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Change in Major League Baseball player performance after signing a Long-Term Deal

Matthew J. Cahill
St. John Fisher College

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Abstract
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Matthew J. Cahill

St. John Fisher College
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Baseball teams have been trying to understand how player performance changes over the course of their career for decades. Officials have wanted to figure out a better way of determining how much a player should make in their contract by trying to predict how their performance might change in the future. Front office officials need to better understand the importance experience might have when it comes to predicting a player’s future performance. In the previous study by Sturman & Thibodeau (2001), the researchers found that players tended to decline in performance once they signed a long term deal. The current study investigated 30 current Major League Baseball players, examining how their performance changed once they signed a long term deal during an arbitration year. This was done in order to comprehend the importance of experience in the league when deciding to sign a player long-term. Data was collected from baseballreference.com as well as baseballprospectus.com and put into a spreadsheet. The data was then analyzed to show the number of players whose performance changed after signing and how much it changed by. The research showed that, while there was almost always a change in performance, almost the same amount of players improved as declined. This means that less experienced players are more rewarding to sign to long term deals because of the higher rate of positive change compared to more experienced players. These findings give justification for teams looking to sign young talent to greater deals.
Introduction

This study was conducted in order to address the ongoing issue of whether professional athletes’ performance changes once job security is increased. Since professional sports began, players have been paid based on their on-field abilities and proven performance records. The higher quality of performance obviously means higher salaries. But once a player has proven himself over a period of time, when they sign a long-term contract, the study looked to determine whether they maintained that level of performance or whether it changed because of factors like a greater feeling of job security. This research was done to figure out if performance changed in professional baseball players who signed a long-term contract during one of their arbitration years in particular.

This research was important because of the benefits it gives to current and future teams looking to sign less experienced players to longer contracts. Teams do not want to sign a less experienced player to a large contract when there is a correlation with a decrease in on-field performance. This would make them lose money because they would be overpaying for the services of the player. The studies done on this topic have not focused in on the less experienced players. Most simply look for a correlation between any age or service time of a player and take into account the probability that it will be a player’s final contract. This study focused on players with little service time to try to help teams understand what happens to a less experienced player’s performance once they had signed a long-term contract for the first time.

The overall purpose of this study is to determine if there is a change in player performance once their first long-term contract is signed. This is a new feeling for a player to have job security and the study wanted to know if that might have an influence on a player’s statistics. This allows teams to more intelligently make deals with less experienced players who
might show a lot of promise and help them avoid signing players who could end up underachieving. The question this research tried to answer was:

How does a Major League Baseball player’s performance change after he signs a long-term contract during one of his arbitration years?

This study aimed to allow professional baseball teams to better understand the relationship between the performance of less experienced players and signing them to large deals.

**Literature Review**

**Finance and Economics of Professional Sports**

In the article by Acimovic, Spirtovic, Jonic, & Projevic (2013), the authors examined the existence of economic laws in professional sport because of its growth as an important industry in the business world. The authors looked at how entrepreneurship is present in the sport industry and the profitability of professional sports as a whole. The researchers also wanted to investigate how profit is generated differently than in other areas of business. They looked at different entrepreneurs in the sport industry to examine business risks and personal skills they needed to take into account to figure out if sport would bring them profit. The authors found that sport is absolutely a very profitable activity that must better organize its sport collectives to expect that profit. They also found that there is risk to investing in sport, but the reward far outweighs that risk. This is important because it shows businessmen how profitable the sport industry can be and shows current sport business professionals how the typical business world relates to their line of work.

In the article by Wilson (1991), the author looked to break down the relationship between baseball and a normal big business, particularly employment and labor deals and how they relate
to owner capital. The researcher looked at labor laws as well as exceptions for Major League Baseball and examined their similarities and differences. Wilson found that both use a drive for efficiency and desire for lowering costs in addition to maximizing revenue in their daily operations. He did find differences in the labor deals as professional athletes cannot be fired the same way workers can. The last thing the author discovered was that the evolution of player contracts has developed mostly on talent and efficiency, while this is not completely the case for typical business. These findings are important because it will help owners and general managers understand that their business is different than normal business and must be treated so. It will also give them a better understanding of how baseball contracts work and how they have evolved.

The negotiation of contracts and financing of a sport franchise in general is not only important in baseball, but in all of sports throughout the world. In the article by Avgerinou (2007), the author looked to point out the main issues that sports economics in general deals with as well as seeing how they have changed since their creation. Avgerinou examined teams and leagues across the United States and Europe and focused on looking at three crucial founders of economics in sport (Rottenberg, Neale, and Sloane) from the 50’s to the 70’s. The author concluded that the main areas of interest for a team to be concerned with are market structure, team objectives, demand, labor markets, financing, and sport broadcasting. This is important because teams will want to know what they should be concerned with in the economy and how they can use those things to increase profits.

In the article by Wenz (2012), the author investigated the payroll tax and revenue differences between Major League Baseball (MLB) teams. He also examined how a revenue sharing model could help the league become more competitive and help smaller market teams
improve. He also looked at how a system where teams were rewarded for performance could increase small market teams’ spending on talent. The main case this article presented is how the MLB could improve its competitive balance. The author looked at the MLB’s rules for how teams make their money in addition to payroll tax regulations (labor agreements). The author presented a number of equations that show how his system could improve on league balance and incentivize wins for small market teams more than they currently are. What the author found was that there are three variables that need to be taken into account when maximizing competitiveness: maximizing league-wide profits for all teams, subsidizing on-field performance in relation to payroll tax, and revenue sharing. This is important because league officials will want to know how to improve league ratings which leads to higher profits. Small market teams also would like this because they would benefit from revenue sharing.

Soccer across the world deals with similar issues with baseball, as do many other sports. In the article by Frick (2011), the author examined the variance in player salaries and contract duration in European soccer players. This study looked at the German Bundesliga league over six and 13 consecutive seasons (1997-2003 and 1995-2008). Frick looked at numerous stats and characteristics of players and determined that salaries can be explained by career games played, games played last season, international appearances, goals scored, position, leadership skills, and region of birth. Frick also concluded that player performance increases dramatically in the last year of a contract. This is important for teams to look at when signing a player. They would like to know what specific factors matter in a player and will help them pick a salary figure to give them. Teams can also see that players perform better when they are trying to prove themselves to get another contract.
Free Agency and Player Contract Incentives in Professional Baseball

When one looks at a player’s contract in any sport, the final year is always a topic of interest. In baseball, it might be even more so. In her article, O’Neill (2013) examined the relationship between a player’s performance and the fact that they are in the last year of their guaranteed contracts. The study focused on 256 MLB free agents through the years of 2006-2011. O’Neill compared OLS statistics with Fixed Effects statistics and found that only the latter yields evidence of players’ performance increasing in contract years. This is an important study because it will allow teams to see how a player’s stats might be skewed in their contract year as well as give them more incentive to only give out short term deals in order to increase player performance.

In a research article by Link and Yosifov (2011), a study of the relationship between free agent salaries and contract length in Major League Baseball (MLB) was investigated. The main point of the research was to determine if players were willing to give up incentives for good performance in return for nonmonetary benefits, including specifically job security. The researchers looked at every free agent player who signed a contract between 1984-1994 and 2003-2006. Data was used from official Major League Baseball contract records. After completing their research, Link and Yosifov concluded that players valued job security enough to sacrifice some monetary benefits. Players with ten or more years of service had a stronger correlation with trading off performance incentives for longer contracts than players with less than ten years of service. These findings are important because MLB teams will be able to understand more thoroughly how players feel about what they value in a contract. It will also be of interest to agents of players negotiating contracts.
Further exploring the world of baseball contracts, Krautmann and Solow (2009) investigated in their research article the relationship between player performance and the incentive of signing another contract as well as the disincentive of having a fixed salary. Once again, official MLB contract data was used to conduct the research. Krautmann and Solow looked at a sample of free agents in the last year of their contracts and predicted performance for each player in their long-term contract (LTC). This was compared with their actual performance and adjusted based on length of contracts as well as probability it will be a player’s final contract. The findings of the research included the clear relationship between performance and contract length (specifically OPS), and the inverse relationship between age and contract length. The main conclusion of this research is that there is a significant incentive for players’ performance to decrease after signing a LTC, especially when it is likely their final contract. This is important for MLB teams to know when signing free agent players. They would want to know how a player will perform before they sign him in order to try not to overpay for him.

In the article by Jane, San & Ou (2009), the authors examined the relationship between team salary dispersion and team performance. They looked at salary details for 267 players over a ten year period (1990-1999) in the Chinese Professional Baseball League (Taiwan). They looked at payroll statistics compared to a team’s win total to see if teams with superstars and less talented players compared to teams with a wide dispersion of similarly average to above average players. The researchers found that teams with more equal salaries performed better than those that had a wider range of salary numbers. This is important because it shows that in the game of baseball, it is more beneficial to sign similarly talented players for similar amounts as opposed to signing superstars and less talented players to much different deals. It helps owners and general managers figure out how to spend on talent.
In the article by Schmidt (2014), the author examined the trend in player movement throughout Major League Baseball (MLB). He wanted to know the relationship between player turnover and team turnover of at-bats and innings, and what caused these relationships to change. Basically he looked to see if teams got rid of the players who tended to not play as frequently as those who played a lot. The researcher looked at player turnover (how many players left during a period divided by how many players were employed during the period). In order to effectively measure player movement, three things were examined: total players, total at-bats, and total innings. Total player movement measured player turnover percentage in a given year. Total at-bats measured the change in the number of at-bats a typical player got as time goes on. Total innings measured how many innings the typical pitcher threw as we move across time. Schmidt looked at institutional shocks throughout the 20th century that might have caused player movement. He found that increased competition for player services and labor market institutions have had a significant impact on player migration (Schmidt, p. 40). This is important because it shows MLB officials today what could happen with player movement when rules are changed and new decisions are made.

**Performance Change in Professional Baseball Players**

In the article by Sturman & Thibodeau (2001), the authors examined the relationship between players’ on-field performance and the signing of a new contract. They wanted to figure out if performance would change once a player had a larger deal. The authors studied thirty three MLB free agents for the two seasons before and after they signed a new deal. They looked at statistics of the players’ on-field performance and tried to determine if it had any significant change once the new larger deal was given to them. The researchers found that the new contracts typically resulted in a decrease in performance, particularly when there was a large pay
raise. This is important for teams looking to sign new free agents. It will help them understand what to expect when giving a player a new deal. It could also be used to motivate these players to break the trend.

As players have moved across time, their salaries have changed quite a bit as well. In the article by Stone & Pantuosco (2008), the authors looked to investigate what stats owners have found most valuable when considering giving new contracts to players and how it has changed over time. Three time periods were examined: 1961-1973 (reserve clause was in effect), 1974-1983 (first years of salary arbitration and free agency), and 1999-2005 (modern era). The researchers measured slugging percentage as the main statistic for hitters with percentage of team at-bats, experience, and speed also as considerations. Strikeout to walk ratio, percentage of innings pitched for a team, and years of experience were used for pitchers. The authors found that players have always been rewarded for producing high slugging percentages, but more so in recent years because the reserve clause allowed owners to pay less. They also found that speed was only a factor in greater salaries in the second period measured, neither in the reserve clause era nor the modern era. All three variables for pitching showed positive impacts on salary for all periods, with more drastic changes in later time periods. The main conclusion is that players in more recent eras earn more now than players with the same productivity stats in an earlier era. Basically, there was less competition and teams’ marginal revenue was higher, so players were being compensated less than today. However, it can be seen that players were compensated fairly across the league when it came to performance statistics (Stone & Pantuosco, p. 238). This is important because we can see the most important stats for salary consideration and understand how that has changed over different time periods with different contract rules.
Performance has always been a factor when considering salary compensation, but usually offensive stats are what are examined most. In the article by Mangine, Hoffman, Vazquez, Pichardo, Fragala, & Stout (2013), the authors examined what physical abilities and characteristics showed a better fielding performance for major league players. Professional corner infielders, middle infielders, and outfielders were examined during spring training over the course of five seasons (2007-2011). Body mass, lean body mass, grip strength, 10-yd sprint, proagility, vertical jump mean, and peak power were measured to compare with regular season fielding statistics (100 opportunities or more). The most important factors ended up being vertical jump mean, body mass, and peak power as the best indicators of good fielders, with vertical jump as the greatest predictor for all positions. When considering runs saved, body mass was the greatest predictor for corner and middle infielders, while proagility time was the best for outfielders. In conclusion, the best factors to measure when figuring out a player’s defensive ability are vertical jump and proagility time (Mangine, Hoffman, Vazquez, Pichardo, Fragala, & Stout, p. 515). This information is important because it can help teams determine who the better fielder could be simply by figuring out these abilities of their players.

Fielding performance has increasingly been used as a factor in determining deserved salaries for player, but when considering performance, one must also take into account age. As players pass the peaks of their careers, their performance begins to decline. In the article by Mangine, Hoffman, Fragala, Vasquez, Krause, Gillett, & Pichardo (2013), the authors looked to understand more fully the effect age has on anthropometric and physical performance over a player’s career. The researchers took 1,157 professional baseball players and categorized them based on age into seven groups: adolescents, 20-23, 23-25, 26-28, 29-31, and 35 plus. Physical characteristics measured in these age groups included lower body power, speed, agility, grip
strength, and body composition. The study found that lower body power is maintained in players until the age of 29-31, but speed, agility, and grip strength are maintained better in players who play past the age of 35 (Mangine, Hoffman, Fragala, Vasquez, Krause, Gillett, & Pichardo, p. 379). This study is important because it is the first to investigate the effect of age on physical performance measure in professional baseball players.

Age is a factor that is frequently investigated when it comes to performance. In the article by Bradbury (2008), the author investigated what skills improved and declined when age increased as well as how this relates to determining when a typical player reaches his peak age level of performance. Bradbury examined data from 86 seasons of Major League Baseball (1921-2006) from players between the ages of 24 and 35 who accrued ten years of experience as well as a minimum of 5,000 plate appearances or 4,000 batters faced. After examining the data, the researcher determined that the normal age to see peak performance in a Major League Baseball hitters and pitchers is 29 years old (Bradbury, p. 603). This is important for teams to know because if they are negotiating a contract, they want to know what years of his career should be increasing and decreasing in skills because this could affect their ability to win games.

**Conceptual Framework**

Performance in baseball is the main factor that leads to different figures in salary offers. This study was created in order to understand if and how a player’s performance might change once they sign a contract. In order to do so, the study was divided into three concepts. The first concept was the finance and economics of professional sports, particularly baseball. This concept laid the framework for understanding how money flows through organizations and what it is typically spent on and for what reasons. This concept allowed the reader to grasp an idea of how this relates to the signing of professional baseball contracts. In order to understand this, the
difference between sport economics and finance, and regular business economics and finance must be defined. These two theories are very similar because sports are a branch of the regular business world, but there are some slight differences. Sports are much more risky, but present a much larger reward typically because of the massive size of the industry (Avgerinou, p. 14).

The next concept of this study moved to focusing in on free agency and player contract incentives in professional baseball. The point of this concept was to give an understanding of the basics of how teams and players work through contract negotiations at different times of their careers. Some intervening variables that had to be taken into account when trying to accurately understand this variable was the age and service time of a player, the player’s position, and that player’s team’s performance. The factors that had to be defined to understand this variable better include restricted and unrestricted free agents, contract incentives, arbitration, league minimums, and the reserve clause. Free agents are players who are free to negotiate new contracts with teams. Restricted free agents are only able to sign with their current team, giving them less leverage in negotiations. When a team and a restricted free agent cannot reach an agreement, the player can file for arbitration, which means an outside arbitrator decides what the player deserves to be paid in fairness to both him and the team. An unrestricted free agent is free to sign with any team for as much as he can get a team to offer him. League minimums are simply the lowest legal amount a team can pay a player. The reserve clause was the rule before free agency was developed that said a team could keep their players for as long as they wanted. This meant no leverage for player salary negotiations (Avgerinou, p. 6).

The last concept for this study focused in on the performance of players. This concept dealt with both how players are compensated for their performance as well as how their performance might change as they age and sign new deals. Basically it looked at how
performance is measured in professional baseball. The intervening variables that threatened to hinder one’s understanding of the study were choosing the time periods of players to use as well as choosing which individual statistics to use. In order to understand what this variable is measuring, the statistics being used had to be defined and it had to be made clear what a good number would be for each would be.

The first concept of finance and economics of professional sports relates to the second concept of free agency and player contract incentives in professional baseball because of the fact that contracts for teams are a main expense and must be evaluated each season to be able to field a team that will perform as well as make a profit. These contracts must be financed correctly in order to succeed in both areas. The third concept of performance change in professional baseball players relates to finance and economics of professional sports because when players perform well on the field, this leads to more wins which leads to higher revenue and profits. Concept two (free agency and contract incentives in professional baseball) relates to performance change in professional baseball players because players are signed to contract figures based on their on-field performance.

Summary

The idea of monetarily compensating professional athletes has been an issue since athletes first began getting paid for their services. Analyzing how they should be compensated has been examined countless times. The issue has always been figuring out what a player deserves to be paid for their performance. This study tried to make clearer the concepts of sport economics and finance, baseball contracts, and performance of baseball players. This was done by comparing statistics of players before and after their first long-term contracts to determine if
there was any correlation. This was done to help professional baseball teams understand how performance can change when a less experienced player is signed to his first deal.

Methods

Research Question

The question this research tried to answer was: How does a Major League Baseball player’s performance change after he signs a long-term contract during one of his arbitration years? The focus of this study was to determine if job security played a factor in the performance of younger players who had not been in the league for an extended period of time. The point of this research was to help professional baseball teams understand what might happen to a less experienced player’s on-field production once they have been given job security through signing a new, longer contract.

Design

The design of this research was clearly a time-series. This design worked best because a dependent variable was measured over an extended period of time, both before and after the effect of an independent variable. In this case, the dependent variable is the players’ performance. This means each statistic used is a dependent variable. The independent variable was the signing of their contract in the middle of the time period being used.

Desired Sample

The population sampled for this research included current Major League Baseball players who have played at least six seasons. In order to be eligible for this sample, a player must have signed a long term deal before reaching unrestricted free agency, but have at least three years of
data available before and after that signing. Basically, the player must have signed his deal in 2010 or before in order to collect enough data before and after the contract had been signed. The player must have accrued a full year of service time in each of the three following years after signing, or played in at least half the team’s games (81 each year). A full year of service time is determined to be when a player remains on the 25-man roster for 172 or more days out of the typical 183 day MLB season.

Procedure

Sampling

The study tried to get a sample of 30 players, all of which would be analyzed. In order to access the sample, the website baseballprospectus.com was used. This website provided accurate information on MLB contracts of every player on every team. It outlined how their deals are broken up, their service time, and when they signed their contracts.

Data Collection

The data collected for this study was secondary, quantitative data. It was collected first by Major League Baseball officials, who made it available to the public. It was quantitative data because the statistics given are strictly numbers. In order to get this data, the study accessed baseballreference.com, which provided accurate information about player performance over the entire history of the game. The following individual statistics were collected from this site and did not need further evaluation: On Base Percentage (OBP) and Slugging Percentage (SLUG%). The following statistics were also collected, but were used in order to calculate Runs Created (RC) and Batting Average on balls in play (BABIP): Hits (H), Walks (BB), Caught Stealing (CS), Hit by Pitch (HBP), Ground into Double Play (GIDP), Total Bases (TB), Intentional Walks
(IBB), Sacrifice Bunts (SH), Sacrifice Flies (SF), At Bats (AB), Homeruns (HR), and Strikeouts (K). OBP measured the percentage of times a player reaches base per at bat (“On base percentage”). SLUG% measured how many bases a player reaches per at bat (“Slugging percentage”). RC measured the number of runs for a team resulted in a certain player’s actions with his bat or on the base path (‘Runs created”). BABIP measured the average number of times a player gets a hit when he hits the ball into play (“BABIP: FanGraphs”). The formulas for RC and BABIP were as follow:

\[
RC = \frac{(H + BB - CS + HBP - GIDP) \times (TB + (26 \times (BB - IBB + HBP)) + (52 \times (SH + SF + SB)))}{AB + BB + HBP + SH + SF}
\]

Retrieved from http://www.had2know.com/sports/runs-created-calculator.html

\[
BABIP = \frac{H - HR}{AB - K - HR + SF}
\]


In addition to these statistics, league averages had to be obtained from baseballreference.com in order to compare the sample players with what the typical player’s numbers were for each year that was analyzed.

**Analysis**

In order to analyze this data, all the statistics were placed in an excel worksheet and the formulas for RC and BABIP were used to calculate sample players’ numbers and league averages. For
each player sampled, six years of their playing career were examined. In each one of those years, the league average of each statistic being examined was calculated as well. Their individual statistics were compared with league averages in order to eliminate the error that might occur when the entire league had a down or up year. The league averages were averaged for the three years before and after the signing of the sample player’s contract. The player’s statistics were also averaged for the three years before and after his signing. For the period of time before the player’s signing, a percentage was calculated by figuring out the difference between the player’s numbers and the league average. The same was done for the period of time after the player’s signing. These two numbers were then compared to determine whether the player’s performance improved or declined.

**Results**

**Description of Population**

The sample investigated in this study consisted of thirty current major league baseball players selected based on service time and date of long-term signing. The whole population of current players could not be used because most players did not fit into what was being researched. Data was collected from two websites: baseballprospectus.com and baseballreference.com. Data was collected by using these sites to determine what players were eligible to be selected. This sample included all current players who signed a contract of three years or more during one of their arbitration years. Thirty players were found to be eligible, in which all were used in the study. For this study, only position players were used. The sample used is not representative of the population of current Major League Baseball players because no pitchers are used, which is around half of the league. Also, only a small percentage of players have signed long term deals, particularly in an arbitration year.
Descriptive Statistics

In this study, an original method of analysis was used. Statistics were gathered from online websites and entered into a spreadsheet. OBP and SLUG% were left alone, while other statistics were used to calculate BABIP and wRC. This was done for each of the thirty players used in this study. League averages for each of these four statistics were also calculated from baseballreference.com information. Each player in the study displayed six years of data: three years before signing their long term contract, and three years after. These two periods were each averaged and compared to the average of the league averages for those periods. From this, the difference was calculated, which was used to find a percent of deviation from the league average for each period. The before and after periods were then compared to understand how the players’ performance changed between the two time periods (difference between the two). This process was done for thirty separate players and the players were divided into three groups to indicate those who showed positive change, negative change, and no change (less than 1 percent change). The results showed that fourteen players exhibited positive change (ranging from 4.3 to 31.8 percent). Thirteen players showed negative change (ranging from -1.4 to -19.2 percent). Three players showed no change in performance at all (less than 1 percent).
Conclusions

At the beginning of this research, the question was asked, how does a Major League Baseball player’s performance change after he signs a long-term contract during one of his arbitration years. The research done suggested that with such a similar number of players both improving and declining in performance, the timing of the signing does not relate to the nature of the change in player performance, but simply that there was a change. The number of players that improved was only one more than the number of players who declined. There were also three who did not change in performance. This information suggests that there is a strong chance that once a player signs his long term deal during arbitration, his performance will most likely change, but whether it will be for the better or worse is unknown.

The findings of this study are important when compared to the previous similar studies done in professional baseball. As previously mentioned, Sturman & Thibodeau (2001) examined the relationship between a new contract and player performance. That study differed in the fact that the researchers examined players with significant salary increases. This study focused on
less experienced players being signed by their teams to longer deals. Each set of research was looking for a trend in whether players improved or declined. Sturman & Thibodeau (2001) found that player performance decreased because of the variable of job security. The current study of arbitration eligible players contradicted these findings. The research determined that there was no direct relationship between the new contract and one set direction of change. This study found simply that there was a change; depending on what player was being examined, their performance could increase or decrease. This also suggests that job security is not a factor when looking at change in player performance based on new contracts. The reasoning behind this is that in the thirty total cases, fourteen players improved with more job security, while the thirteen declined, and three remained the same.

This study showed new findings to the baseball world about how player performance can change when less experienced players sign long term deals. Sturman & Thibodeau (2001) proved that unrestricted free agents showed a decline in performance, but this study showed that restricted free agents are much less predictable. It showed that experience is a factor to consider for major league teams, because according to these two studies, assuming a less experienced player is a younger player, it is more rewarding to sign a less experienced player because of the better probability of them improving compared to unrestricted free agents.

**Limitations, Delimitations, and Future Research**

Performance has remained the main factor leading to larger and longer contracts in professional sports. Baseball has been particularly difficult to understand when predicting future player performance and basing contract figures on those predictions. The ways that performance is evaluated and predicted has changed over the years and will keep changing as time goes on.
The major limitation of this study when considering how players might change after signing a new deal include the specific time period used by the researcher. Only current MLB players were used when, in reality, there is a chance that previous generations of players might exhibit different results. Another limitation of this study was the small number of statistics used in analyzing player performance. Only four variables were used in calculating player change, which could arguably have been increased to show a more accurate rate of change before and after player signings. The final limitation of this study was the equality of importance of the four statistics used. This study used four statistics and each were evenly compensated for in how important they were to evaluating player performance. Some might have argued that some statistics were more important than others.

The delimitations of this study included narrowing the population down to only players who signed a contract for three years or more. Also, these players must have been arbitration eligible when they signed their deal. These choices were made for the results to show MLB officials how it is different signing a less experienced restricted free agent compared to a more experienced free agent player.

This topic of performance change based on new contract deals needs to be researched more in order to make results more accurate in inexperienced player contract signings. MLB officials can benefit from this research because it helps them predict how less experienced players will perform once they sign a new deal. This can help them decide how much to pay players. Future researchers should examine newer players and players from an earlier era in order to understand as many situations as possible so that teams will have a better idea of what will happen when they sign players to long term deals. The design of this research should be the same in order to be able to compare to this study as much as possible.
Summary

This study was done to help MLB officials understand the differences between signing restricted free agents and unrestricted free agents. Sturman & Thibodeau (2001) proved that unrestricted free agents tend to decline in performance after they sign long term deals. This new research shows that restricted free agents are unpredictable and have close to a fifty-fifty chance of turning out a positive or negative change in performance after signing a long term contract. This research will help teams to better understand the consequences of signing a less experienced player to a deal of three years or more.
References


