What Type of Competition is More Important in a Sports League?

Sub-Competitions or Overall Competition?

By: Arnav Jain

Abstract: Having healthy competition in a sports league is important to keep fans engaged. However, it is important to classify what type of competition is important in a league. In this paper, I argue that competition among a subgroup of contenders is more important than the overall competition that exists in a league to attract the most people. Consequently, closer sub-competitions help a league maximize revenue (adjusted for inflation) than the overall competition that exists. Due to the idea of attention level effects, fans pay more attention to games in specific sub-competitions which is why their perception about the amount of competition is also strongly determined by them rather than the overall competition. Consequently, their interest in the league is driven by their perceptions, which is what influences revenue maximization. After explaining the theory of competitive balance from both rational and behavioral economic perspectives and the different policies that leagues pass to address competition, I explain the findings of this research project.

Background:

Competition and talent have increased exponentially in sports due to many factors such as access to advanced technology, coaching, financial resources, and even performance-enhancing drugs. Therefore, professionals who have overcome the high barriers to enter the sports market represent a very small portion of the potential pool of athletes trying to enter the sports industry. During the Covid-19 pandemic, sports had temporarily been stopped but this does not mean that athletes should stop training because the situation entails a great opportunity cost since others can catch up and have a better chance of entering this highly competitive industry.

Most economists agree with the idea that competition is good for the market economy as it helps reach an effective price with a good quality product. In sports, we call this idea competitive balance, which describes the competition that exists among teams in the league. Competitive balance functions in the sports market in a similar manner as does competition in the market economy. For instance, the willingness of fans to come and watch sports games and pay for tickets can be referred to as the UOH (Uncertainty of Outcome Hypothesis). According to this hypothesis, the uncertainty of outcomes drives up consumer demand and results in more people watching games at home and in the stadium, which can be described as a good quality product. The higher the uncertainty, the better the competitive balance in the sports league. Consequently, according to basic supply and demand curves, an increase in demand would help

leagues reach one of their most important goals, maximizing revenue. However, perfect competitive balance in the league is not ideal either. This setting can bore fans as there are no star players and strong teams like Barcelona or Chelsea. Overall, we can clearly see that competitive balance plays a role in bringing interest to watching games which ultimately helps leagues maximize revenue.

Furthermore, the way fans perceive the competition in a league is also important as their perception will most likely not be the same as the actual competitive balance in the league. To achieve optimal competitive balance (to help maximize revenue), it is important to establish a relationship between rational and behavioral economics.

As discussed above, the competitive balance (Note: Higher number for competitive balance means less competition/more inequality in the league) that exists in a league is not necessarily equal to the way fans *perceive* competition. There are two types of competitive balance: objective competitive balance (OCB) and perceived competitive balance (PCB). Objective competitive balance provides statistics that show the actual competitive balance that exists within the league. On the other hand, perceived competitive balance is the way the consumers (fans) perceive the balance within the league which is determined by many behavioral economic factors. Three important behavioral factors that affect PCB are framing effects, threshold effects, and attention level effects.

Framing Effects: The lens through which fans see competition within a league can create a significant deviation of PCB from OCB. For instance, let us say that the OCB of league X is 0.2 while the OCB of league Y is 0.7. Therefore, it is most likely true that the initial PCB of league X is less than that of league Y. However, if the OCB of league X

were to increase to 0.4 while the OCB of league Y fell to 0.5, fans will address this change as an increase in the competitive balance of league X and a decrease in the competitive balance of league Y, meaning that competition in league X decreased while competition in league Y increased. Thus, the PCB of league X could become greater than the PCB of league Y as PCB depends on the context of the previous competitive balance statistics. If fans have been experiencing low competitive balance in a league, then an increase in the competitive balance could be perceived as a great increase in inequality of teams within the league because fans have been exposed to low levels of competitive balance previously.

Threshold Effects: According to this idea, perfective competitive balance is not ideal. There is a certain level of competitive balance that fans aspire to have within the league and going beyond that provides little to no benefit. Therefore, resources should not be allocated to achieve more balance within a league once PCB reaches the satisfying levels for fans. However, if the PCB threshold changes such that competition goes below the satisfying level, it could result in a very strong demand reaction for the consumers which could hurt profits for the league. In short, the demand curve for consumer behavior is quite elastic below the satisfying level of competitive balance but it is quite inelastic when there are changes above the satisfying level. However, there could be a counter effect when PCB is undercut as the willingness to pay for fans could increase to help improve the competitive balance within the league, even though that is a major risk from the business perspective of a league. It is best to be at or above the satisfaction level of competition that fans want to see in the league.

Attention Level Effects: The PCB in a league is also determined by sub-competitions that exist between a few teams in a league. For instance, if there are only a few teams in a soccer league competing for the title and they have great competition against each other, the PCB could be a lot lower compared to the OCB (since the OCB is based on the overall competition between all teams in a league) as fans pay more attention to these types of games. For example, a general soccer fan would most probably pay more attention to a game between Chelsea and Manchester City than a game between Brighton and Burnley. To demonstrate the idea of attention level effects more theoretically, let us say league X has a higher OCB than league Y, meaning league Y has more overall competition. There are 3 teams in league X competing for the championship with good competition while league Y has 3 teams competing for 10th place with good competition (consider both leagues to have 20 teams). It is quite reasonable to believe that consumer attention is a lot higher in a league where teams are competing for the championship compared to 10th place. Therefore, even though the OCB of league X is higher than league Y, the PCB of league X is lower than league Y because of the difference in the attention that different sub-competitions in a league are receiving. In other words, since teams competing for the championship are achieving more attention than the teams fighting for 10th place in the other league, the fans perceive that the competition in league X is higher than the competition in league Y as there is more attention where competition for the championship is happening. Furthermore, this conclusion can be made as PCB is influenced more by the relationship that teams have in sub-competitions compared to the competitive balance that exists within the entire league. For instance, one may think that the English Premier

League has a lot of healthy competition but this is not true since people are deriving this from the fact that teams like Manchester City and Liverpool have great competition who are competing for the title which generates a lot of interest. However, teams like Brighton, Burnley, or Newcastle usually come in the middle tier of the premier league table which shows how there is not great competition in the overall league as these teams have little to no chance of winning the championship. To summarize, more competition in important sub-competitions in leagues decrease the PCB even if the OCB is high, which is good from a business perspective for the league.

Ultimately, welfare maximization in the real world is not driven by OCB but rather by PCB as it is not what the numbers show but rather what the fans think of competition within a league. Therefore, for leagues to maximize welfare, they should implement techniques that mainly help the PCB of the league. *However, there needs to be more research done in this area to support this idea, which is what we analyze in the paper later on.*

We discussed how competitive balance functions in a league but it is also important to understand how competitive balance can be changed in a league. In most ordinary markets, competitors have the interest to improve as much as they can to overpower other competitors but in the sports industry, to maximize welfare benefits, competitors need each other to provide an attention-grabbing economic product. Therefore, there are many ways that policymakers can solve the competitive imbalance that exists within a league. We will go over some of the most common methods to address the competitive imbalance in a league and also go over the drawbacks that some of these policies have.

Revenue Sharing: The name makes this policy quite self-explanatory. Revenue sharing helps ensure that money is allocated from richer to relatively weaker teams. One way this outcome can be achieved is when a portion of ticket sales is also given to the away teams. If FC Barcelona was playing at home compared to a game being played at the home ground of Sevilla FC, ticket sales for the Barcelona game would be a lot higher compared to Sevilla and when a portion of ticket sales are allocated towards Sevilla, it will help close the revenue gap between the two clubs. The only issue with revenue sharing is that the money from ticket sales goes to the owners of the club who are very unlikely to invest that money into the talent of the team, which can result in this policy having a minimal effect on addressing competitive balance within a league.

Salary Cap: Salary caps are meant to make sure that rich teams are not able to buy the best players and the talent could be distributed across many teams. A salary cap limits how much money a team can spend on getting players on their roster. Also, there are different types of salary caps in different leagues, namely the soft cap and hard cap. A soft cap is something a team can exceed under certain conditions while a hard cap cannot be exceeded under any circumstances. This policy is not as effective from a competitive balance standpoint because it reduces the wages that players receive and puts more money into the hands of owners which is usually not allocated to improving the quality of the team. However, a lot of leagues do have policies about salary caps but many teams are able to find a way around the problem to go over the cap that is placed on them.

Luxury Tax: This is by far one of the best policies that can help ensure a greater level of competitive balance within a league. If a team is overspending compared to other teams

in the league, then the league policymakers can impose a luxury tax on all the extra money being spent to acquire talent which would increase the costs for acquiring these new players and at the same time increase revenue for the league that is achieved through luxury taxes. Then, the luxury tax revenue can be allocated to smaller teams to improve the quality of the team to help attain better competition in the league.

Competitive balance is important in a league to help maximize welfare benefits but a league should work to satisfy perceived competitive balance compared to objective competitive balance because that is what affects consumer behavior and spending the most. There are also many ways to fix the issues of competitive balance that also have their inefficiencies such as revenue sharing, salary caps, or the luxury tax.
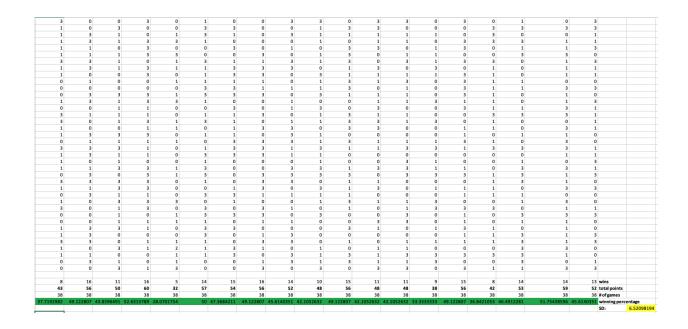
Methodology: As mentioned before, the main question we were trying to answer through this research project was whether the competition among specific teams (for example, the championship) was more important or the overall competition in the league in order to help maximize revenue. I collected data on the average revenue per team (adjusted for inflation), OCB every year, OCB of Top Sub-Competitions, and OCB of Bottom Sub-Competitions. Then, I used those numbers to look for trends over the course of 8 years in the English Premier League. OCB every year was calculated through the given formula: Standard deviation of the actual winning percentages of teams divided by the standard deviation of winning percentages of teams if the chance of a win, tie, or loss was the same for each team in the league. In order to find the standard deviation of winning percentages given that chance of a win, loss, or tie were the same, I conducted a simulation using a random number generator using the

numbers 0 (loss), 1 (tie), or 3 (win) for each team in each game for the season. In order to calculate the OCB of the sub-competitions, I used the top 4 teams in the league to find the OCB of the top sub-competition and I used the bottom 3 teams in the league to find the OCB of the bottom sub-competition. I chose the top 4 teams because they qualify for the UEFA Champions League and are usually the ones competing for the championship. I chose the bottom 3 teams as they are the teams that get relegated to the lower English soccer league. In order to calculate the average revenue per team, I got the revenue that each team made in a year and added that and divided it by the number of teams that were there (20) which is how that statistic was calculated (also adjusted for inflation).

gd	ga	gf	Losses	Tie	Win	pld	team	pos	Winning Percentage
41	37	78	4	11	23	38	Manchester United (C)	1	70.1754386
36	33	69	9	8	21	38	Chelsea	2	62.28070175
27	33	60	9	8	21	38	Manchester City	3	62.28070175
29	43	72	8	11	19	38	Arsenal	4	59.64912281
9	46	55	8	14	16	38	Tottenham Hotspur	5	54.38596491
15	44	59	14	7	17	38	Liverpool	6	50.87719298
6	45	51	10	15	13	38	Everton	7	47.36842105
6	43	49	11	16	11	38	Fulham	8	42.98245614
−11	59	48	14	12	12	38	Aston Villa	9	42.10526316
−11	56	45	15	11	12	38	Sunderland	10	41.22807018
−15	71	56	15	11	12	38	West Bromwich Albion	11	41.22807018
−1	57	56	14	13	11	38	Newcastle United	12	40.35087719
−2	48	46	18	7	13	38	Stoke City	13	40.35087719
−4	56	52	16	10	12	38	Bolton Wanderers	14	40.35087719
−13	59	46	17	10	11	38	Blackburn Rovers	15	37.71929825
−21	61	40	14	15	9	38	Wigan Athletic	16	36.84210526
−20	66	46	20	7	11	38	Wolverhampton Wanderers	17	35.0877193
−21	58	37	15	15	8	38	Birmingham City (R)	18	34.21052632
−23	78	55	19	9	10	38	Blackpool (R)	19	34.21052632
−27	70	43	19	12	7	38	West Ham United (R)	20	28.94736842
								SD:	11.21000321

This table shows the winning percentages of all the teams in the English Premier League in the 2010-2011 season. The winning percentage is calculated by calculating the number of points for the team in the season divided by the maximum number of points possible for each team, which is 114 (38*3). Then, I take the standard deviation
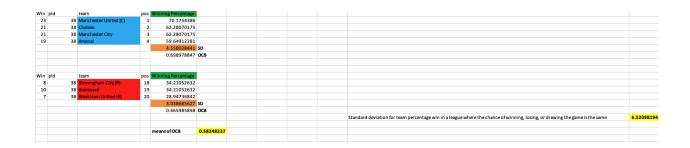
of those winning percentages to get the first value needed to calculate the overall OCB of the league (aka as Noll Scully) which is 11.21 in this season.

wins	8	16	11	16	5	14	15	16	14	10	15	11	11	9	15	8	14	14	13
total points	43	56	50	60	32	57	54	56	52	48	56	48	48	38	56	42	53	59	52
# of games	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
winning percentage	37.7192982	49.122807	43.8596491	52.6315789	28.0701754	50	47.3684211	49.122807	45.6140351	42.1052632	49.122807	42.1052632	42.1052632	33.3333333	49.122807	36.8421053	46.4912281	51.75438596	45.6140351

SD: 6.52098194

This long table of numbers is generated through a random number generator in the excel spreadsheet. The random numbers are representative of a win, loss, or tie for each team within a league. The hypothesized standard deviation of the winning percentages is 6.52 based on the calculations.

NOLL SCULLY:

	SD actual	SD equality	
NOLL SCULLY:	11.2100032	6.52098194	1.71906675

Noll Scully, which is the OCB of the overall league in the 2010-2011 EPL season is 1.72. Keep in mind that this number can vary based on the hypothesized standard deviation but the hypothesized standard deviation we use for the OCB value and sub-competition OCB is always the same, 6.52, to make sure it is only the SD actual that is explaining the difference in OCB of different years.

Win	pld	team	pos	Winning Percentage
23	38	Manchester United (C)	1	70.1754386
21	38	Chelsea	2	62.28070175
21	38	Manchester City	3	62.28070175
19	38	Arsenal	4	59.64912281
				4.558028441 SD
				0.698978847 OCB

Win	pld	team	pos	Winning Percentage
8	38	Birmingham City (R)	18	34.21052632
10	38	Blackpool	19	34.21052632
7	38	West Ham United (R)	20	28.94736842
				3.038685627 SD
				0.465985898 OCB

Standard deviation for team percentage win in a league where the chance of winning, losing, or drawing the game is the same | 6.52098194

means of OCB | 0.58248237

This picture shows the calculation of the OCB of specific sub-competitions in the 2010-2011 EPL season. I find the actual standard deviation of the winning percentages of the top 4 teams and the bottom 3 teams and then use the hypothesized standard deviation of 6.52 to find the competitive balance numbers.

These excel sheets are reproduced for 8 years (a lot of spreadsheets were created in the process!)

Analysis & Conclusions:

	Adjusted for inflation using base year as 2011												
Year	Average Revenue (million Euros)	Difference in Revenues (year to year)	OCB	Differnce in OCB from year to year	OCB of Top Sub-Comp	Difference in OCB of Top Sub-Comp	OCB of Bottom Sub-Comp	Difference in OCB of Bottom Sub-Comp	Difference of overall OCB and Top OCB	Difference of overall OCB and bottom OCB	Total Diff from overall OCB	sum of sub competition OCB	Average sub comp OCB
2010-2011	117.5		1.72		0.70		0.47		1.02	1.25	2.27	1.16	0.58
2011-2012	114.1	(3.4)	2.35	0.63	1.52	0.82	0.74	0.27	0.83	1.61	2.44	3.07	1.54
2012-2013	120.5	6.4	2.40	0.05	0.96	(0.56)	1.02	0.27	1.44	1.38	2.82	1.42	0.71
2013-2014	149.9	29.4	2.59	0.20	0.40	(0.56)	0.21	(0.81)	2.19	2.39	4.58	0.05	0.02
2014-2015	153.1	3.3	2.20	(0.39)	0.97	0.56	0.34	0.13	1.23	1.86	3.09	1.87	0.93
2015-2016	163.1	10.0	2.08	(0.12)	0.86	(0.11)	1.45	1.11	1.22	0.63	1.84	2.20	1.10
2016-2017	201.6	38.5	2.67	0.59	1.05	0.19	0.68	(0.77)	1.62	1.99	3.61	1.92	0.96
2017-2018	203.3	1.7	2.58	(0.09)	1.54	0.49	0.16	(0.52)	1.04	2.42	3.46	2.18	1.09

The picture below summarizes all the data collected and calculated for 8 years in the Premier League.

1. The average revenue per team increases from year to year in all the years data that was collected from except one transition. However, what is more important is the number by which revenue per team is increasing. For instance, from the 2012-2013 to 2013-2014 season, there was a major spike in revenue of 29.4 million Euros per team which was the second biggest increase in the 8 years.

Overall competitive balance changed from 2.40 last season to 2.59 in the 2013-2014 season, creating less competition overall between the teams. However, the overall OCB of the top-sub competition and bottom sub-competitions were at their lowest in all of 8 years and decreased substantially from the previous year to 0.4 and 0.21 respectively. This is a very good indicator that the competitive balance in sub-competitions mattered more than the overall competitive balance in the league, which can be related to the idea of attention level effects as fans pay more attention to the important sub-competitions which eventually shapes their interest in the league and how they perceive the competition as well. To further demonstrate this idea, from the 2015-2016 to 2016-2017 season, revenue per team had the biggest spike of the 8 years of 38.5 million Euros per team. Overall competitive balance in the league increased substantially by 0.59 (2.08 to 2.67) meaning lesser overall competition in respect to last year's. Relative to the major increase in overall OCB, the competition in the top sub-competition increased slightly by 0.19 while OCB of the bottom sub-competition decreased substantially by 0.77 which goes to demonstrate again like the previous example that greater competition in certain sub-competitions than compared to last year resulted in major increases in revenue per team.

2. From the 2010-2011 season to 2011-2012 season, average revenue per team decreased by 3.4 million Euros which was not seen in the 8 years of data that I collected. Overall OCB increased substantially from 1.72 to 2.35 but more importantly, the OCB of the top sub-competition went up by more than double of

last year by 0.82 (from 0.7 to 1.52) which was the most in all of the 8 years. Furthermore, the OCB of the bottom sub-competition also went up by 0.27. This goes to show a correlation that increasing the OCB levels of these sub-competitions actually hurt revenue per team as these were the competitions which fans were more interested in (but due to lack of competition in that year, fan interest from the premier league went away). In the analysis done in point #1, overall OCB went up but not the OCB of the sub-competitions which is why revenue increased a lot but in this case where revenue strictly decreased from last year, the competition in sub-competitions was quite low, which goes to show the importance of competitive balance in these specific competitions, further demonstrating the greater importance of sub-competitions.

3. From the 2013-2014 season to 2014-2015 season, revenue per team did not change as much, only an increase of 3.2 million Euros per team. However, overall competitive balance in the league actually decreased by 0.39 which was the greatest decrease in the 8 years analyzed (from 2.59 to 2.2). Even though overall competition in the league increased, competition of the sub-competitions actually decreased as OCB increased from 0.4 to 0.97 and OCB of bottom increased from 0.21 to 0.34. This goes to show that when the sub-competitions competitive balance was more imbalanced than last year, revenue per team only increased slightly compared to other years despite this year having one of the best overall competitions.

4. One important trend to notice is about how revenue per team would rise from year to year in respect to the sum of the differences in overall OCB and each

sub-competition. The sum of the differences in overall OCB and each sub-competition was calculated through this: (overall OCB - OCB of top-sub competition) + (overall OCB - OCB of bottom sub-competition). The higher sums showed a greater level of overall OCB relative to the competitive balance in the sub-competitions in that season of the premier league. Fans would perceive competition in the league to be higher than what it actually is (the higher the sum of these differences is) because fans pay more attention to the top and bottom sub-competitions. In other words, the bigger the sum of the differences is, the closer the fans would perceive the sub-competitions to be than they actually are. For example, in the 2013-2014 season, this number was 4.58 (the highest of all the years collected) and 3.61 in the 2016-2017 season (second highest of all the years collected). During both of these years, revenue spiked from 120.5 to 149.9 million Euros and 163.1 to 201.6 million Euros respectively, demonstrating the relationship of perception of competition and revenue per team in the league.

All the spreadsheets can be found on this link: ☒ Economics Research Project.xlsx

Implications:

From the fundamentals of economics, competition is important. However, in this paper, we analyzed what type of competition is important in sports (specifically soccer in this paper). The English Premier League has to make sure that a certain level of overall competition exists but what is more important to their financial success is the competition in the specific sub-competitions such as the top teams competing for the

championship or the teams in the relegation zone because those are the competitions

that fans care most about. Therefore, policies to change competitive balance in the

league such as having salary caps, luxury taxes, or revenue sharing should be

implemented in such a manner that there are only a certain number of teams competing

for the title/relegation but also such that overall competition in the league doesn't

become too imbalanced that it draws away fan attention from the league.

Bibliography

Note: Wikipedia pages were only used for score tables in the Premier League

Kuper, Simon, and Stefan Szymanski. *Soccernomics: Why England Loses; Why
Germany, Spain, and France Win; and Why One Day Japan, Iraq, and the United
States Will Become Kings of the World's ... the Kings of the World's Most Popular
Sport*. 1st ed., Bold Type Books, 2018.

Ayles, James. "Premier League Clubs Lost £166 Million In Wages To Injuries Last
Season With Manchester City Most Affected." *Forbes*, 10 Oct. 2019,
www.forbes.com/sites/jamesayles/2019/10/10/premier-league-clubs-lost-166-milli
on-in-wages-to-injuries-last-season-with-manchester-city-most-affected/#114ab9b
f48c4.

Elorza, Alejandra. "The Economics of Football." *Thinking Heads*, 5 Sept. 2019,
www.thinkingheads.com/en/global-trend/the-economics-of-football.

Temitope, Charles. "HOW DO FOOTBALL CLUBS MAKE MONEY ? - Charles
Temitope." *Medium*, 27 Apr. 2018,
medium.com/@Thorpeskii/many-lovers-of-the-beautiful-game-of-football-still-ca
nt-wrap-their-heads-around-how-clubs-afford-d6a2f5c93d36.

Kelley Cullen. "Remedies for Competitive Imbalance in US Pro Sports." *YouTube*,
uploaded by Kelley Cullen, 4 Aug. 2020,
www.youtube.com/watch?v=K808CHHnz-E.

Budzinski, Oliver; Pawlowski, Tim. "The behavioural economics of competitive balance:

      Implications for league policy and championship management", September 2014,

      https://www.econstor.eu/bitstream/10419/103420/1/796714266.pdf

Kruschewsky, Gabriela. "Wake up, America: Here's Why Soccer Is The World's Best

      Sport." *HuffPost,* HuffPost, 14 May 2014,

      https://www.huffpost.com/entry/soccer-worlds-best-sport_n_5248061

Foer, Franklin. *How Soccer Explains the World*. HarperCollins, 2004.

Unmentioned author. "The difference between MLS and European Soccer leagues"

      December 7 2017,

      https://www.abc10.com/article/sports/the-difference-between-mls-and-european-s

      occer-leagues/103-497694846

Birnbaum, Phil. *Sabermetric Research*,

blog.philbirnbaum.com/2016/04/noll-scully-doesnt-measure-anything-real.html.

"2010-11 Premier League - League Table." *Basedig.com*.

"Premier League Club Accounts 2010/11: How in Debt Are They? Get the Data." *The

Guardian*, Guardian News and Media, 24 May 2012,

www.theguardian.com/news/datablog/2012/may/24/football-premier-league-club-accounts.

"Premier League Finances: Turnover, Wages, Debt and Performance." *The Guardian*,

Guardian News and Media, 1 May 2014,

www.theguardian.com/news/datablog/2014/may/01/premier-league-club-accounts-debt-wa
ges.

Conn, David. "Premier League Finances: Turnover, Wages, Debt and Performance." *The
Guardian*, Guardian News and Media, 18 Apr. 2013,

www.theguardian.com/news/datablog/2013/apr/18/premier-league-club-accounts-debt.

"Premier League Finances: Turnover, Wages, Debt and Performance." *The Guardian*,

Guardian News and Media, 1 May 2014,

www.theguardian.com/news/datablog/2014/may/01/premier-league-club-accounts-debt-wa

ges#:~:text=It%20shows%20that%20in%202012,a%20loss%20of%20%C2%A3291m.

Conn, David. "Premier League Finances: the Full Club-by-Club Breakdown and Verdict."
The Guardian, Guardian News and Media, 29 Apr. 2015,

www.theguardian.com/football/2015/apr/29/premier-league-finances-club-by-club.

"2013–14 Premier League." *Wikipedia*, Wikimedia Foundation, 7 July 2021,

en.wikipedia.org/wiki/2013%E2%80%9314_Premier_League.

"Premier League." *Premier League - Facts, Stats and History*,

www.footballhistory.org/league/premier-league.html.

"2014–15 Premier League." *Wikipedia*, Wikimedia Foundation, 11 July 2021,

en.wikipedia.org/wiki/2014%E2%80%9315_Premier_League.

"2011–12 Premier League." *Wikipedia*, Wikimedia Foundation, 6 July 2021,

en.wikipedia.org/wiki/2011%E2%80%9312_Premier_League.

"2012–13 Premier League." *Wikipedia*, Wikimedia Foundation, 4 June 2021,

en.wikipedia.org/wiki/2012%E2%80%9313_Premier_League.

"2013–14 Premier League." *Wikipedia*, Wikimedia Foundation, 7 July 2021,

en.wikipedia.org/wiki/2013%E2%80%9314_Premier_League.

"2014–15 Premier League." *Wikipedia*, Wikimedia Foundation, 11 July 2021,

en.wikipedia.org/wiki/2014%E2%80%9315_Premier_League.

"2015–16 Premier League." *Wikipedia*, Wikimedia Foundation, 12 July 2021,

en.wikipedia.org/wiki/2015%E2%80%9316_Premier_League.

"2016–17 Premier League." *Wikipedia*, Wikimedia Foundation, 11 July 2021,

en.wikipedia.org/wiki/2016%E2%80%9317_Premier_League.

Conn, David. "Premier League Finances: the Full Club-by-Club Breakdown and Verdict."

The Guardian, Guardian News and Media, 1 June 2017,

www.theguardian.com/football/2017/jun/01/premier-league-finances-club-by-club.

Planet Football. "A Club-by-Club Breakdown of the 2016-17 Premier League Prize

Money." *Planet Football*, Planet Football, 1 Mar. 2018,

www.planetfootball.com/quick-reads/club-club-breakdown-2016-17-premier-league-prize-

money/.

"2017–18 Premier League." *Wikipedia*, Wikimedia Foundation, 24 June 2021,

en.wikipedia.org/wiki/2017%E2%80%9318_Premier_League.

Planet Football. "Club-by-Club: A Breakdown of the 2017-18 Premier League Prize Money." *Planet Football*, Planet Football, 18 May 2018, www.planetfootball.com/quick-reads/club-by-club-a-breakdown-of-the-2017-18-premier-league-prize-money/.

"2018–19 Premier League." *Wikipedia*, Wikimedia Foundation, 4 June 2021, en.wikipedia.org/wiki/2018%E2%80%9319_Premier_League.

Planet Football. "Club-by-Club: A Breakdown of the 2018-19 Premier League Prize Money." *Planet Football*, Planet Football, 13 May 2019, www.planetfootball.com/quick-reads/club-by-club-a-breakdown-of-the-2018-19-premier-league-prize-money/.

"2019–20 Premier League." *Wikipedia*, Wikimedia Foundation, 14 July 2021, en.wikipedia.org/wiki/2019%E2%80%9320_Premier_League.

Planet Football. "Club-by-Club: A Breakdown of the 2019-20 Premier League Prize Money." *Planet Football*, Planet Football, 31 July 2020, www.planetfootball.com/quick-reads/club-by-club-a-breakdown-of-the-2019-20-premier-league-prize-money/.

Coon, Larry. "Table of Contents." *NBA Salary Cap FAQ*, www.cbafaq.com/salarycap.htm#Q1.