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Major League Baseball's Biggest Failure – The Competitive Balance Tax

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University of Tennessee
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Undergraduate Honors Thesis

Major League Baseball's Biggest Failure –
The Competitive Balance Tax

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Abstract

This paper seeks to discover if there exists a relationship between spending and a team making the playoffs in Major League Baseball in order to determine the strength of the Competitive Balance Tax as a deterrent. This research was done using historical data about opening day payrolls, win percentages, and playoff results from the years 2018-1988. For a better comparison, each year's spending was adjusted to 2018 dollars using the years consumer price index. By using these time periods, time periods including a competitive balance tax and not including a competitive balance tax are included. The results indicate that there is a relationship between spending and making the playoffs. Due to the strength of the relationship, the results suggest that the competitive balance tax is not effective in its intended purpose. Based on these findings, I have concluded that Major League Baseball needs to re-examine the competitive balance tax that is effectively being used as a salary cap but is highly ineffective as a competitive balance tool.

Introduction

Major League Baseball (MLB) introduced a competitive balance tax in 1997. Most professional sports governing bodies such as the National Football League (NFL), National Hockey League (NHL), and Major League Soccer (MLS) implement a hard salary cap in order to limit wealthier clubs from purchasing all the best talent. If these teams were able to purchase the best talent, then, in theory, they would be the best, most competitive teams. This would leave the less wealthy teams at a disadvantage because it would decrease their ability to compete.

Major League Baseball is a business and thus requires demand to be successful. Fans create the demand for baseball and fans want to see competitive baseball games. If there is such a large disparity of talent to the point where the outcome of games is predictable, then demand to watch those games will plummet. In order for Major League Baseball to continue operations, it has to be able to continuously create this demand by having the most competitive games no matter if the richest team is playing the poorest. However, it begs the question of how Major League Baseball should create this competitively balanced league. The competitive balance tax was implemented to deter overspending for talent and to attempt to reconcile any disparities overspending may cause.

This paper will broadly analyze trends between spending, win percentage, and making the playoffs in Major League Baseball in order to determine the strength of the competitive balance tax. First, it will analyze how the competitive balance tax affected the standard deviation of win percentage in order to determine if the competitive balance tax was effective in creating a more competitively balanced league. Then it will examine

the relationship between spending rank and making the playoffs, as well as the relationship between spending rank and win percentage. Lastly, if a relationship exists, this paper will examine what spending rank would be ideal to maximize the profits of the team, probability of making the playoffs, and avoid being charged the competitive balance tax.

I. Literature Review

As the MLB gears up for the upcoming Collective Bargaining Agreement that is expected to be completed by the expiration of the current agreement on December 1, 2021, it needs to be strategic about how to accomplish its goals. Failure to reach an agreement could result in a strike or a lockout. The last Collective Bargaining Agreement was the only agreement that did not result in a lockout or strike. The goal of the league in terms of a competitive balance is to see that each team has a “regularly recurring reasonable hope of reaching postseason play”. While the MLB did take steps to improve the competitive imbalance that occurs through thorough research done by the Blue Ribbon Committee, it failed to comply with all of the suggestions made to the league. The key suggestion that was ignored was the idea of a salary floor. Introduction of a salary floor in December 2021 would not be a surprise. However, based on the past two years with additional consequences, the league saw a better distribution of teams that made the playoffs across different spending budgets.

In professional sports, there is a need to satisfy the wants and needs of club owners and the professional athletes that play for these clubs. As professional sports have grown along with their spending over the past century, fulfilling these two different types of needs has proven quite difficult. As players unions demand clubs to meet labor

agreements, clubs are spending increasingly more on players. With some clubs having larger budgets and greater benefits to players, these clubs become more enticing to all players, but especially the best professional baseball players. Thus, arises the problem of competitive balance. In order for the MLB to be a successful league, it must ensure, in some way, that all thirty teams are competitive. The luxury tax model was introduced in the late 1990s to level the playing field between large and small professional baseball clubs and was implemented in 1996. If there was no limit to spending, the clubs with the largest budgets would be able to pay top dollar to the best baseball players. All of the best players would be concentrated within those clubs and the league would be unbalanced in talent. The luxury tax, or the Competitive Balance Tax, as the MLB officially calls it, is a “predetermined payroll threshold. Those who carry payrolls above that threshold are taxed on each dollar above the threshold, with the tax rate increasingly based on the number of consecutive years a club has exceeded the threshold” (MLB 1, 2019). It is important to closely examine the luxury tax because it will be up for review when the current agreement ends on December 1, 2021. If there is a deficiency in the current competitive balance tax, then the policy will have a chance to be updated and improved soon.

As interest in professional sports grew with the ability to watch sports live on a television, so did the professional team budgets and they have been steadily climbing ever since. Similarly, as labor unions began to form and advocate for workers, the players unions formed and advocated for players to be paid fairly and given proper benefits. However, an imbalance occurred when some clubs were able to offer their players better benefits, thus attracting the best players. This caused a shift in the competitive balance

between the teams. To mitigate this issue, the MLB pioneered the “luxury tax” model in the mid-1990s (Kaplan 1617, 2004). “The luxury tax as it currently exists is a penalty imposed on teams that spend above a collectively bargained level” (Kaplan 1617, 2004). Kaplan argues that is, “an attractive regulatory device because, in theory, it addresses the concerns of all parties. As it is written, the owners can view the luxury tax as a quasi-salary cap, while the players are still given the freedom of potential salary growth that they would not see under a fixed salary cap model. In theory, the money taxed from the over-spending teams can be redistributed to the less affluent teams to increase the competitiveness of the league as a whole because these teams could use the profits from revenue-sharing to increase pay to their players. However, the problem is that there is not a requirement of the league that the money received through revenue-sharing go to the players of the club, so the additional revenue can be used as seen fit. If the money is not going towards the players thought, there still exists this lack of balance between salaries of high-revenue teams and lower-revenue teams. Based on the 2017-21 Collective Bargaining Agreement, the \$189 million threshold from the 2014-16 agreement has been increased over the next five years based on the table below with information directly from MLB.com.

Year	Total Payroll
2017	\$195m
2018	\$197m
2019	\$206m
2020	\$208m
2021	\$210m

“A club exceeding the Competitive Balance Tax threshold for the first time must pay a 20 percent tax on all overages. A club exceeding the threshold for a second consecutive season will see that figure rise to 30 percent, and three or more straight seasons of exceeding the threshold comes with a 50 percent luxury tax.” Under the previous agreement, the clubs would be required to pay a 17.5% tax for first-time overages then at an increasing rate of 30, 40, and 50% each year. This change seems to indicate that the league is becoming more serious about keeping teams below the threshold through harsher consequences. The tiered provisions are used as a device to dissuade clubs from overspending regularly. A team could see it as beneficial if they have been above the line for several years, as the Yankees were at one point, to dip below the luxury tax cap to reset their annual tax fee if they want to continue to overspend. Additionally, clubs that exceed the threshold by \$20-\$40 million are subject to a 12% surtax, while those that are more than \$40 million above the threshold are taxed at 42.5% the first year and at 45% any additional consecutive years. Furthermore, starting in 2018, clubs that spend over \$40 million have their draft pick moved back 10 places. These trends highlight that the MLB is serious about curbing over spending. An interesting fact to note is that in negotiations in 2002, the league had the Blue Ribbon Panel analyze eighteen months of MLB spending and provide suggestions to improve the luxury tax (Staudohar 8, 2002) which included a recommendation for a team salary floor of at least \$40 million so that teams would be competitive in their pay to their players. However, this was one aspect of the deal that was not adopted and could potentially be to blame for the partial failure of the competitive balance tax. The problem of the revenue sharing not begin restricted to go towards salaries is that it does not fix the problem of lower-revenue teams paying their

athletes less than high-revenue teams. While the Blue Ribbon Committee looked at eighteen months of data, that only includes one, possibly two, playoff periods, so the downfall of this research is that it does not reflect enough historical data to sufficiently make a recommendation. A longer time period of data is necessary because to analyze a competition balance, there has to be a standard, which is making the playoffs and if you are only analyzing one or two periods, they could be outlier years and skew the results. Teams spending varies greatly over even a ten year span, so analyzing only one year could also skew results.

The Competitive Balance Tax is now over twenty years old. This means that while it has undergone several reiterations of the tax percentages and implementation of other penalties like the surtax and the draft pick changes, the actual effects of the agreement can be analyzed because it has sufficient data to draw from. Effectively the Competitive Balance Tax is faulty in four main ways: (1) it is essentially a soft cap on salaries, (2) it strips money away from high-revenue teams that used to use these funds to fuel the free agent market, (3) it decreases the portion of revenue generated by each player that his team actually retains, and (4) because there is no team salary floor, teams are not required to return these revenue-shared dollars with their players (Golden 19, 2011). The failure of the Competitive Balance Tax in the eyes of the ticket holders is highlighted in a poll commissioned by the MLB in which fans voiced their opinions about the problem. Based on these responses, “75% of fans believe there is a lack of competitive balance in baseball” (Rogers 2001, 1). 42% of these respondents stated they would be less interested in baseball if there is not a more level playing field. This should be of direct concern to franchise owners. The majority of revenue is generated through

broadcasting contracts (3). This is important because if these fans' sentiments become reality then broadcasting networks will shift away from their current agreement. If the demand to watch MLB is decreasing, networks will offer less to MLB franchises for the rights to broadcast their games. This would lead to lower revenues and, eventually, lower salaries for players. Broadcasting networks are one of the major revenue streams for the MLB as a whole and for individual teams on a local level. With the increase in ability to selectively stream content, baseball needs to make sure it maintains and grows its fanbase in order to keep demand growing. This means that a competitive balance is vital not only to keeping viewers engaged and to the overall sustainability of the league.

The other statistic that highlights the failure of the Competitive Balance Tax is the gap in average payroll between top quarter and bottom quarter of clubs. The gap in average payroll between the top quarter and the bottom quarter of professional baseball clubs was up to \$64.4 million in the 2000 season. Rogers indicates that the top clubs spend \$2.81 for every \$1 spent by the bottom clubs. This indicates a massive gap in spending, even despite revenue-sharing. The gap between the top and the bottom clubs is way too large. In 2018, the spending gap between the highest spending team and the lowest spending team grew to 168.12 million dollars. With no revenue sharing, these lower-revenue teams would be almost obsolete. If these teams were eliminated, the richer teams would benefit because they would be able to keep a greater portion of their revenue (Staudohar 5). Not only would the large revenue teams benefit from keeping their revenue-sharing portion, but they would gain a greater portion of the league's national broadcasting agreement because there would be less teams to split the profits with. The

most important figure in that highlights the failure of the competitive balance tax focuses on the most important part of professional sports- the postseason. If a team makes it to the postseason and especially to the World Series, then the team is obviously out performing their peers. For a league to have balance, teams should have a regular chance at the possibility of reaching post-season play, which is not happening currently. When a team makes it to the playoffs in consecutive years, then that means the team is even more competitive as a team because they are repeatedly outperforming their peers. The repetitiveness increases the likelihood of demand for that team and increases profits as they are able to negotiate contracts with local networks and sell tickets. This is also why there is a tiered Competitive Balance Tax structure, because a team that is spending more repeatedly will most likely reap the benefits in the playoffs.

II. Methods

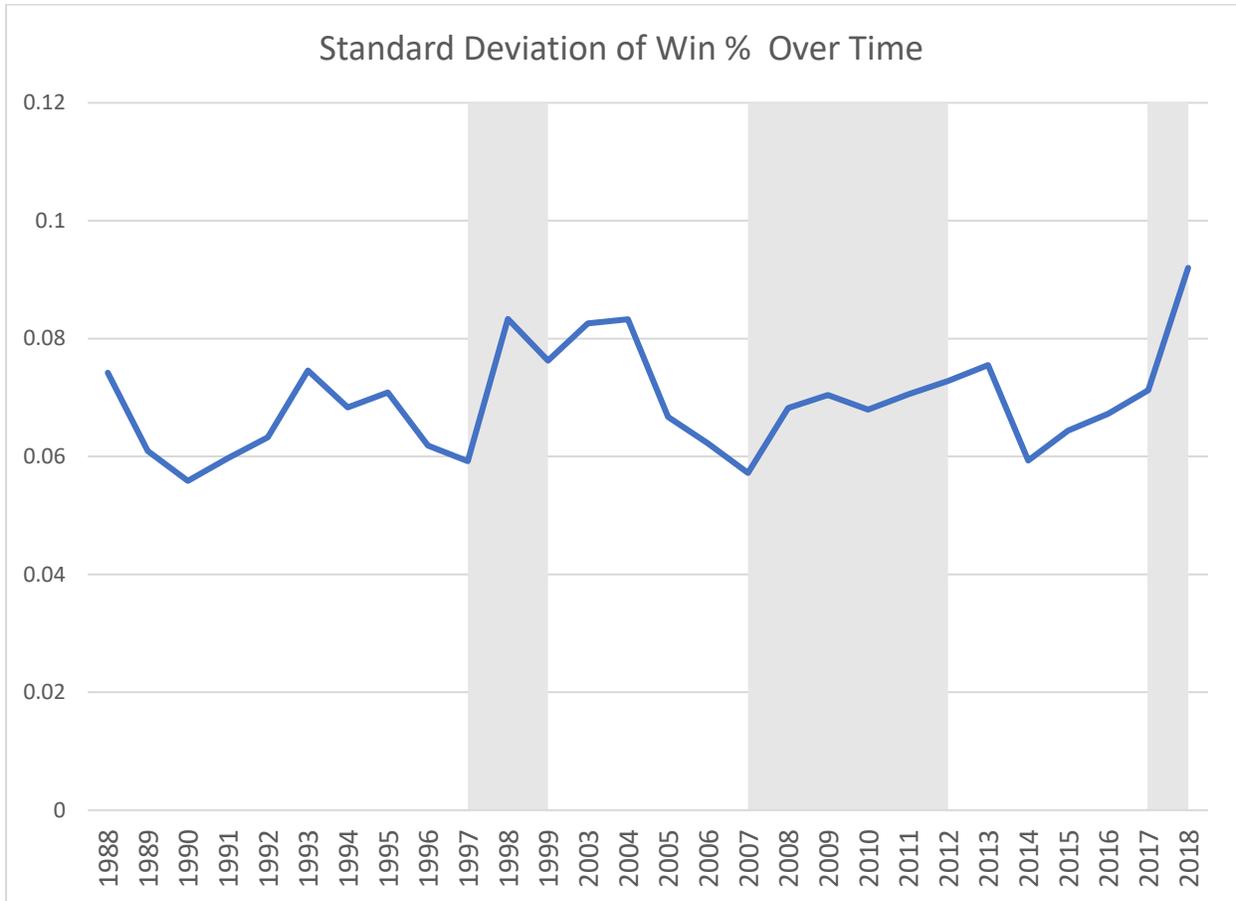
This paper analyzes trends between spending and making the playoffs in Major League Baseball. In order to analyze this trend, I collected opening day payrolls for the years in which the competitive balance tax was used (2018-2002, 1999-1997). As a baseline comparison, I also collected opening day payroll from 1996-1988. 1988 was the first year that aggregate level payroll information was collected. I adjusted the spending to 2018 dollars for each year to account for inflation. Using this information, I ranked each MLB team based on their spending with 1 being the highest spender for that year. Using MLB's standing page, I then added the team's final season win percentage and added an additional column based on if the team made the playoffs. For the purposes of this study, making the wildcard game was included as making the playoffs. A "1" was assigned if

the team made the playoffs or the wildcard game and a “0” was assigned if the team did not. A table was made for each year. A sample of one of the tables is shown below.

2015 MLB Opening Day Payrolls				
Rank	Team	Payroll	Playoff	Win %
1	Los Angeles Dodgers	\$272,789,040	1	0.568
2	New York Yankees	\$219,282,196	1	0.537
3	Boston Red Sox	\$187,407,202	0	0.481
4	Detroit Tigers	\$173,813,750	0	0.460
5	San Francisco Giants	\$172,672,111	0	0.519

This data was used for several different statistical tests. The first test I ran was a data analysis of descriptive statistics on the ‘Win %’ column on each year. The purpose of this was to determine the standard deviation year over year. If a league had strong competitive balance controls, then after the implementation of the controls, the standard deviation of win percentage would be smaller than prior to implementation. This is because it would bring every team closer to a win percentage of .500, indicating each team had an equal chance of winning or losing any given game. This would indicate that there was not a dramatic spectrum of talent between teams in such a way that one team has a greater competitive advantage due to being able to support a higher payroll. Using the standard deviation from each year, I graphed the standard deviation over time, using shading to indicate when the competitive balance tax was implemented and when there

was a new revision of the competitive balance tax. Below is the graph depicting the standard deviation of win percentage each year.

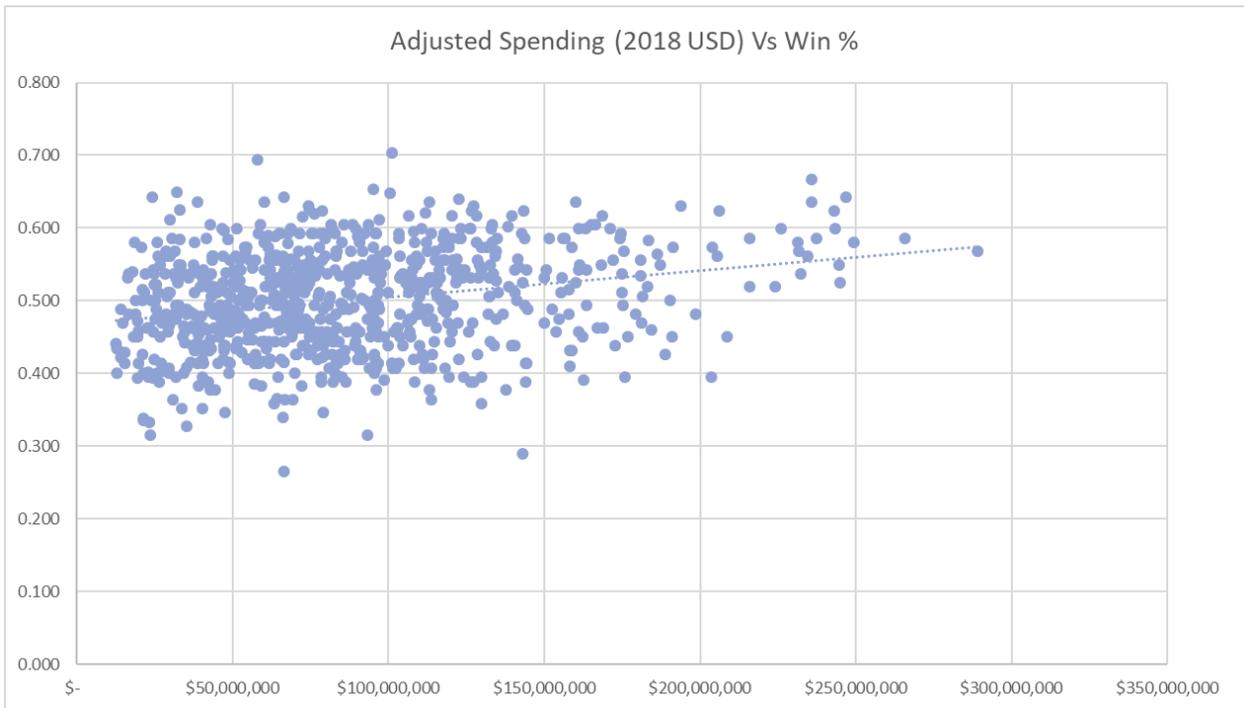


The second test I analyzed was comparing adjusted spending to win percentage. This test was performed to see if there was any correlation between spending and the likelihood of a winning season. Each year's spending was reflected in 2018 dollars using the Consumer Price Index (CPI) found on the Bureau of Labor Statistics website in order to create a model with a payroll with equal buying power for each year. Using this data, I used Excel Data Analysis to create a regression model. The hypothesis is that spending has an effect on the overall win percentage. The null hypothesis is that spending does not influence overall win percentage. The p-value for this claim was 1.06166E-13, thus the

null hypothesis is rejected. Using this model, the following regression model was created where x represents payroll expressed in 2018 dollars:

$$\text{Win \%} = 3.6684\text{E-}10x + 0.468262892$$

The next test I performed was the same as above but using spending rank to compare to win percentage. I decided to use this test because there was a drastic shift in spending over time even after adjusting payroll amounts for inflation. A comparison to

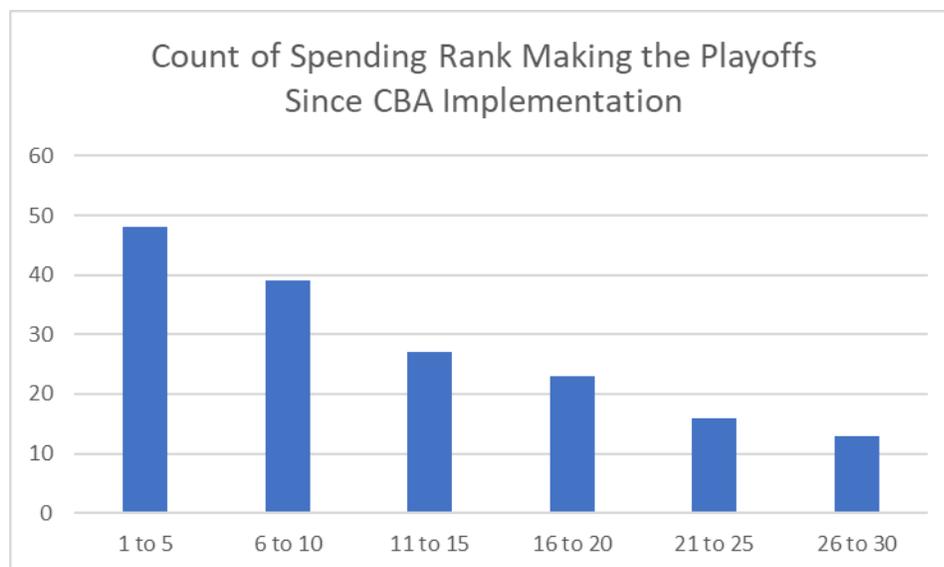


the other 30 teams seemed more appropriate way of comparing spending when comparing year over year data. The hypothesis of this there is a correlation between spending rank and a winning season. The null hypothesis is that there is no correlation between spending rank and a winning season. The p-value for this regression was 1.99582E-28, thus the null hypothesis is rejected. Using this model, the following regression model was created, where X represents spending rank:

$$\text{Win \%} = -0.003063628x + 0.545758517$$

While a winning season is good, the ultimate goal of every team is to make the playoffs and, eventually win the World Series while still turning a profit. The final test I performed was to create a regression using spending rank to predict the likelihood of a team making the playoffs. In order to do this, for each year of spending data I collected, I gave each team a “1” that made it to the playoffs and a “0” if they did not. If a team made the wildcard game since its introduction in 1994, the team was given a “1” for that year. The only year with a known cheating scandal since 1988 was 2019, thus this year was omitted. I found the average of the win percentage for those teams that were given a 1 for all years and found that the average win % necessary to make the playoffs is a .580. The hypothesis of this regression is that spending rank influences if a team makes the playoffs. The null hypothesis is that spending rank does not influence ability to make the playoffs. The p-value for this test is 6.34681E-16, thus the null hypothesis is rejected. The regression model is expressed below with spending rank (1-30) expressed as x:

$$\text{Win \%} = -0.014561302x + 0.48023781$$



Then, using the average win % for teams that made the playoffs, I solved for the minimum spending rank to achieve this win percentage.

III. Results & Discussion

This section will focus on a reflection and analysis of the tests performed in the “Methods” section.

The first test analyzed the standard deviation of win percentage overtime. As the goal of the Competitive Balance Tax (CBT) is to implement a more balanced competition field, after the implementation of the CBT, the standard deviation of win percentage should have decreased significantly as we should have seen a narrower range of win percentages with less outliers. This narrower range would have been an indicator of a more balanced competitive environment because, in theory, as teams became more balanced, each team’s win percentage would become closer to .500. As each team’s win percentage neared .500, the standard deviation would near 0. As seen in the figure below which is also posted in the “Methods” section, this is not the case. Based on this test, the CBT has failed to implement a more competitive league. If the CBT had been effective, then there would have been a steady decline in the graph below during each phase of its implementation.

The most interesting aspect of this initial test was determining there were only 6 years of the 19 years in which a CBT agreement has been in place where the league experienced a decline in the standard deviation of win percentage year over year. Ideally, each reiteration would have led to a decline in the standard deviation; however, most years have experienced an increase. The league should have been working towards

decreasing the standard deviation of win percentage during each reiteration of the CBT agreement. Based on the initial test, the CBT proves to be a failure in terms of creating a more competitive league. However, the limitation of this test is that it does not account for spending which will be discussed later.

The second test I analyzed was between spending and the likelihood of a winning season. The p-value was extremely low which means that the null hypothesis was rejected indicating that there is a relationship between spending and a winning season. A winning season was defined as season resulting in a win percentage greater than .500.

$$\text{Win \%} = 3.6684\text{E-}10x + 0.468262892$$

This test was analyzed to show a relationship between the amount a team spent and if that resulted in a greater chance of having a winning season. If a team had a higher win percentage, it is more likely that they would go to the playoffs. This test was used as a baseline to prove that spending a greater amount of money indicates a greater likelihood of a winning season.

Since spending can vary greatly from year to year when looking at such a large time period even when using an inflation adjusted amount, the third test used spending rank compared to win percentage. Spending rank indicates how a team ranked compared to its peers when spending for salaries. It is based on the current year and was reset with each additional year. 1 indicates that a team outspent all of its peers and 30 represents a team that was outspent by their peers. The following regression was generated using spending rank for x to determine the probability of a team making the playoffs.

$$\text{Win \%} = -0.014561302x + 0.48023781$$

When solving for the minimum spending rank to achieve a .580 win percentage (the average for teams that have made the playoffs), the minimum spending rank needed is 6.86. The interesting part about this equation is that an x-intercept of .480 is used to determine win percentage. The main lesson to be learned is that in order to make the playoffs, a team does not have to be the top spender and, most likely, will spend below the competitive balance threshold if they attempt to just meet the minimum spending rank.

IV. Conclusion

While Major League Baseball has spent millions of dollars in negotiation of the competitive balance tax, it is effectively useless. Since there is such a strong link between spending and win percentages which can further be linked to the playoffs, there is not enough evidence to support that the competitive balance tax is effective. There is still a lot more research that can be had around this subject in terms of comparing the competitive balance tax to other professional leagues, examining the negotiation tactics necessary to have agreements like these approved by players associations, and researching better alternatives than the competitive balance tax. For both Major League Baseball and the MLB's Players Association to continue negotiations over the Competitive Balance Tax reiterations is a waste of both parties' time and money. Major League Baseball would be best suited to pay for another Blue Ribbon Panel to research the problem independently and then follow through by implementing the findings of the panel.

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