

Wage expenditure as a predictor of success in Major Soccer League (MLS)

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ABSTRACT

This paper investigates whether wage expenditure is a valid predictor of success in Major League Soccer (MLS) from 2012 to 2022. Using data on wage expenditure for each team and their corresponding league position and season success, we employ econometric analysis to examine the relationship between wage expenditure and success in the MLS. Our results suggest that there is a unpredictable relationship between wage expenditure and league position, indicating that higher spending on player wages is not as much of a predictor of a team success as an efficiency of spending. Data suggests that other factors may play a more important role in determining success in the MLS. Our findings have implications for MLS teams and league policy and suggest avenues for future research on the determinants of success in professional soccer leagues.

1. Introduction *Background of MLS and wages*

Major League Soccer (MLS) has grown significantly since its inception in 1993, both in terms of its popularity and its financial structure. To ensure that teams have a level playing field and to promote parity among franchises, MLS has implemented various financial rules over the years, such as salary caps, designated players, and homegrown players. These rules are intended to prevent teams from spending excessively on player wages and to encourage investment in youth development. Although in different ways, compared to other professional soccer leagues around the world, wage expenditure is a crucial factor in MLS, affecting not only a team's on-field performance but also its financial success. A study by Stefan Szymanski found that in the English Premier League, wage expenditure was a valid predictor of success, with the correlation between wage expenditure and league position being around 90%. Therefore, in this paper, we seek to investigate whether wage expenditure is also a valid predictor of success in MLS, and to explore the factors that may make its results different from those in other leagues. By examining the role of wages in the business of soccer, we hope to shed light on the factors that contribute to success in professional soccer leagues, both in the US and globally.

Stefan Szymanski's study on the business of football is a seminal work that has contributed significantly to our understanding of the economics of soccer. In the study, Szymanski analyzed the relationship between wages and success in the English Premier League over a 17-year period, from 1992 to 2009. The study found a strong positive correlation between wage expenditure and league position, suggesting that teams that spent more on player wages tended to perform better on the field. One of the key findings of the study was that wage expenditure was a better predictor

of success than other factors such as team spending on transfers or team revenue. This suggests that wage expenditure is a crucial factor in determining success in professional soccer, as it influences a team's ability to attract and retain talented players. Moreover, the study also highlighted the importance of wage structure within a team, with wage inequality being a significant predictor of team success. Specifically, teams that had a more even distribution of wages tended to perform better than teams with a more unequal wage structure.

Szymanski's study underscores the central role that wages play in the business of soccer. The findings suggest that teams that invest in player wages may be more likely to achieve success, although the optimal wage structure within a team may also play a critical role. The study's insights have important implications not only for teams and leagues, but also for fans, broadcasters, and other stakeholders in the soccer industry.

Major League Soccer has marked distinction from any other league in the world, for better or worse, since its establishment. Financial regulations, season timing, and regular season format have all been characteristics that have differentiated the MLS. At this same time the MLS is playing a major role in the development of soccer in America. By studying the characteristics of uniqueness in MLS, we hope to understand why American soccer is in the place it is in, and how it can grow its league to be competitive with the best in the world.

2. Literature Review Previous research and current status

The literature on the relationship between wage expenditure and success in soccer leagues has been extensive, with numerous studies conducted over the years. While Szymanski's study on the English Premier League has been a seminal work in this area, other studies have examined this relationship in other leagues and with different methodological approaches. One study by Babatunde Buraimo and David Forrest analyzed the wage structure and performance of teams in the Scottish Premier League over a 14-year period. The study found that while wage expenditure was positively related to team performance, the optimal wage structure within a team varied depending on the team's overall wage expenditure. However, the correlation was not as strong as that found in Szymanski's study of the English Premier League. The study also found that spending on transfers was not a significant predictor of success in the Scottish Premier League.

Similarly, a study by Lucía Isabel García-Cebrián and Juan Prieto-Rodriguez analyzed the relationship between wage expenditure and performance in the Spanish La Liga over a 13-year period. The study found that wage expenditure was a significant predictor of team performance, with the effect of wage expenditure being greater for teams with lower initial performance levels. However, the study also found that this correlation was weaker in seasons where Real Madrid and Barcelona were dominant, indicating that other factors may play a role in team performance in those seasons.

Another study by Dobson and Goddard in 2011 examined the relationship between wage expenditure and success in the English Football League Championship over a 6-year period, from 2002 to 2008. The study found a positive correlation between wage expenditure and league position, consistent with the findings of Szymanski's study. However, the correlation was weaker than that found in Szymanski's study, with wage expenditure explaining only around 50% of the variation in league position. The study also found that wage inequality within teams was not a significant predictor of success in the English Football League Championship. This is to say that as we understand wage expenditure plays a major role in club success, it is not an all-encompassing metric, and each soccer market offers diversity that affects success in a different way.

While these studies provide valuable insights into the relationship between wage expenditure and success in soccer leagues, there are also gaps in the literature that this paper seeks to address. Specifically, there has been limited research on the relationship between wage expenditure and success in Major League Soccer, despite its growing prominence in the soccer world. Moreover, the unique characteristics of MLS, such as its financial regulations, season timing, and playoff format, may have a significant impact on the relationship between wage expenditure and success. Therefore, the research questions addressed by this paper include: (1) To what extent is wage expenditure a valid predictor of success in MLS? (2) How do the unique characteristics of MLS affect the relationship between wage expenditure and success? (3) What are the implications of the findings for the development of soccer in the US and globally?

To answer these research questions, this paper will utilize a quantitative research methodology, analyzing wage expenditure data and corresponding team performance data from the 2012-2022 seasons in MLS. The paper will also utilize economic reasoning to explore the underlying factors that may explain the relationship between wage expenditure and success in MLS, and to interpret the findings in the context of the broader soccer industry. By addressing these research questions, this paper aims to contribute to the literature on the economics of soccer and to inform the ongoing development of MLS and soccer in the US.

3. Data & Methodology *Collection and Measurement*

The data used in this study was collected from two main sources: Capology.com and the official Major League Soccer (MLS) database. Capology.com provided data on the wage expenditure of each MLS club from 2010 to 2022. MLS's official database provided data on the league position of each club during the same period.

To analyze the relationship between wage expenditure and success, I first calculated the average league position of each team in MLS over this period to provide a basis for comparison between teams. Additionally, I calculated the average wage expenditure for the entire league over the same

period and found the difference between each club's wage expenditure and the league average to determine whether they were high or low spenders relative to the league average.

Once the data was calculated and cleaned up, I developed a table that displays the average league position of each club over the period, along with an indication of whether they were a high or low spender. The table was designed to show trends in relation to spending and league position, providing a clear overview of the relationship between these factors. I also developed a table and a graph showing the top 3 placed teams in each season in MLS from 2012-2022 and their corresponding wage expenditure relative to the average of the league based on that year. By doing this, this allows us to see not only the average return on investment over 11 seasons like in the previous dataset, but the top performers in each season and whether they were relatively high or low spenders in the league. This adds another method of predicting success based on wage expenditure.

However, in this study, there are several limitations to this study that should be considered. Firstly, there are clubs that expanded into the league at varying times, giving their data less depth and consistency. This throws another obstacle into analyzing the data also due to the previous history of the clubs before they entered the league. If they were not one of the twelve founding members of the league, they all played at various levels of professional soccer in North America. When these clubs expand into Major League Soccer at varying times, they also all have a period of adjustment to the style, culture, and regulations of the new league. Additionally, while the study examines whether teams that spend more on player wages tend to perform better on the field, there is no comparison of how the money is spent, just whether it is spent. As we know from Szymanski's study, wage structure holds as much weight in predicting success of a club as wage expenditure. Finally, this study is based solely on data from MLS, and its findings may not be applicable to other soccer leagues or professional sports leagues. When relating various studies to Major League Soccer throughout this report, there are multiple variables that have not isolated through regression analysis due to lack of competence and resources. This means that certain trends will inherently have different outputs when adopted to different leagues.

The limitations of this study have a significant impact on the result and outcome. One other limitation is that the MLS is a young league, and as such, a focus period for the study had to be selected carefully. The challenge in this process is that the league has developed so rapidly that the old league statistics lack serious relevance, and the new league data and statistics lack depth and consistency. This limitation affects the conclusions that can be drawn from the study since the limited data may not be representative of the long-term trends. When choosing the dataset, it was strongly considered that the league has developed on an exponential trajectory and the early years of the league would not properly reflect updated regulations, competition, and finances of the current state of the league. However, it was also noted that 2020 and COVID-19 would have abnormal data due to the financial, logistical, and structural challenges of a professional sports

season amid a pandemic. Due to that being relatively in the middle of the dataset that would reflect the recent era of the league, the selection was expanded to cover 11 seasons and to include data from before and after 2020.

Another limitation is that the expansion of clubs into the league at varying times can affect the depth and consistency of the data. This has been mentioned briefly, however, it should be noted that the expansion of new clubs also brings with it innovated and updated club projects that may have different strategies compared to league founding clubs. Clubs such as Austin FC, LA FC, and Nashville SC have all experienced consistent respectable success in their young lives in the league, and it appears they've done so through strategies of relative stability and mediocrity. They don't seem to drastically change the total year to year and their year wage expenditure is very similar to the average of the league. Although they seem to have successful strategies and a resemblance of positive correlations, we will struggle to draw strong conclusions about them because they have yet to prove this for substantial time. This limitation may lead to inconsistencies in the data and may affect the accuracy of the conclusions drawn from the study.

Another limitation is that the study only focuses on whether clubs spend above or below the average wage expenditure, without analyzing how they spend their money. This limitation is due to the sheer amount of data involved in analyzing the distribution of the wage expenditure. This limitation may affect the accuracy of the study since analyzing how clubs spend their money could provide a more comprehensive picture of the financial strategies of clubs.

Regarding econometric models, the study's tools and ability for regression analysis were limited. Therefore, the study will produce more baseline results that draw conclusions as to whether there is a correlation or not and not draw conclusions on the sources of the correlations or lack thereof. This limitation may affect the accuracy of the study since it may not provide a comprehensive picture of the relationship between wage expenditure and league position. In summary, these limitations should be considered when interpreting the results of the study, and future research should address these limitations to provide a more comprehensive understanding of the relationship between wage expenditure and league position in MLS.

4. Descriptive Statistics Overview, Distribution, & Comparison

To further analyze the relationship between wage expenditure and league position in Major League Soccer, we have taken a closer look at the wage expenditure of the top three finishing teams from each of the 11 focus seasons from 2012 to 2022. By comparing their wage expenditure relative to the average wage expenditure for that year, we aim to identify whether spending above the average is necessary to find success in the league.

The data reveals that throughout the majority of the 11 season focus period, the top three finishing teams in each season spent less than the average wage expenditure for that year. Out of the 33 top three finishes over the course of the 11 season focus period, only 14 exceeded the average wage expenditure. Furthermore, of those 14 top three finishes, 7 of them included a wage bill that exceeded the league average by only 2 million dollars, compared to nearly 12 million dollars in some instances. This is to say that the data shows that the majority of the top three finishers in each season spent less than the average wage expenditure for that year and in less than 50 percent of cases where clubs finished in the top three and spent more than the average on player wages, they exceeded the average by a significant margin. For instance, in 2020, the second-place finishing team went roughly 10 million dollars over the 9.3-million-dollar average, while the first-place team was just under the average and the third-place team was just above the average. While it is important to note that this was during COVID, which could have had a significant impact on the data, this dataset strongly contradicts Szymanski and others' findings of the correlation between wage expenditure and league success. During this time, the league was not played under normal standards and was one of the first leagues to partake in a bubble tournament, which they named the MLS is Back tournament.

On the other hand, in 2017, the only year in which all three top-placed teams exceeded the average wage expenditure, the first-place finishing team, Toronto FC, exceeded the \$8.3 million dollar league average by approximately \$12 million. In comparison, the second-place team, New York City F.C., exceeded the average by approximately \$8 million, and the third-place team, Chicago Fire, exceeded the average by \$3 million.

Overall, these findings begin to suggest that spending above the average wage expenditure does not guarantee success in Major League Soccer. Instead, teams can achieve success by spending efficiently and effectively, regardless of their wage bill. However, it is important to acknowledge that the wage expenditure is just one aspect of a team's financial and operational management, and other factors such as player acquisition and management also play a crucial role in determining a team's success.

Chart 1.A – MLS top 3 finishers and wages relative to the average, 2012 – 2022

MLS TOP 3 FINISHERS AND WAGES RELATIVE TO THE AVERAGE, 2012-2022

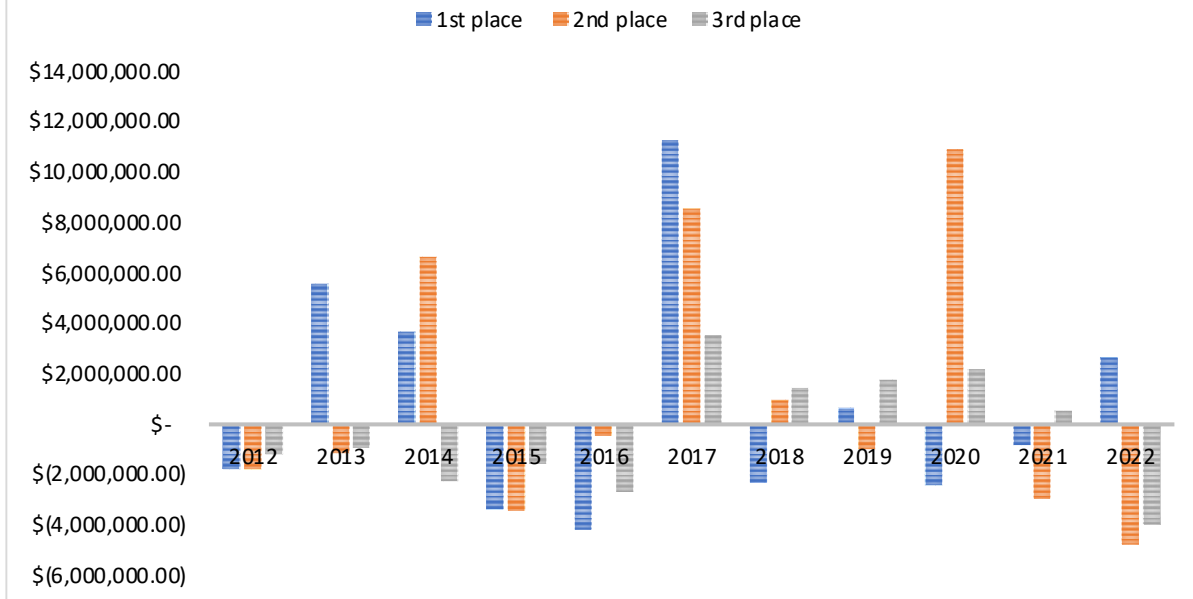


Table 1.A – MLS top 3 finishers and wages relative to the average, 2012-2022

League Position	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	\$ (1,811,438.24)	\$ 5,596,774.61	\$ 3,680,173.39	\$ (3,378,987.95)	\$ (4,202,379.11)	\$ 11,233,916.90	\$ (2,332,962.70)	\$ 659,183.09	\$ (2,435,040.91)	\$ (844,840.79)	\$ 2,682,166.54
2	\$ (1,795,947.24)	\$ (1,180,080.39)	\$ 6,659,012.39	\$ (3,462,733.95)	\$ (443,401.11)	\$ 8,528,085.90	\$ 981,667.30	\$ (976,957.91)	\$ 10,880,098.09	\$ (2,951,025.79)	\$ (4,740,166.46)
3	\$ (1,235,925.24)	\$ (919,164.39)	\$ (2,244,713.61)	\$ (1,606,118.95)	\$ (2,699,415.11)	\$ 3,521,588.90	\$ 1,446,315.30	\$ 1,747,506.09	\$ 2,167,038.09	\$ 556,653.21	\$ (3,962,545.46)

Furthermore, looking at the average wage expenditure of each club in MLS, we see a wide distribution of wages throughout the league. The highest above the average wage expenditure belongs to Toronto FC at \$98,690,687.84, which is significantly higher than the next highest, LA Galaxy, at \$74,364,129.84. On the other end of the spectrum, we have DC United with an expenditure relative to average wage expenditure of negative \$18,489,060.16, which is much lower than other clubs in the league. This distribution of wages throughout the league suggests that there is a significant disparity between the highest and lowest spending clubs in MLS.

As we also compare corresponding average league positions and the highest and lowest spenders in the league, we find that teams that spend more on player wages tend to have higher finishes in the league but appear to have more variability and therefore have averages that are relative to some of the cheapest clubs. For example, Toronto FC had the highest wage expenditure over the focus seasons and an average finish of 13.64. In contrast, D.C. United had the lowest wage expenditure and an average finish of 13.73, which does not leave a large gap for average performance between the top and bottom spenders. However, this does not account for all team success throughout the seasons. Unlike many other professional soccer leagues, Major League Soccer has a regular season and a post season (MLS Cup), and due to the fact that relegation does not exist in MLS, the regular season can have a dampened importance to coaches, players, and fans alike when the major silverware can be won by getting into the knockout rounds and surviving. When we take that into account, in the 11 seasons in which Toronto FC outspent DC United by roughly 100 million dollars, they also won 1 MLS Cup and 1 Supporter's Shield (the team with the most points at the end of the regular season).

Table 2. MLS average league position and cumulative wage expenditure rel. to avg., 2012 - 2022

CLUB	Average of AVERAGE PLACE	Sum of WAGE EXP REL AVG
NYC	7	\$ 32,746,960
NYRB	7	\$ (2,925,530)
SEA	7	\$ 21,797,566
LAFC	7	\$ 7,785,468
SKC	9	\$ (6,956,073)
PORT	9	\$ (4,403,834)
DAL	10	\$ (20,653,775)
PHI	10	\$ (24,385,155)
GAL	11	\$ 74,364,130
RSL	11	\$ (14,681,470)
ATL	11	\$ 10,581,171
AUS	12	\$ (491,282)
NE	12	\$ (10,429,881)
MIN	13	\$ (14,815,594)
VAN	13	\$ (17,263,569)
COL	13	\$ (24,279,191)
MONT	14	\$ (19,194,350)
TFC	14	\$ 98,690,688
DCU	14	\$ (18,489,060)
ORL	15	\$ 4,684,294
SJ	16	\$ 94,060,105
CHI	16	\$ 4,857,801
MIA	17	\$ 6,490,391
DYN	17	\$ (23,064,551)

This league structure gives an added level of difficulty when we try to analyze how much wages matter in Major League Soccer. There is a large psychological aspect to the league. When players have no risks or consequences for losing weekly matches, a lack of competitive balance can arise. The demographic of players also matters when we look to analyze the psychological effects of the league structure. MLS is often referred to as a retirement league that the likes of Wayne Rooney, Zlatan Ibrahimovic, David Villa, Frank Lampard, and more have adopted to finish out their last playing days. This leaves the possibility of two situations, either a high profile and high wage player comes to Major League Soccer and is an asset to the club to win trophies and big prizes in the post season where they tend to make big plays, or these high-profile wages move to the MLS to capitalize on their big name for greater profits without the responsibility of consistent wins. However, this becomes very hard to decipher and essentially must be done on a case-by-case basis which shows the essence of unpredictability with wages in MLS. For instance, Toronto FC's 2017 season saw them spend approximately 11.2 million dollars over the league average for the year and winning the Supporter's Shield and the MLS Cup. However, in 2022 they upped their budget with two of those categorically marquee signings previously mentioned, Lorenzo Insigne and Federico Bernardeschi, which resulted in a 27th overall finish in the league.

In comparison with other top leagues around the world, MLS's average wage expenditure falls significantly below the likes of the English Premier League, Spanish La Liga, and German Bundesliga. However, it is worth noting that MLS is still a relatively young league compared to these other top leagues, and as the league continues to grow and attract more investment, we may see an increase in wage expenditure and a shift in the competitive landscape. Yet due to the structure of the league along with other factors, there will be a lot more required than investment to allow Major League soccer to compete with the top leagues around the world. One of the major determinants in MLS growth is the promotion-relegation system, or lack thereof. Until the regular season holds weight to players, coaches, and fans the league will continue to operate with inefficiencies.

Table 3.A – MLS wage expenditure, league position, and wage exp. Relative to average, 2012 - 2022

CLUBS	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Wage Expenditure										\$ 11,741,102.00	\$ 12,885,652.00
League Position										24	4
ATL										\$ 260,698.21	\$ (751,980.46)
Wage Expenditure						\$ 8,435,624.00	\$ 10,668,120.00	\$ 12,474,136.00	\$ 9,287,516.00	\$ 16,797,116.00	\$ 16,743,635.00
League Position						4	2	3	23	9	23
DCUNITED						\$ (535,415.10)	\$ 981,667.30	\$ 1,747,506.09	\$ (35,301.91)	\$ 5,316,712.21	\$ 3,106,002.54
Wage Expenditure	\$ 3,453,679.00	\$ 3,232,138.00	\$ 3,471,747.00	\$ 3,791,509.00	\$ 5,392,420.00	\$ 4,908,135.00	\$ 9,192,532.00	\$ 9,733,824.00	\$ 5,970,324.00	\$ 10,355,810.00	\$ 16,068,927.00
League Position	3	19	3	8	10	21	9	10	24	16	28
CHI	\$ (1,235,925.24)	\$ (1,153,027.39)	\$ (2,244,713.61)	\$ (3,341,224.95)	\$ (2,918,745.11)	\$ (4,062,904.10)	\$ (493,920.70)	\$ (992,805.91)	\$ (3,352,493.91)	\$ (1,124,593.79)	\$ 2,431,294.54
Wage Expenditure	\$ 3,600,214.00	\$ 4,465,170.00	\$ 3,529,746.00	\$ 5,389,775.00	\$ 4,002,596.00	\$ 12,492,628.00	\$ 14,701,163.00	\$ 17,582,907.00	\$ 4,991,496.00	\$ 11,099,211.00	\$ 17,063,000.00
League Position	6	12	15	20	20	3	20	17	22	22	24
COL	\$ (1,089,390.24)	\$ 80,004.61	\$ (2,186,714.61)	\$ (1,742,958.95)	\$ (4,308,569.11)	\$ 3,521,588.90	\$ 5,014,710.30	\$ 6,856,277.09	\$ (4,331,321.91)	\$ (381,192.79)	\$ 3,425,367.54
Wage Expenditure	\$ 3,111,124.00	\$ 3,066,902.00	\$ 3,007,541.00	\$ 4,655,492.00	\$ 7,867,764.00	\$ 7,428,749.00	\$ 8,783,976.00	\$ 9,262,485.00	\$ 5,306,027.00	\$ 8,529,378.00	\$ 8,761,476.00
League Position	14	8	17	19	2	20	21	16	10	2	18
Dallas	\$ (1,578,480.24)	\$ (1,318,263.39)	\$ (2,708,919.61)	\$ (2,477,241.95)	\$ (443,401.11)	\$ (1,542,290.10)	\$ (902,476.70)	\$ (1,464,144.91)	\$ (4,016,790.91)	\$ (2,951,025.79)	\$ (4,876,156.46)
Wage Expenditure	\$ 4,865,549.00	\$ 4,076,344.00	\$ 4,041,037.00	\$ 3,670,000.00	\$ 4,108,786.00	\$ 6,220,583.00	\$ 8,219,481.00	\$ 7,808,263.00	\$ 6,565,183.00	\$ 10,282,706.00	\$ 13,548,398.00
League Position	13	15	6	2	1	13	6	13	11	23	7
DYN	\$ 175,944.76	\$ (308,821.39)	\$ (1,675,423.61)	\$ (3,462,733.95)	\$ (4,202,379.11)	\$ (2,750,456.10)	\$ (1,466,971.70)	\$ (2,918,366.91)	\$ (2,757,634.91)	\$ (1,197,697.79)	\$ (89,234.46)
Wage Expenditure	\$ 2,901,116.00	\$ 3,184,834.00	\$ 4,027,369.00	\$ 4,632,875.00	\$ 4,845,086.00	\$ 5,354,054.00	\$ 5,490,430.00	\$ 7,932,092.00	\$ 9,062,306.00	\$ 8,922,505.00	\$ 14,642,887.00
League Position	9	9	14	15	19	10	17	19	25	25	25
LACAL	\$ (1,788,488.24)	\$ (1,200,331.39)	\$ (1,689,091.61)	\$ (2,499,858.95)	\$ (3,466,079.11)	\$ (3,616,985.10)	\$ (4,196,022.70)	\$ (2,794,537.91)	\$ (260,511.91)	\$ (2,557,898.79)	\$ 1,005,254.54
Wage Expenditure	\$ 10,825,821.00	\$ 9,206,430.00	\$ 12,375,473.00	\$ 18,965,008.00	\$ 16,129,000.00	\$ 12,049,667.00	\$ 14,799,180.00	\$ 18,826,280.00	\$ 16,428,975.00	\$ 17,768,664.00	\$ 21,049,737.00
League Position	8	5	2	9	6	22	13	8	20	15	8
LATC	\$ 6,136,216.76	\$ 4,821,264.61	\$ 6,659,012.39	\$ 11,832,274.05	\$ 7,817,834.89	\$ 3,078,627.90	\$ 5,112,727.30	\$ 8,099,650.09	\$ 7,106,157.09	\$ 6,288,260.21	\$ 7,412,104.54
Wage Expenditure							\$ 11,824,369.00	\$ 11,385,813.00	\$ 11,852,498.00	\$ 11,256,926.00	\$ 16,319,799.00
League Position							5	1	12	17	1
MIA							\$ 2,137,916.30	\$ 659,183.09	\$ 2,529,680.09	\$ (223,477.79)	\$ 2,682,166.54
Wage Expenditure									\$ 9,721,573.00	\$ 15,532,184.00	\$ 15,677,488.00
League Position									19	20	12
MIN									\$ 398,755.09	\$ 4,051,780.21	\$ 2,039,855.54
Wage Expenditure						\$ 5,300,685.00	\$ 7,846,794.00	\$ 10,088,708.00	\$ 5,873,965.00	\$ 9,942,193.00	\$ 9,957,037.00
League Position						19	18	7	9	11	11
MONT						\$ (3,670,354.10)	\$ (1,839,658.70)	\$ (637,921.91)	\$ (3,448,852.91)	\$ (1,538,210.79)	\$ (3,680,595.46)
Wage Expenditure	\$ 3,453,853.00	\$ 4,263,316.00	\$ 5,080,914.00	\$ 5,467,537.00	\$ 6,153,801.00	\$ 5,845,679.00	\$ 8,102,002.00	\$ 8,449,849.00	\$ 7,719,994.00	\$ 10,653,723.00	\$ 9,675,087.00
League Position	12	11	19	7	11	17	15	18	18	18	3
NE	\$ (1,235,751.24)	\$ (121,849.39)	\$ (635,546.61)	\$ (1,665,196.95)	\$ (2,157,364.11)	\$ (3,125,360.10)	\$ (1,584,450.70)	\$ (2,276,780.91)	\$ (1,602,823.91)	\$ (826,680.91)	\$ (3,962,545.46)
Wage Expenditure	\$ 2,284,906.00	\$ 2,742,433.00	\$ 6,362,933.00	\$ 5,871,005.00	\$ 5,466,117.00	\$ 6,865,564.00	\$ 6,776,441.00	\$ 9,842,861.00	\$ 9,870,485.00	\$ 10,635,563.00	\$ 16,911,916.00
League Position	16	7	5	11	14	15	16	14	15	1	20
NYFC	\$ (2,404,698.24)	\$ (1,642,732.39)	\$ 646,472.39	\$ (1,261,728.95)	\$ (2,845,048.11)	\$ (2,105,475.10)	\$ (2,910,011.70)	\$ (883,768.91)	\$ 547,667.09	\$ (844,840.91)	\$ 3,274,283.54
Wage Expenditure				\$ 16,922,421.00	\$ 20,790,177.00	\$ 17,499,125.00	\$ 13,874,057.00	\$ 9,749,672.00	\$ 9,320,897.00	\$ 12,237,210.00	\$ 11,622,276.00
League Position				17	4	2	7	2	7	8	5
NYRB				\$ 9,789,687.05	\$ 12,479,011.89	\$ 8,528,085.90	\$ 4,187,604.30	\$ (976,957.91)	\$ (1,920.31)	\$ 756,806.21	\$ (2,015,356.46)
Wage Expenditure	\$ 15,814,370.00	\$ 9,981,940.00	\$ 10,268,811.00	\$ 3,753,746.00	\$ 5,611,750.00	\$ 6,660,302.00	\$ 7,353,490.00	\$ 8,375,873.00	\$ 6,639,494.00	\$ 8,310,339.00	\$ 8,364,460.00
League Position	4	1	8	1	3	9	1	12	13	14	6
ORL	\$ 11,124,765.76	\$ 5,596,774.61	\$ 4,552,350.39	\$ (3,378,987.95)	\$ (2,699,415.11)	\$ (2,310,737.10)	\$ (2,332,962.70)	\$ (2,350,756.91)	\$ (2,683,323.91)	\$ (3,170,064.79)	\$ (5,273,172.46)
Wage Expenditure				\$ 10,388,355.00	\$ 10,893,492.00	\$ 13,412,175.00	\$ 8,105,660.00	\$ 11,568,958.00	\$ 9,311,833.00	\$ 10,062,196.00	\$ 10,210,500.00
League Position				14	15	18	22	22	5	10	13
PHIL				\$ 3,255,621.05	\$ 2,582,326.89	\$ 4,441,135.90	\$ (1,580,792.70)	\$ 842,328.09	\$ (10,984.91)	\$ (1,418,207.79)	\$ (3,427,132.46)
Wage Expenditure	\$ 2,861,006.00	\$ 3,322,942.00	\$ 4,073,099.00	\$ 5,057,423.00	\$ 5,806,962.00	\$ 6,569,880.00	\$ 8,491,198.00	\$ 8,940,762.00	\$ 6,887,777.00	\$ 8,766,435.00	\$ 8,897,466.00
League Position	15	14	12	18	13	16	11	5	1	6	2
PORT	\$ (1,828,598.24)	\$ (1,062,223.39)	\$ (1,643,361.61)	\$ (2,075,310.95)	\$ (2,504,203.11)	\$ (2,401,159.10)	\$ (1,195,254.70)	\$ (1,785,867.91)	\$ (2,435,040.91)	\$ (2,713,968.79)	\$ (4,740,166.46)
Wage Expenditure	\$ 3,776,116.00	\$ 3,466,001.00	\$ 5,283,726.00	\$ 5,748,125.00	\$ 6,422,653.00	\$ 9,832,207.00	\$ 10,542,918.00	\$ 11,928,200.00	\$ 12,050,217.00	\$ 10,847,664.00	\$ 9,758,444.00
League Position	17	3	11	5	12	6	8	11	8	5	15
RSL	\$ (913,488.24)	\$ (919,164.39)	\$ (432,734.61)	\$ (1,384,608.95)	\$ (1,888,512.11)	\$ 861,167.90	\$ 856,465.30	\$ 1,201,570.09	\$ 2,727,399.09	\$ (632,739.79)	\$ (3,879,188.46)
Wage Expenditure	\$ 3,206,785.00	\$ 3,503,642.00	\$ 3,647,515.00	\$ 4,598,884.00	\$ 5,591,516.00	\$ 7,858,794.00	\$ 7,456,028.00	\$ 10,118,580.00	\$ 9,060,172.00	\$ 11,372,598.00	\$ 12,964,121.00
League Position	5	4	4	16	9	14	12	6	21	13	13
SI	\$ (1,482,819.24)	\$ (881,523.39)	\$ (2,068,945.61)	\$ (2,533,849.95)	\$ (2,719,649.11)	\$ (1,112,245.10)	\$ (2,230,424.70)	\$ (608,049.91)	\$ (262,645.91)	\$ (107,805.79)	\$ (673,511.46)
Wage Expenditure	\$ 2,878,166.00	\$ 3,558,742.00	\$ 3,957,076.00	\$ 4,821,892.00	\$ 6,471,917.00	\$ 7,759,570.00	\$ 7,667,242.00	\$ 9,762,329.00	\$ 9,149,229.00	\$ 9,920,193.00	\$ 9,051,508.00
League Position	1	10	18	13	17	12	23	15	16	21	26
SEA	\$ 4,689,604.24	\$ 4,385,165.39	\$ 5,716,460.61	\$ 7,132,733.95	\$ 8,311,165.11	\$ 8,971,039.10	\$ 9,686,452.70	\$ 10,726,629.91	\$ 9,322,817.91	\$ 11,480,403.79	\$ 13,637,632.46
Wage Expenditure	\$ 3,789,781.00	\$ 9,767,100.00	\$ 9,396,634.00	\$ 11,434,048.00	\$ 10,802,535.00	\$ 10,352,718.00	\$ 10,677,250.00	\$ 12,502,150.00	\$ 10,119,454.00	\$ 12,037,057.00	\$ 14,978,944.00
League Position	7	6	1	6	7	7	4	4	6	3	21
SKC	\$ (899,823.24)	\$ 5,381,934.61	\$ 3,680,173.39	\$ 4,301,314.05	\$ 2,491,369.89	\$ 1,381,678.90	\$ 990,797.30	\$ 1,775,520.09	\$ 796,636.09	\$ 556,653.21	\$ 1,341,311.54
Wage Expenditure	\$ 2,893,657.00	\$ 3,205,085.00	\$ 4,143,312.00	\$ 5,453,500.00	\$ 6,254,698.00	\$ 6,066,860.00	\$ 11,132,768.00	\$ 11,524,018.00	\$ 11,489,856.00	\$ 13,737,118.00	\$ 11,203,160.00
League Position	2	2	10	10	8	11	3	21	3	4	23
TFC	\$ (1,795,947.24)	\$ (1,180,080.39)	\$ (1,573,148.61)	\$ (1,679,233.95)	\$ (2,056,467.11)	\$ (2,904,179.10)	\$ 1,446,315.30	\$ 797,388.09	\$ 2,167,038.09	\$ 2,256,714.21	\$ (2,434,472.46)
Wage Expenditure	\$ 5,455,463.00	\$ 3,610,450.00	\$ 15,686,629.00	\$ 19,761,937.00	\$ 19,283,775.00	\$ 20,204,956.00	\$ 23,811,805.00	\$ 21,505,741.00	\$ 20,202,916.00	\$ 15,566,719.00	\$ 27,660,402.00
League Position	19	17	13	12	5	1	19	9	2	26	27
VAN	\$ 765,858.76	\$ (774,715.39)	\$ 9,970,168.39	\$ 12,629,203.05	\$ 10,972,609.89	\$ 11,233,916.90	\$ 14,125,352.30	\$ 10,779,111.09	\$ 10,880,098.09	\$ 4,086,315.21	\$ 14,022,769.54
Wage Expenditure	\$ 4,551,666.00	\$ 4,279,508.00	\$ 4,542,729.00	\$ 5,526,615.00	\$ 6,017,092.00	\$ 7,273,866.00	\$ 7,271,508.00	\$ 7,348,987.00	\$ 7,542,625.00	\$ 9,155,081.00	\$ 13,286,859.00
League Position	11	13	9	3	16	9	14	23	17	12	17
Avg Wage expenditure per year	\$ (137,938.24)	\$ (105,657.39)	\$ (1,173,731.61)	\$ (1,606,118.95)	\$ (2,294,073.11)	\$ (1,697,173.10)	\$ (2,414,944.70)	\$ (3,377,642.91)	\$ (1,780,192.91)	\$ (2,325,322.79)	\$ (350,773.46)
	\$ 4,689,604.24	\$ 4,385,165.39	\$ 5,716,460.61	\$ 7,132,733.95	\$ 8,311,165.11	\$ 8,971,039.10	\$ 9,686,452.70	\$ 10,726,629.91	\$ 9,322,817.91	\$ 11,480,403.79	\$ 13,637,632.46

5. Discussion and Interpretation Analysis,

The findings of this analysis reveal a number of interesting insights into the dynamics of MLS wages and league positions. The first key finding is that there is a significant amount of

unpredictability in MLS wages and league positions from year to year. This can be seen in the wide variation in spending and league positions over the years, with no clear patterns emerging over time. One potential reason for this unpredictability is the lack of competitive balance in the league. MLS has long struggled to achieve a level playing field, with some teams consistently outspending others and dominating the league. This lack of balance can make it difficult for lower-spending teams to compete for top positions in the league, leading to more unpredictable outcomes. Another possible explanation for the unpredictability of MLS wages and league positions is the lack of incentives for teams to invest in top-tier players. Unlike other leagues where teams can earn significant rewards for finishing in top positions, MLS offers relatively little in the way of financial incentives for teams to spend big on talent. This can lead to a situation where teams are less willing to invest in top-tier players, resulting in more unpredictable outcomes.

The data presented in the previous section show that there is no consistent relationship between team spending and league position. For example, in 2014, the team with the highest spending, the Seattle Sounders, finished in second place, while the team with the lowest spending, the New England Revolution, finished in first place. In 2017, Toronto FC had the highest spending but finished in third place, while the New York City FC had the lowest spending but finished in second place. In 2019, the highest spender, the LA Galaxy, finished in third place, while the lowest spender, FC Cincinnati, finished in last place. These examples demonstrate that spending alone does not guarantee success in MLS.

One reason for the unpredictability of MLS wages and league position is the lack of incentives for teams to win. Unlike other soccer leagues around the world, there are no relegation or promotion systems in MLS. This means that even if a team finishes in last place, they are still guaranteed a spot in the league for the following season. This lack of incentive to win could result in teams being less motivated to invest in high-quality players and to compete for top positions in the league.

Another factor that contributes to the unpredictability of MLS is the league's competitive balance. The league has several mechanisms in place, such as the allocation ranking and the draft system, to ensure that weaker teams have a better chance of acquiring top talent. Additionally, the league has a salary cap, which limits the amount of money that teams can spend on player salaries. These measures aim to create a more level playing field and prevent a small number of wealthy teams from dominating the league. However, the competitive balance also means that teams that spend more money may not necessarily have an advantage over teams that spend less.

When looking at the data provided for each year, it is evident that the amount spent on players by the top three teams in the league varies greatly from year to year. For example, in 2012, the top spender spent just over \$1.8 million, while in 2017, the top spender spent over \$11 million. In some years, the second or third highest spender actually spent more than the top spender. This

variation in spending shows that teams may be investing heavily in players in one year and then reducing spending in the following year.

Finally, when comparing MLS with other soccer leagues around the world, it is essential to note that low spenders do not typically find much success in other leagues. This correlation differs by league, with some leagues having a stronger correlation between spending and success than others. One reason for this could be the differences in competition levels, with some leagues being more competitive than others. Another possible explanation could be that other leagues have stronger incentives for teams to win, such as promotion and relegation systems.

In conclusion, the analysis of the data presented in this paper indicates that there is no clear relationship between team spending and league position in MLS. This unpredictability can be attributed to the lack of incentives for teams to win and the competitive balance in the league. While other soccer leagues around the world also show correlations between spending and success, this correlation differs by league. The data suggest that teams in MLS should focus on building a strong team culture, investing in player development, and finding innovative ways to compete within the salary cap.

6. Conclusion *Summary, limitations, suggestions*

In conclusion, this analysis sought to explore the relationship between team wages and league position in Major League Soccer (MLS) using data from the years 2012 to 2022. The findings indicate a high degree of unpredictability and volatility in the correlation between wages and league position, with teams experiencing significant fluctuations in performance from one year to the next. While some teams were able to achieve consistent success, others struggled to translate their investment in player salaries into on-field success.

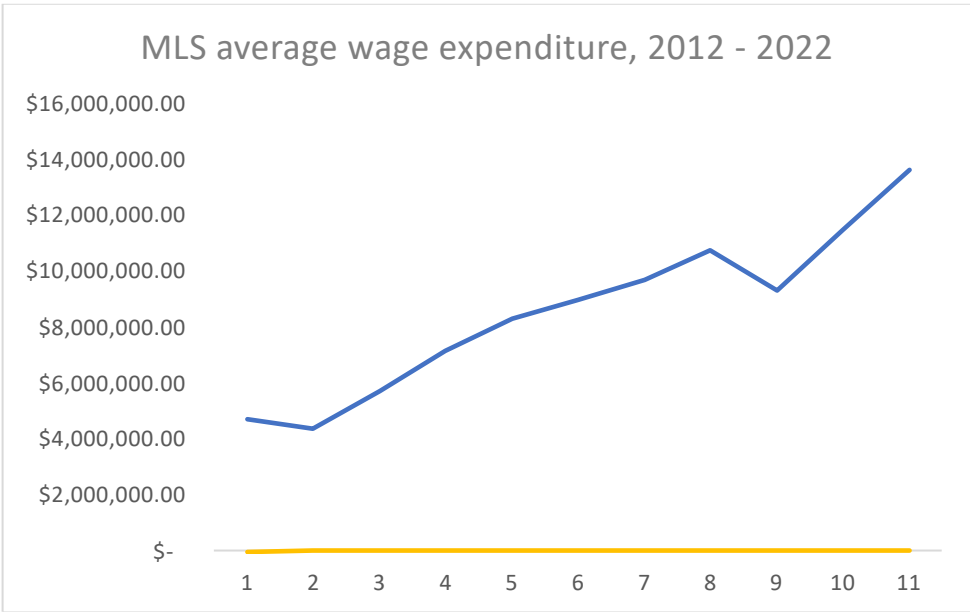
The data presented in the previous section suggest that MLS teams face a range of factors that contribute to the unpredictability of wages and league position. One possible explanation for this volatility is the lack of competitive balance within the league. Unlike other leagues around the world, MLS does not have a promotion/relegation system, meaning that poorly performing teams are not punished with relegation to lower divisions. Additionally, MLS operates under a salary cap system that restricts the amount that teams can spend on players each year. While this is intended to promote parity across the league, it may also contribute to a lack of incentives for teams to invest in top-tier talent.

Another potential explanation for the volatility in the relationship between wages and league position is the lack of adaptation of the data to the standard of living. For example, the LA Galaxy is one of the highest-spending teams in the league, but it also happens to be located in one of the highest-cost regions in the country. As such, their investment in player salaries may not necessarily translate to a greater competitive advantage on the field.

It's also important to note that this analysis has a number of limitations that should be taken into account when interpreting the findings. For example, while the study examines the relationship between wages and league position at the team level, it does not take into account the distribution of wages within a team. This has been shown by Szymanski to be an important predictor of success, with teams that pay a greater share of their wages to star players experiencing greater success on the field.

Another limitation of the analysis is the brevity of the study period. While we were able to examine data from ten years, it is possible that the relationship between wages and league position may be different in other time periods. Additionally, the analysis did not take into account other factors that may contribute to team success, such as coaching, player development, and team culture. Due to limited ability, I was also unable to factor in the progression of the young league and how the natural average wage expenditure is likely to increase from year to year.

Table 4. *MLS average wage expenditure per year, 2012 – 2022*



While this study has shed light on some of the factors that contribute to the unpredictability of wages and league position in the MLS, there are still many areas that require further research. For example, it would be interesting to investigate the impact of team culture and chemistry on performance, as well as the effects of injuries and fatigue on player productivity. Additionally, a

more detailed analysis of individual player performance could provide further insights into how wages affect performance and league position.

Furthermore, it should be noted that the data used in this study only covers a limited time period and does not necessarily reflect the current state of the MLS. The league has undergone significant changes since the early 2010s, with the addition of new teams, changes to the playoff format, and increasing investment from team owners. As such, it is possible that the factors that influence wages and league position in the MLS have shifted in recent years.

In conclusion, this study has highlighted some of the key factors that contribute to the unpredictability of wages and league position in the MLS. The results suggest that competitive balance and the lack of incentives to win may play a significant role in determining league outcomes. Additionally, the study provides evidence for the idea that high wages do not always translate into success on the field. However, further research is needed to fully understand the complex relationships between wages, performance, and league position in the MLS.

REFERENCES

Dobson, S., & Goddard, J. (2011). *The economics of football*. Cambridge University Press.

García-Cebrián, Lucía Isabel, and Juan Prieto-Rodríguez. “Are Wages a Good Predictor of Performance in Spanish Football?” *Journal of Sports Economics*, vol. 16, no. 8, 2015, pp. 825–848.

Bryson, A., Frick, B., & Simmons, R. (2014). The wage-performance relationship in professional football: An analysis of the English and Scottish Premier Leagues. *International Journal of Sport Finance*, 9(4), 271-285.

Buraimo, Babatunde, and David Forrest. “The Wage-Performance Relationship in Professional Soccer: A Granger Causality Analysis.” *International Journal of Sport Finance*, vol. 7, no. 4, 2012, pp. 278–295.

“2019 Atlanta United Salaries and Contracts.” *Capology.com*, Capology, <https://www.capology.com/club/atlanta-united/salaries/2019/>.