm's stock performance have a direct relationship.

This is, of course, to be expected. A CEO cannot expect to save his job when his firm is not successful financially. Research also finds, however, that CEOs at poorly performing firms are still less likely to be retained even when they make business decisions that are comparable to decisions made by their counterparts in similar firms. (Khanna and Poulsen, 1995; Farrell and Whidbee, 2002) Even when the decisions made by poorly performing CEOs closely resemble the decisions of CEOs in charge of highly successfully firms, the poorly performing CEOs are likely to still be dismissed.

Similarly, there is congruence in the ideas and behavior of Major League managers. Just as an example, lineups are constructed similarly. Speed is placed at the top with power in the middle and the weakest hitters at the bottom. Bullpens are also utilized similarly. In just the last twenty years, the roles of relief pitchers have become increasingly specialized. Almost every team has one player designated as the closer, a pitcher who throws the last inning of a game in which his team is leading. Many teams have left-handed pitchers whose sole job is to retire one left-handed hitter a game. To be sure, the thinking of MLB managers across the board is similar in many other ways, as well. They all make similar in-game decisions, yet several are still fired every year.

While the impact of firm performance on CEO turnover is statistically significant, the quantitative effect is relatively small. "The typical study finds that moving from the top to bottom decile of performance increases the probability of CEO turnover in publicly traded firms by about 4 percent." (Brickley, 2003) A more predictive variable for the probability of CEO turnover seems to be the age of the CEO. Murphy (1999) proposes that the likelihood of a CEO leaving his position is almost 30 percent higher when the CEO is 64 years of age or older. In a similar study, Farrell and Whidbee (2003) also find that the age of a CEO plays a role in the likelihood that the CEO will return the following year. In their study, they find that the sixty years of age mark is a predictive indicator for the likelihood of CEO turnover.

Another significant portion of the same study suggests that deviation from expected performance is a more important determinant in CEO turnover than firm performance absent of expectations. They find that boards make their decisions based on earnings forecasts and are more likely to release a CEO when the firm's performance falls short of these expectations, especially when there is consensus among analysts.

This is an interesting topic to explore with regards to MLB managers. It would seem logical that a manager would be more likely to be

dismissed when his team is predicted to finish high in the standings or has a high payroll yet performs poorly. This would especially seem understandable if there were many groups, from media analysts to fans to players, expecting greater results without actually seeing a high number of wins on the field.

III. MANAGERIAL HISTORY

In the early days of professional baseball, managers were often more along the lines of team captains. A majority of managers on these teams played while serving as manager at the same time. In these days, the manager was responsible for filling out the lineup card daily and other managerial duties, but, at the same time, he was there to primarily be a playing member of the team and contribute to wins and losses with his on-field play. The first manager of a professional baseball team was a playing manager named Charles "Pop" Snyder, who took over the Cincinnati Red Stockings at the age of 27. While managing, he also served as Cincinnati's catcher and even led the league in putouts by a catcher.

Depken (2011) notes that this model, however, which was common in the early days of professional baseball was almost entirely eliminated by 1956: "From 1871 through 1955, player-managers comprised 41% of all managerial positions…After 1955, the player manager was a rarity; only ten player-managers served from 1956 through 2009 comprising 0.6% of all managerial positions." Depken (2011) also finds that these player-managers were not any more or less successful than their non-playing counterparts. He did find, however, that when

these players managed, the quality of their play on the field suffered. Since these players were often some of the most skilled on their team, having these players serve in a managerial role led to a high opportunity cost. As this cost increased, the presence of the player-manager was largely eliminated. With the elimination of the player manager, Major League managers today are much older and much farther removed from their playing days. The average age of a Major League manager is 2011 was 55.39 years, and this number has been trending upward, as shown in Table 1 and Figure 1.

Just as the age of the young player-manager is gone, the days of the long-tenured manager serving one team are becoming scarce. In the previous decade, excluding the tenures of managers who took over midseason as interim managers, the average tenure of a Major League manager was 3.33 years.[2] While this tenure length is not as short as it was in the 1980s, it is still lower than the average length of 5.05 years that was seen in the 1940s. Table 2 presents these decade by decade tenure lengths.

In 2011, the longest serving manager with one club was Tony LaRussa of the St. Louis Cardinals, who led the team for 16 consecutive

[2] All information on managerial tenure lengths was compiled using a baseball database compiled by Sean Lahman found at http://baseball1.com/2011/01/baseball-database-updated-2010/.

seasons. He retired after winning the World Series this past season, making Mike Scioscia, who is entering his 13th consecutive season with the St. Louis Cardinals, the new longest tenured manager with one club in baseball. Bill James, (1997) the famous baseball researcher, attempts to provide reasoning for the relatively short tenure of a Major League manager by saying, "The most important question that a manager asks is 'what needs to be changed around here?' Any manager, over time, loses the ability to see what needs to be changed." As such, a manager's tenure is not interminable.

Some general managers or owners that make managerial hiring and firing decisions take this idea to the extreme. George Steinbrenner in his first twenty-three years as owner of the New York Yankees oversaw twenty managerial changes, including the dismissal of Billy Martin on five different occasions.

In this case, differing views on baseball strategy and player treatment between Martin and Steinbrenner was the overriding factor in the retention decisions. Winning seemed to be a secondary factor as the Yankees were relatively successful with Martin at the helm winning two American League pennants and one World Series championship, and posting a winning record in every season. Still, Billy Martin and George

Steinbrenner regularly feuded over various daily operations of the team. They disagreed on lineups, motivational tactics, and treatment of players.

While winning is important, the Steinbrenner era in New York and other historical examples suggest that the absence of a collaborative, harmonious work environment between a field manager and upper management can contribute to a shorter managerial tenure. There are many responsibilities of a field manager, both on the field and off, and, consequently, many areas for the two parties to disagree. One of a manager's many roles, and the most important in the eyes of many, is that of team leader. There are many different approaches to this leadership role and different strategies for getting the most production out of the pieces of a ball club. There are disciplinarians, and then there are "player managers". One of the rifts between Billy Martin and George Steinbrenner was Martin's tough approach to team discipline, in particular his uncompromising treatment of star players such as Reggie Jackson.

On the other hand, Bobby Cox managed twenty consecutive seasons in Atlanta before his retirement at the end of the 2010 season, in large part due to his team's on-field success, but also because ownership

agreed with his leadership style that led to a more relaxed clubhouse atmosphere.

Along with these leadership styles, managers develop their own identifiable in-game strategy styles, as well. There are different lineup building strategies, different strategies for handling the offensive side of the game (when to bunt, steal, hit and run, etc.), different strategies for handling a team's relief pitching, and so much more. Agreement on these issues between a front office and manager is important, as well. From 1968 to 1982 and again from 1985 to 1986, Earl Weaver managed the Baltimore Orioles with a philosophy dependent on pitching, defense, and the three run homer. As such, he rarely bunted or attempted to steal bases. Using the logic that an offensive team is given a limited and scarce number of outs in a game, he instead chose to play for runs by allowing his players to hit. As such, he had a reluctance to hand potentially free outs to the opposition by bunting, stealing, or using the hit-and-run. Weaver (2002) writes, "There are only three (outs) an inning, and they should be treasured. It's such a basic fact that fans sometimes forget it, but an inning doesn't last fifteen minutes or six batters or twenty pitches; it lasts three outs. Give one away and you're making everything harder for yourself." Upper management agreed with his philosophy

and allowed him to practice it over the course of seventeen Major League seasons. They also provided him with the offensive weapons necessary to execute this philosophy, sluggers like Eddie Murray and Frank Robinson. As a result, the Baltimore Orioles won four American League pennants, one World Series title, and posted a losing record only once over the length of Earl Weaver’s tenure.

Furthermore, Weaver agreed with the thinking that a manager could only be as successful on the field as his talent would allow him to be. Weaver (2002) goes on to say, "The home run makes managing simple. Frank Robinson would come to bat with two guys on base. I'd yell, 'Hit it hard, Frank.' Frank would hit it hard and far, over the fence. Then he would come around the bases and back into the dugout. I'd say, 'Nice hit, Frank.' Now that is the ideal way to manage...Give me a lineup full of Frank Robinsons, Eddie Murrays,and Brooks Robinsons and I'll show you how simple managing can be." As seen by the results on the field and Weaver's lengthy tenure with Baltimore, upper management agreed with this philosophy.

IV. TENURE ANALYSIS

It is hard to measure the impact of a manager's relationships with ownership, his baseball philosophies, his treatment of players, or his off-field behavior on the length of managerial tenures. The impact of a manager's win/loss record is, on the other hand, much more easily quantified. Even managers who peacefully co-exist with management and treat their players well will not manage the same team forever without a degree of on-field success, in the form of wins, playoff appearances, and championships. The question becomes how much success is needed to guarantee job security and how has this changed over time.

In order to gain some understanding of exactly how volatile Major League managerial jobs are and how this volatility has changed over time, Table 3 and Figure 2 show the percentage of teams that made managerial changes year by year since 1930. These statistics do not take into account midseason managerial changes; however, a change is noted if the manager of a team at the start of a year is different than the manager that started the previous year for the same team. Since 1930, the average percentage of managers that were replaced in a given year is 19.5 percent. The 2011 offseason saw a number only

slightly higher than that with 23.3 percent of jobs changing hands. The figure presented shows a fluctuation in managerial changes from year to year, with no real trend emerging. Perhaps surprisingly, it appears that a manager is just as likely to keep his job from one year to the next now as he was in the early stages of the game's history back in 1930.

Certainly, different franchises have different philosophies on their manager retention plans. Table 4 provides a summary of franchise tenure lengths. For simplicity, today's franchises encompass all of its previous forms. For example, statistics on the Los Angeles Dodgers include tenure lengths from managers for the Brooklyn Dodgers, as well. For the most part, franchises make these decisions based on the level of success achieved by the team. What constitutes success, however, is different for each team. A winning season may provide reason for celebration in the case of many small-market teams. On the other hand, the wealthiest teams with the biggest payrolls, such as the New York Yankees, will not consider a season a success unless it ends with them celebrating a World Series victory. As such, managerial tenure lengths vary greatly from team to team. Perhaps surprisingly, the team with the lowest average managerial tenure is the Florida Marlins, a team located in a midsize market. Excluding midseason

replacements, the managers of the Florida Marlins are only on the bench for an average of two seasons. A small market franchise, the Kansas City Royals, is right behind them with an average managerial tenure of 2.2 years. The Los Angeles Dodgers, a relatively large market team, have the longest average managerial tenure with an average of 5.7 years. This number is aided by the lengthy and successful tenures of Walter Alston and Tommy Lasorda. Alston managed the Dodgers for twenty-two consecutive seasons beginning in 1954. Over the length of his tenure, he won an average of 89 games a year, won four World Series championships, and never posted a losing record. Lasorda replaced Alston as manager with four games remaining in the 1976 season and amazingly remained in this position for the next nineteen seasons. While unable to replicate Alston's level of consistent success, Lasorda still managed to win two World Series titles.

Out of his nineteen years at the helm, he posted seven non-winning seasons, an unexpectedly high number for a manager who was able to stay in one place for so long. He was able to make the most out of a season when his teams were very talented, however. In 1979, the Dodgers produced their first losing season under Lasorda, yet two years later the Dodgers won the World Series. Similarly, the Dodgers

were 16 games under .500 in both 1986 and 1987 but managed to defeat the Oakland Athletics in the World Series in 1988. It seems that Lasorda was able to use World Series success to excuse many losing seasons in the eyes of those in the organization that made manager retention decisions.

This occurrence can also be seen league wide as a whole. Since 1930, a manager who has won a World Series during his tenure with the club served an average of 3.18 seasons. Meanwhile, managers who won a World Series during their tenure served an average of 7.38 years.

On top of this, it seems to be very important for managers to avoid consecutive losing seasons. Table 5 shows the number of occurrences of consecutive seasons with losing records league wide since 1930 and the number of times a manager was not retained following these streaks.

While it is undoubtedly important for a manager's job security to avoid consecutive losing seasons, it also appears that this degree of importance varies among small-, midsize-, and large-market teams, as presented in Table 6 and Figure 3, since 1988. For the purposes of this study, a large-market team is defined as a team in the top third of the league in total payroll. Meanwhile, a midsize-market team is in the

second-third of the league in total payroll, and a small-market team is in the bottom third. Although it is a small sample size, these numbers are especially glaring when analyzing two consecutive losing seasons for large-market teams and three consecutive losing seasons for midsize- and large-market teams. When a team in the upper third of the league in payroll has two consecutive losing seasons, a managerial change has occurred more than 58 percent of the time. Similarly, any streak of three consecutive seasons with a losing record will likely result in a change but especially for midsize- and large- market teams who, when combined statistically, saw change in over 53 percent of occurrences.

Similarly, a playoff drought of three seasons likely signals an end of tenure for the manager of a large-market team. These statistics are shown in Table 7 and Figure 4. While a clear pattern does not emerge in any of the other cases presented, the manager of a large-market team has only retained his job in six of the fifteen instances in which he has experienced three consecutive seasons without a playoff appearance.

Another piece to analyze is the effect of attendance on an executive's managerial retention decision.[3] Eliminating seasons in which play began in new ballparks, total season attendance increased by an average of 36,179.28 in seasons in which the manager was retained for the next season. Conversely, in seasons in which the manager was not retained, total season attendance decreased by an average of 1,128,70.7. While it could be argued that fewer wins led to the decreased attendance and fewer wins is what contributed to the decision to change managers, it is still useful to note that decreased attendance did occur in the seasons prior to these decisions, and the attendance change was a piece of information available to decision makers. Undoubtedly, these decision makers dislike attendance decreases, as they have negative effects on their ability to create revenue.

While these numbers are informative to a degree, looking at likelihood of manager retention using only one variable at a time gives an incomplete picture of the managerial retention decision-making process. Manager retention decisions are made with the whole picture and many variables in mind. Results of previous seasons, championships won in previous seasons, performance of the team with

[3] Attendance data is taken from Sean Lahman's online database.

respect to other teams in the league, a team's expectations, improvement from year to year, and attendance fluctuations are all included in the decision making process. It is impossible to determine which on-field factors carry the most weight without performing some type of regression analysis. Also, no definitive conclusions can be made regarding this data without taking into account other factors, such as age of the manager and his interim status. These factors will be evaluated in Section V in hopes of producing a model of manager retention.

V. A MODEL OF MANAGER RETENTION

A possible function that explains the probability of a manager returning to a team the following year is

Max (p) retention = f (g, a, c, e, i, b, X) where

g indicates performance of the manager's team relative to other teams in the league

a indicates performance of the team in a manager's prior years of service

c indicates the existence of extraordinary, championship caliber performance in a manager's prior years of service

e indicates the fans' impressions of the team under the current manager

i indicates whether or not a manager served with an interim tag

b indicates the age of the manager

X is a vector of other circumstances that are involved in the manager retention decision making process, including relationship of the manager with upper management and other relevant controls

In this study, I will perform a regression analysis to further investigate the manager retention decisions in Major League Baseball. The regression will hopefully allow us to better quantify the impact of the specific factors that are involved in this decision-making process.

The sample for the study of manager retention consists of 778 observations. These observations represent the season of every serving Major League manager since 1988, midseason replacements included. For the purposes of this study, an interim manager serving after a midseason change has one observation that denotes his team's performance in the fraction of the season in which he was at the helm. Summary statistics are provided in Table 8.

The measure of a team's performance relative to other teams in the league is the number of games back a team finds itself from its division leader at the end of the year. Because playoff appearances are awarded based on the finish of a team within its division, I used the team with the best record in each division in a given year as the standard for comparison. Also, when a manager only served a fraction of the year, I averaged his win percentage out over the course of the year to determine, in theory, what his record would be over a full schedule and then used this proportioned win total to determine how

many games back the team would have found itself had this win total occurred over the full course of the season.

The measures of a team's performance in prior years are binary variables indicating consecutive losing seasons. I included binary variables for a losing season, two consecutive losing seasons, and three consecutive losing seasons, where 1 indicates the presence of a streak and 0 indicates the absence of a streak. Also included is a binary variable indicating whether or not a manager produced a World Series championship with the team within a five year period, as this recent championship may have had some impact on decision-makers. Again, the binary variable 1 indicates the presence of a World Series championship in the past five years, while the variable 0 indicates the absence of a championship.

I also included a binary variable indicating the presence or absence of a playoff berth earned by the manager with the team within a three year, four year, and five year time period. This variable is another indicator of recent success.

The measure of the presence of an interim tag is a binary variable indicating whether or not a manager was a midseason replacement, with 1 indicating a midseason replacement.

Also included is a measure of the fans' approval of the team. This is measured using attendance figures for each team. The variable is calculated using attendance in a given year as compared to the average attendance seen in the previous three years. To correct for newly built ballparks and increased capacities, a team's attendance figures are calculated as a percentage of full capacity.

The final dependent variable is a measure of a manager's age during the season. This is included in hopes of capturing some of the managerial changes caused by simply a manager deciding on his own to leave the team for retirement.

The independent variable for this study is a binary variable with 1 representing a change in manager the following season and 0 representing a manager's return to the same team the following season. Given the binary nature of this variable, I used a probit regression model. According to Dhrymes (1978), the probit model is useful when dealing with binary response variables.

Table 9 shows the results of the probit regression estimating the probability of manager retention given season performance, previous seasons' performance, presence of an interim tag, fans' impressions of the team, and the age of the manager.

The positive sign on the games back variable shows that the more poorly a team does with respect to the other teams in the division, the more unlikely it is for a manager to return. The variables indicating one losing season and two consecutive losing seasons are not significant; however, the variable indicating three consecutive losing seasons is significant. The sign on this variable is positive showing that it is important for managers to avoid these long streaks of consecutive losing seasons if they hope to keep their jobs. Also, the variable indicating a World Series championship in the past five years is negative and significant, showing that extraordinary, championship caliber performance in the recent past is a criterion for decision makers in the manager retention process. Also, the variable indicating a midseason replacement is positive and significant at the ten percent level showing that it is harder for managers to overcome the interim tag when trying to return to their team the following season. The age of a manager is also significant at the ten percent level, again showing that as the age of a manager increases the likelihood of him returning to the same team the following season decreases.

VI. CONCLUSION

From the previous discussion, it is undoubtedly true that, without good players, a manager cannot be successful. Recent playoff history, in which eighty percent of teams in the top ten percent of payrolls reached the playoff from 2004-2008, demonstrates the factuality of this claim. Furthermore, testimonials from an experienced manager like Earl Weaver do the same. Weaver was able to manage the same Major League team for seventeen seasons. After all of these seasons of gaining experience and learning about the game, he still fervently argues that the key to any team's success and, in turn, any manager's success is having talented, productive players. A manager can do a great deal to put these players in the right positions to produce, but in the end it is the players that win games.

Still, looking at previous managerial history, it is apparent that the field manager is, in many cases, held responsible for the failure of a team on the field. Just as in the business community, in which executives of firms that are performing at a low level make similar decisions to executives of firms that are performing at a high level, baseball managers make congruent decisions across the board also. Even so, both CEOs and baseball managers are still held accountable

for the success or failure of a firm or team. Both are judged heavily on performance. In the case of the CEO, profits are the decisive factor; whereas, wins and losses are the main difference maker with respect to the baseball manager. These wins and losses are used heavily in the decision making process for the retention of these managers.

According to the model presented, it appears that the most significant factor that is used in this process is team performance in the current year as compared to the performance of the best team in the division. This "games back from the division leader" variable is the most strongly significant and strongly positive variable in the study. Also, the occurrence of a prolonged, consecutive period of sustained losing is a significant factor that seems to contribute to the decision to make a managerial change. This occurrence is seen as teams that experience three consecutive seasons of losing records are more likely to have a different manager in place to begin the following year. Older aged managers and managers who began employment in the middle of a season are less likely to be retained the following season as well.

One factor that appears to help a manager be retained is recent success at the highest level. Just as managers with a World Series championship during their tenure with a club spend an average of 7.38

years while managers without a championship serve an average of 3.18 years, the probit regression model also shows a positive, direct relationship between the probability of managerial retention and the presence of a World Series championship in the previous five years of a manager's term.

In short, the likelihood of a manager's retention is dependent on his team's success in the win/loss column. Managers that win baseball games tend to stay with their teams for long periods of time. While this may sound simple, the execution of this goal is difficult, as evidenced by the numerous recent examples of managers being fired in the middle of a season or after a season is completed. These firings will, undoubtedly, continue into the future as well. The hope for each manager is that his upper management and scouting department will provide him with a team of highly skilled, highly talented professional players that are capable of producing at a high level. It is then up to the manager to put these players into positions that will maximize their production level. Then they hope that this production will lead to enough wins and championships that allow the manager to remain employed.

Table 1. Average Age of MLB Managers by Year, 1988-2011

Year	Average Age	Year	Average Age
1988	50.06	2000	52.83
1989	48.43	2001	52.86
1990	49.81	2002	52.03
1991	48.50	2003	52.69
1992	47.77	2004	51.91
1993	48.83	2005	53.06
1994	49.45	2006	53.63
1995	49.90	2007	53.18
1996	50.15	2008	53.09
1997	50.10	2009	53.53
1998	50.09	2010	54.38
1999	51.91	2011	55.39

Figure 1. Average Age of MLB Managers by Year, 1988-2011

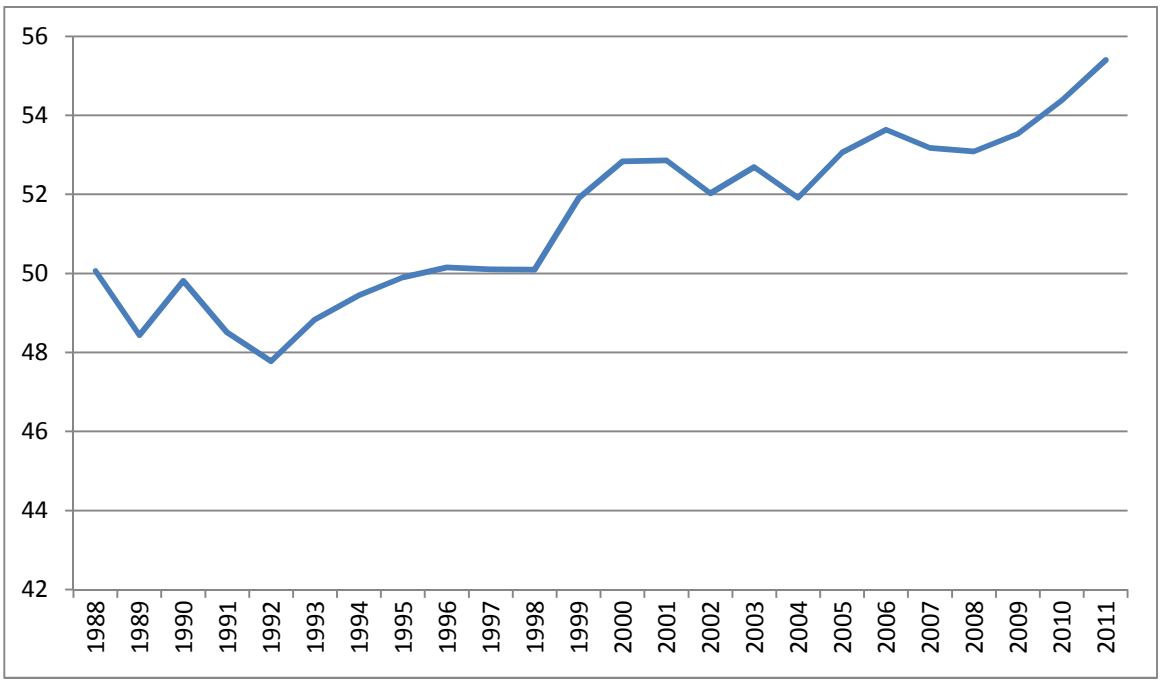

Table 2. Average Managerial Tenure Length by Decade

Decade	Average Tenure Length
1940s	4.3735
1950s	2.7539
1960s	3.0130
1970s	3.2710
1980s	2.8668
1990s	3.8696
2000s	4.0047

Table 3. Managerial Changes by Year, 1930-2011

Year	No. of Teams	Mgr Changes	Year	No. of Teams	Mgr Changes	Year	No. of Teams	Mgr Changes
1930	16	3	1965	20	5	2000	30	6
1931	16	3	1966	20	3	2001	30	6
1932	16	2	1967	20	6	2002	29	10
1933	16	5	1968	20	4	2003	30	3
1934	16	2	1969	24	7	2004	30	4
1935	16	0	1970	24	2	2005	30	5
1936	16	1	1971	24	4	2006	30	7
1937	16	6	1972	24	4	2007	30	5
1938	16	4	1973	24	6	2008	30	2
1939	16	2	1974	24	1	2009	30	2
1940	16	2	1975	24	8	2010	30	7
1941	16	3	1976	24	8	2011	30	7
1942	16	4	1977	26	3			
1943	16	4	1978	26	5			
1944	15	0	1979	26	7			
1945	16	2	1980	26	6			
1946	16	5	1981	26	6			
1947	15	5	1982	26	7			
1948	16	3	1983	26	5			
1949	16	3	1984	26	7			
1950	16	5	1985	26	6			
1951	16	3	1986	26	4			
1952	16	1	1987	26	4			
1953	16	5	1988	25	6			
1954	16	7	1989	26	2			
1955	16	3	1990	26	0			
1956	16	4	1991	26	8			
1957	16	1	1992	26	4			
1958	16	2	1993	28	2			
1959	16	4	1994	28	6			
1960	15	5	1995	28	6			
1961	18	2	1996	28	6			
1962	20	5	1997	28	3			
1963	20	3	1998	30	4			
1964	20	6	1999	30	7			

Figure 2. Probability of Managerial Change by Year, 1930-2011

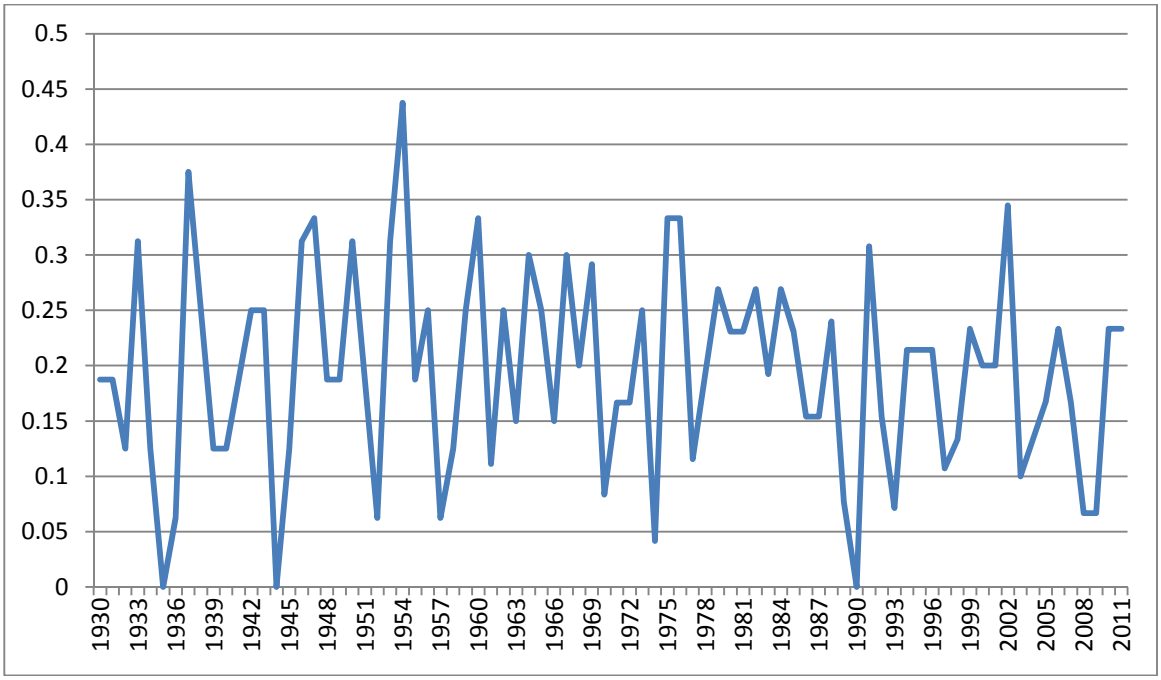

Table 4. Average Managerial Tenure Length, by Franchise

Franchise	Avg. Managerial Tenure Length	Franchise	Avg. Managerial Tenure Length
Arizona	2.60	Milwaukee	2.80
Atlanta	3.48	Minnesota	4.47
Baltimore	2.81	New York (AL)	3.33
Boston	3.62	New York (NL)	3.27
Chicago (AL)	3.66	Oakland	3.92
Chicago (NL)	2.75	Philadelphia	3.08
Cincinnati	2.70	Pittsburgh	4.26
Cleveland	2.70	San Diego	2.80
Colorado	3.60	Seattle	2.43
Detroit	3.17	San Francisco	4.37
Florida	2.00	St. Louis	4.30
Houston	3.06	Tampa Bay	3.25
Kansas City	2.21	Texas	2.63
Los Angeles (AL)	2.63	Toronto	2.83
Los Angeles (NL)	5.69	Washington	3.82

Table 5. Probability of Managerial Change Following Consecutive Losing Seasons, by Year from 1930-2011

Year	One Losing Season	Two Consecutive Losing Seasons	Three Consecutive Losing Seasons
1932	0.50	0.67	0.50
1933	0.88	0.50	1.00
1934	0.50	1.00	1.00
1935	0.00	0.00	--
1936	0.14	0.17	0.25
1937	0.33	0.50	0.50
1938	0.57	0.50	0.50
1939	0.17	0.00	0.00
1940	0.14	0.00	0.00
1941	0.44	0.50	0.40
1942	0.44	0.60	0.67
1943	0.29	0.50	0.50
1944	0.00	0.00	0.00
1945	0.33	0.50	0.50
1946	0.44	0.67	0.50
1947	0.43	0.50	--
1948	0.50	0.75	1.00
1949	0.38	0.67	1.00
1950	0.29	0.33	0.00
1951	0.33	0.40	0.50
1952	0.83	1.00	1.00
1953	0.57	--	--
1954	0.60	0.50	--
1955	0.29	0.50	1.00
1956	0.13	0.25	1.00
1957	0.67	0.75	1.00
1958	0.38	0.00	--
1959	0.67	0.50	1.00
1960	0.71	0.00	0.00
1961	0.44	1.00	1.00
1962	0.50	0.50	--
1963	0.33	0.33	1.00
1964	0.50	0.80	0.50

Year	One Losing Season	Two Consecutive Losing Seasons	Three Consecutive Losing Seasons
1965	0.44	0.67	1.00
1966	0.33	0.50	0.00
1967	0.56	0.75	1.00
1968	0.56	0.50	1.00
1969	0.56	1.00	--
1970	0.25	0.00	--
1971	0.18	0.14	0.33
1972	0.64	0.80	0.80
1973	0.33	0.00	0.00
1974	0.36	0.50	0.50
1975	0.62	0.50	1.00
1976	0.50	0.50	0.00
1977	0.58	0.75	0.50
1978	0.25	0.00	--
1979	0.60	0.40	0.50
1980	0.58	0.50	0.50
1981	0.90	1.00	1.00
1982	0.55	--	--
1983	0.38	0.75	--
1984	0.54	0.67	--
1985	0.45	0.67	1.00
1986	0.64	1.00	--
1987	0.36	0.00	--
1988	0.56	0.75	1.00
1989	0.27	1.00	--
1990	0.27	0.20	--
1991	0.70	0.80	1.00
1992	0.23	1.00	--
1993	0.17	0.25	--
1994	0.28	0.33	1.00
1995	0.31	0.27	0.20
1996	0.38	0.44	0.50
1997	0.25	0.29	0.50
1998	0.19	0.14	0.25
1999	0.33	0.20	0.20
2000	0.14	0.25	0.33
2001	0.36	0.56	0.60

Year	One Losing Season	Two Consecutive Losing Seasons	Three Consecutive Losing Seasons
2002	0.60	0.50	0.50
2003	0.17	0.50	0.50
2004	0.29	0.14	0.00
2005	0.50	0.86	0.75
2006	0.31	0.50	0.00
2007	0.36	0.80	--
2008	0.08	0.00	--
2009	0.29	0.14	0.50
2010	0.71	1.00	1.00
2011	0.00	0.00	--

Table 6. Probability of Managerial Change, by Market Size of Team

Size	One Losing Season	Two Consecutive Losing Seasons	Three Consecutive Losing Seasons
Large	0.377	0.583	1.000
Midsize	0.343	0.389	0.500
Small	0.279	0.388	0.467

Figure 3. Probability of Managerial Change, by Market Size of Team

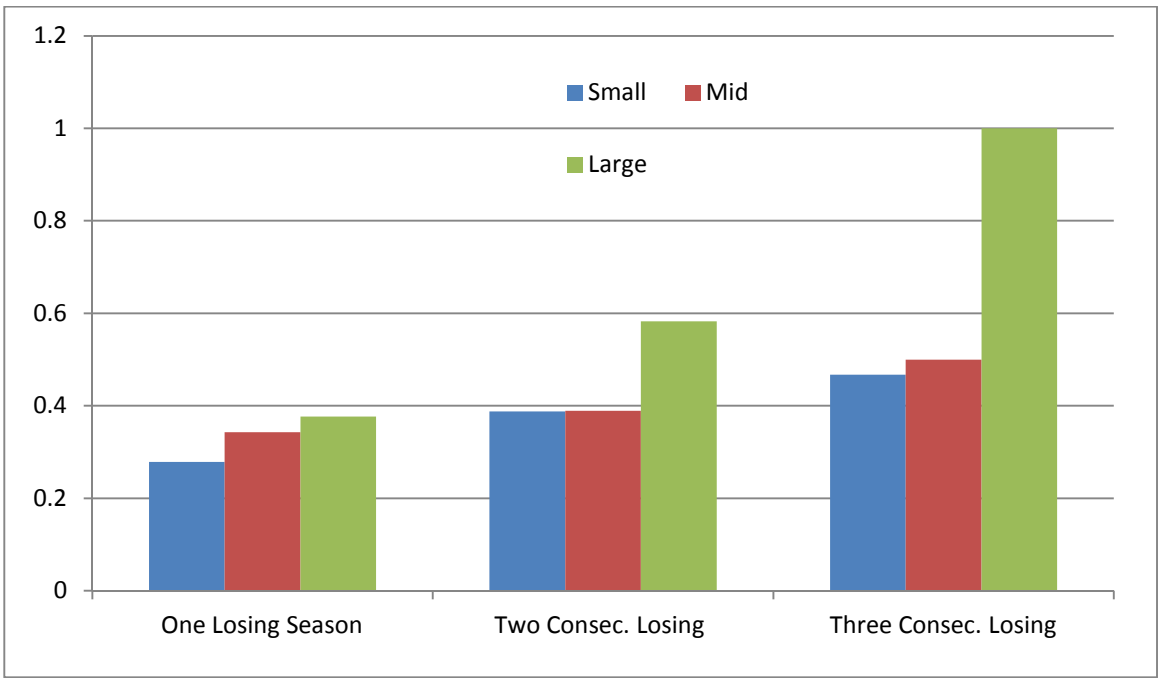

Table 7. Probability of Managerial Change After Years of Absence from the Playoffs, by Market Size of Team

Size	One Year	Two Years	Three Years
Small	0.1395	0.3125	0.4324
Midsize	0.2099	0.3214	0.3704
Large	0.1515	0.3448	0.6000

Figure 4. Probability of Managerial Change After Years of Absence from the Playoffs, by Market Size of Team

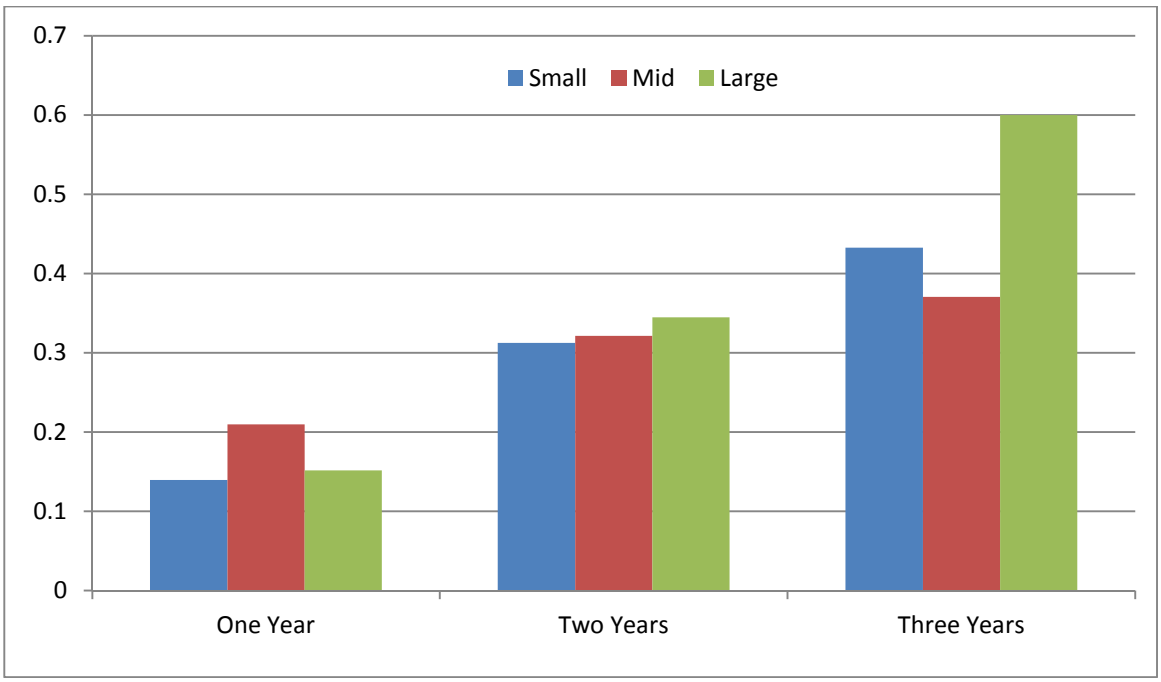

Table 8. Summary Statistics for Probit Regression Model of Managerial Retention Decision Making Process

Variable	Obs	Mean	Std. Dev	Min	Max
Mgr Change	776	0.2590	0.4384	0	1
Games Back	776	15.0509	12.6828	0	64
Losing Season	776	0.3015	0.4592	0	1
Two Consecutive Losing Seasons	776	0.1263	0.3324	0	1
Three Consecutive Losing Seasons	776	0.0941	0.2921	0	1
World Series Win (Past 5 yrs)	776	0.1211	0.3265	0	1
Playoff Appearance (Past 3 yrs)	776	0.2861	0.4522	0	1
Playoff Appearance (past 4 yrs)	776	0.2552	0.4362	0	1
Playoff Appearance (past 5 yrs)	776	0.2113	0.4085	0	1
Age	776	51.5039	7.4790	35	81
Interim	776	0.1186	0.3235	0	1
Attendance Change	776	.6168	.2087	-.8166	.12237

Table 9. Probit Regression Model of Managerial Retention Decision Making Process

Variable	Coefficient	Std. Error	Z	P>|z|
Games Back	0.0280	0.062	4.50	0.000***
Losing Season	0.0596	0.164	0.36	0.717
Two Consecutive Losing Seasons	0.1362	0.204	0.67	0.504
Three Consecutive Losing Seasons	0.5817	0.219	2.66	0.008***
World Series Win (Past 5 yrs)	-0.5895	0.208	-2.83	0.005***
Playoff Appearance (Past 3 yrs)	0.1526	0.200	0.76	0.446
Playoff Appearance (past 4 yrs)	0.2721	0.252	1.08	0.279
Playoff Appearance (past 5 yrs)	-0.3453	0.223	-1.55	0.121
Age	0.0123	0.007	1.75	0.079**
Interim	0.3010	0.163	1.84	0.065**
Attendance Change	-9.56×10^{-6}	2.71×10^{-5}	-0.35	0.724

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