The impact of the coronavirus outbreak (COVID-19) on player salaries, transfer fees, and net transfer expenses in the English Premier League

Tommy Quansah

Institute of Sport Sciences

University of Lausanne

tommy.quansah@unil.ch

Bernd Frick

Management Department

Paderborn University

bernd.frick@uni-paderborn.de

Markus Lang

Institute of Sport Sciences

University of Lausanne

markus.lang@unil.ch

Kieran Maguire

Management School

University of Liverpool

September 9, 2020

The impact of the coronavirus outbreak (COVID-19) on player salaries, transfer fees, and net transfer expenses in the English Premier League

Abstract

The COVID-19 pandemic has caused significant disruption in the sports industry but is still largely unexplored. Our paper tries to shed first light on this issue by examining the consequences of the coronavirus crisis for the player labor market in the English Premier League (EPL). Using data from the EPL, we develop an empirical model to calculate the expected effect of COVID-19 on the three revenue sources (TV revenues, match revenues and commercial revenues) of EPL clubs and forecast the impact on player salaries, market values, and transfer expenses in three possible coronavirus scenarios. In the forthcoming EPL season 2020/21, we expect total club revenues to decrease by 28% (worst case), 18% (medium case), and 13% (best case). Moreover, our empirical model suggests that player salaries, market values, and transfer expenses will all decrease in the upcoming season. The magnitude of the reduction depends on the scenario and ranges from -20.4% to -9.5% for player salaries and -26.7% to -12.4% for player market values. When splitting the sample into the Big6 clubs and the remaining 14 teams, our model predicts that player salaries will decline more at the Big-6 clubs than for the other 14 teams, while the opposite is true for net transfer expenses. The study adds to the understanding of the effects of COVID-19 on sports and aims at providing new insights to sport management professionals as for the development of the football labor market.

Keywords: COVID-19, coronavirus, transfer fees, players market values, Premier League

1. Introduction

For many years, transfer fees and player salaries have seen mainly one direction, upwards. Fueled by increasing match, sponsorship, and broadcasting revenues, particularly in the English Premier League ("EPL"), worldwide football transfer fees reached a record high of USD7.4bn in the year 2019, almost tripling the fees paid in 2012 (FIFA TMS, 2019). The war for talents among football clubs is driven by the desire for on-field success and win-maximization (Garcia-del-Barrio & Szymanski, 2009; Késenne, 2006). Player salaries as well as transfer fees constitute the most important cost factor of clubs in modern professional football (Deloitte, 2019b). Szymanski (2013) has shown a statistically significant and positive impact of clubs´ staff expenditures in the form of player salaries and transfer fees on their sporting success.

The coronavirus pandemic (COVID-19), which caught most companies worldwide by surprise, had been nothing but a disaster for the sports industry so far. While some football leagues such as France, Belgium, and the Netherlands abandoned the 2019/20 season, other leagues continued without spectators, with significant revenue losses for the clubs in both cases. While several football industry professionals expressed the view that this could lead to a contraction of the player market in the near future (Panja, 2020), no academic study has so far investigated the possible effects of the coronavirus epidemic on transfer fees or player salaries.

Our paper tries to shed first light on this issue by examining the likely consequences of COVID-19 for professional football. Using data from the EPL, we forecast the (likely) development of player salaries, net transfer expenses, and player market values in the forthcoming season in three possible coronavirus scenarios. Our paper adds to the understanding of the still unexplored economic impacts of the COVID-19 pandemic on sports. Thus, our study aims at providing new insights to sport management professionals what to expect for the development of the football labor market and to serve as a reference point for research and practice.

The remainder of the paper is organized as follows: Section 2 introduces the background with the COVID-19 pandemic and the main variables of our model. Section 3 describes the data and the empirical model. Section 4 presents the results of the empirical investigation and forecasts

This preprint research paper has not been peer reviewed. Electronic copy available at: https://ssrn.com/abstract=3689563

the impact of the COVID-19 pandemic. Section 5 provides a discussion and the paper concludes with Section 6.

2. Background

2.1 The COVID-19 pandemic

The Coronavirus Disease 2019 (COVID-19) is a highly infectious respiratory illness transmitted through human and animal interaction and caused by the strain of coronavirus, the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The virus appears to have first emerged from Wuhan, China in December 2019 and then spread throughout the world. By February 2020, the virus had reached Italy, where it prompted a high number of infections and deaths, which eventually forced the Italian government to close schools, companies, and borders and to suspend commercial air traffic during February and March 2020. Other European countries experienced, time-delayed, similar developments, with different degrees of government-imposed measures and ordinances to lower infections and casualties.

On March 13, 2020, the EPL, together with the Football Association (FA), English Football League, Barclays FA Women's Super League, and FA Women's Championship collectively suspended professional football in England (Parnell et al., 2020). Other leagues followed. After a two-month interruption, during which virtually no sporting events took place[1] worldwide, the German Bundesliga was the first to resume professional football in its first two divisions on 16th May 2020, under strict control – and without spectators. The EPL together with some other football leagues followed suit in June 2020, also without stadium audiences.

Despite the development of a hygiene concept to prevent the spread of the virus among stadium visitors and to allow fans to return to the stadiums, the German Bundesliga will start the 2020/21 season without spectators due to a decision made by German authorities in August 2020 (VanOpdorp, 2020)[2]. While the French Ligue 1 started its 2020/21 season with up to 5000 spectators per game (Barker, 2020), no decision has yet been made with respect to spectator limitations in the EPL 2020/21 season at the moment of writing this article.

---

[1] With the exception of the Belarusian League which continued playing despite the COVID-19 pandemic
[2] However, some of the 16 German federal states indicated that they would grant football clubs in their jurisdiction with special permits, which allows them to play in front of a limited number of spectators, nevertheless (BBC, 2020b)

2

In the absence of a vaccine against COVID-19, mass gatherings at sporting venues will continue to be limited, as such events contribute to the spread of infectious diseases, such as the SARS-CoV-2 strain (Memish et al., 2019). When available, access to the vaccine is likely to be limited to healthcare workers and particularly vulnerable citizens. So-called immunity-passes have been in discussion, which would allow immune spectators to enter the stadiums. However, at the time of writing, such an immunity-pass does not yet exist, and it has not even been established how long an immunization would last (Cunningham et al., 2020).

While it will take a while before the mid- to long-term impacts of COVID-19 on sports can be assessed, the disease already proved to have a massive negative short-term impact on its commercial side, as evidenced by the postponement of the Tokyo Summer Olympic Games 2020 at an alleged cost of USD 800 (Grohmann, 2020), the discussions surrounding numerous second- and third-tier football clubs in Germany and England threatened by insolvency (Franzke, 2020; Wright, 2020), or the loss of sponsors from other industries due to coronavirus-caused revenue decreases (Reinefeld, Fleischmann & Späth, 2020).

2.2 Revenue sources of football clubs

The three main revenue sources of football clubs have traditionally been match income (i.e. ticketing, food and beverage, and parking), media and broadcasting income, as well as commercial income from sponsorship and merchandising (Chanavat & Desbordes, 2017). While in 1998, Deloitte still noted that for most EPL clubs, "gate revenues remain the primary income source that ensures that the clubs' financial backbone is maintained" (Deloitte Touche, 1998), twenty years later and as a direct consequence of the enormous growth of commercial and broadcasting income, match revenues represented only 14% of the clubs' total revenues (Deloitte, 2019a).

While the loss of match revenues may appear to be the most striking effect that clubs are confronted with, in the wake of COVID-19, the pandemic is likely to impact EPL club revenues beyond ticket and F&B sales.

The re-start of the 2019/20 season on June 17th, 2020 prevented EPL clubs from having to refund £762M of advance payments to broadcasters, as would have been the case in the event the season was canceled. However, EPL clubs still face financial ramifications from media houses. A league-wide penalty of £330M applies as the league had not been able to fulfill its

contractual obligations concerning the timing and delivery of matches played in empty stadiums (Burt, 2020).

In an industry report published in May 2020, sports marketing company Two Circles predicted a 37% year-on-year decrease of Global sports sponsorship rights fees for the year 2020 as the result of the COVID-19 pandemic (Cutler, 2020). While sponsors are likely to receive considerable rebates due to the cancellation or postponement of sporting events, a large part of new sponsorship agreements had been put on hold, while many existing agreements are likely to end as a result of companies implementing major cost-cutting measures or going out of business. Some of the industries that are among the most prominent investors in sports sponsorships have been hit hard by the pandemic, most notably, the financial services sector, airline carriers, as well as automotive and energy companies (Cutler, 2020). These industries have also been among the biggest sponsorship contributors of EPL clubs.

Changes in their income situation are likely to result in changes in the expenditures of the clubs. While most professional teams in Europe are considered to be win- rather than profit-maximizers, clubs can only spend as much as they receive because they are subject to budget constraints (Késenne, 2006). Low profits or even losses despite rapidly increasing revenues in recent years (Slater, 2020) is evidence of win maximization in EPL football.

2.3 Player salaries

The war for playing talent among the top European clubs is driven by the desire for on-field success and win-maximization (Sloane, 2006; Garcia-del-Barrio & Szymanski, 2009; Késenne, 2006).

Player salaries constitute the single largest cost factor of clubs in modern professional football (Deloitte, 2019b). Wages represent anything between 60% and 72% of total operating costs in each of the five large European football leagues (Deloitte, 2019b), and account for between 70% and 80% of revenues in the EPL. The strong growth of club revenues in the EPL before the appearance of COVID-19 was accompanied by considerable increases in wage bills.

Apart from the well-documented correlation of club revenues and team wage bills, a number of player-specific variables have been found to impact individual salaries. These variables include measures of performance and talent, such as age, position, number of appearances, and goals scored as well as popularity. As past performance serves as an indicator of future

4

performance, an athlete's recent sporting performance and his or her talent is considered among the most relevant factors in salary negotiations and serves as an important explanatory variable of a player's salary (e.g., Bryson, Frick, & Simmons, 2013; Franck & Nüesch, 2012; Frick, 2006, 2011). Empirical studies have further observed a U-shaped relationship between age and salary. Thus, on-field experience seems to be associated with higher salaries up to a certain point, when the salary starts to decline again. In football, players reach their maximum salary between the age of 26 and 28 (Frick, 2007; Bryson et al., 2013). Further, certain players are more popular than others, irrespective of performance or mere talent, which significantly and positively influences their salary (Franck & Nüesch, 2012). This finding has been confirmed by Garcia-del-Barrio & Pujol (2007), using Google hits to explain soccer players' economic value in Spanish football.

While individual player salaries are typically not disclosed in European football (Thrane, 2019), evidence from the North American Major Leagues suggests that salaries in professional sports are generally right-skewed, with a relatively large number of low salaries and a few players earning far more (Deutscher, 2018). These large salary differences are often explained by the 'superstar' effects as discussed by Adler (1985) and Rosen (1981). Adler (1985) explains the emergence of superstars and the resulting skewed income distribution among athletes by network externalities of popularity, whereas Rosen (1981) suggests that the supply of talent is fixed, and the distribution of talent is freely observable. As top talent cannot be substituted by less talented players, the demand for over-achievers is particularly high. Thus, relatively small differences in talent at the top of the talent distribution lead to large differences in earnings (Deutscher, 2018).

2.4 Net transfer expenses

Transfer fees of top athletes regularly make the headlines of tabloids and are a source of heated public controversy. In the case of men's football in Europe, media attention regularly reaches its peak during the pre- and mid-season transfer windows each year. Fueled by higher club revenues from match and broadcasting income, transfer fees had been on the rise prior to the COVID-19 pandemic. In 2019, worldwide football transfer fees reached USD7.4bn, compared to USD2.71bn in the year 2012 (FIFA TMS, 2019). There had been as many as 39 transfers with fees in excess of USD50m in 2019 alone (FIFA TMS, 2019), costs that are to be depreciated by the clubs over the length of the player´s contract.

5

From a legal perspective, the "transfer fee is a payment made between clubs in relation to a transfer operation usually including an early termination of a player's contract without just cause, excluding training compensation" (KEA & CDES, 2013). In other words, it is compensation for releasing a player before the end of his/her contract which enables the releasing club to offset financial losses incurred from the contractual expiry of its asset. The subject is therefore not the player himself, but the player contract and the releasing club's registration of the player with the member association (Simmons, 2007). The fee can either be negotiated between the releasing and the acquiring club or can be a fixed fee as part of a release clause in the player's existing contract. Most contracts in Spanish professional football for example have such a release clause, as a Royal Decree (1006/1985) explicitly grants professional athletes the right to early terminate their contractual relationship conditional on the payment of a predetermined compensation (de Dios Crespo Pérez, 2014).

In 2018, transfer fees as reported by FIFA include fixed fees (84.8%), conditional fees (15%), release fees (4.9%), as well as solidarity and training contributions (1.3%) but exclude agency fees (FIFA TMS, 2018). Conditional fees that are part of a transfer contract but are due in the future are not considered.

Apart from being a cost factor, numerous clubs have developed a distinct business model by focusing on the discovery, development, and subsequent profitable on-sale of players. For some of these clubs, transfer fees have become an indispensable revenue source. EPL clubs are more often than not net spenders, buying established players from other leading European and non-European leagues, as displayed in Figure 1. Net transfer expenses as used here are the sum of transfer fees received and money spent for signing new players.

< Insert Figure 1 about here >

2.5 Player market values

In the sports management literature, there appears to be some ambiguity regarding the concepts of transfer price (or fee) and player market value, their relationship to each other, and their connection with player salaries.

Müller, Simons, and Weinmann (2017) describe player market values as estimates of the transfer fees that are most likely to be paid, while Kirschstein and Liebscher (2019) describe transfer fees as estimates of player market values. Herm et al. (2014) define the market value

6

of a player as an estimate of the amount of money a club is willing to pay to sign that player. Weimar and Wicker (2017) as well as Thrane (2019) postulate that market values of players are primarily used as proxies of salaries to simplify the researcher's life or because salary data is not available. While market values and salaries are determined by the same set of explanatory variables (Prockl & Frick, 2018; Szymanski, 2013), their underlying concepts are far from similar. Therefore, most researchers have used market values in an effort to proxy transfer fees rather than salaries (e.g. Carmichael & Thomas, 1993; Carmichael, Forrest & Simmons, 1999; Dobson & Gerrard, 1999; Herm et al., 2014; Majewski, 2016; Müller et al., 2017). While both, salaries and transfer fees, are ultimately (and often substantial) costs for a club[3], their values are at times positively and at times negatively correlated[4].

To separate the terms "market value" and "transfer price", it is helpful to look at the two concepts in more detail.

In analogy to other areas such as marketing or finance, we distinguish between value and price. While no single measure of value has gained universal acceptance (Sánchez-Fernández et al., 2009), finance scholars consider valuation as an assessment of assets based on their intrinsic characteristics, while pricing manifests itself in the form of comparisons across transactions (Damodaran, 2007). In contrast to value, the price of an asset is determined in large part by mood and momentum, liquidity, incremental information as well as groupthink (Damodaran, 2014).

Traditionally, the player market values have been estimated by the sporting departments of football clubs themselves in anticipation of the transfer fees to be paid or to be received in case a player contract is prematurely terminated (Müller et al., 2017). Researchers and service providers usually generate player values by comparing and contrasting individual player characteristics and performances with those of players in recent transactions and the transfer fees realized there. The approaches used do not aim at generating intrinsic value, but at comparing prices in similar transactions. Thus, what is generally referred to as player market value is a "price estimation" rather than a "valuation". Player market values in this sense are

---

[3] While player salaries are recurring expenses and appear on the profit & loss statement of a club, the transfer fees paid to the releasing club (and other parties) are capitalized as assets on the balance sheet and are depreciated over the length of the players' contracts.

[4] High profile players who become free agents are regularly able to negotiate higher salaries.

subjective, are influenced by the methods and parameters used (Damodaran, 2007), can be biased (Kirschstein & Liebscher, 2019), and depend on the overall pricing situation on the player market which itself is influenced by supply and demand. The market value of a player is, thus, a theoretical construct. Unlike products and services where the value or the price is associated with a property right, there are no rights associated with a player's market value – in contrast to a player's transfer fee.

The two pricing methods that can be distinguished are data-driven valuation and crowd-driven valuation approaches. Data-driven approaches are methods that make use of statistical models with an established set of indicators and empirically derived weights to estimate a player's market value (Müller et al., 2017)[5]. Two professional service providers that use data-driven approaches based on regression analyses to determine player market values are the Centre International d'Étude du Sport ("CIES") as well as the sports data unit of international accounting firm KPMG.

In the case of crowd-driven football player valuations, registered community members perform their subjective estimations of player market values on dedicated platforms, based on arbitrary indicators and subjective weighting. Using a hierarchical approach with several different indicators such as user evaluations, dedicated judges – a small number of empowered community members – then assign subjective weightings to all prior estimations after performing a market value estimation themselves (Müller et al., 2017). These market values are available at individual and team levels for most professional football leagues in the world and are regularly used by researchers as a proxy for transfer fees (e.g. Franck & Nüesch, 2012; Bryson et al., 2013), since actual transfers do not happen regularly and data is not always publicly available. The largest and most well-known crowd-driven valuation platform is the German website transfermarkt.de, established in 2001.

---

[5] Most studies have used ordinary least square regression models based on a variety of independent variables to model player market values (Sæbø & Hvattum, 2015). Among these variables are player characteristics such as position, age, height, footedness, and nationality (e.g. Dobson, Gerrard, & Howe, 2000; Frick & Lehmann, 2001; Bryson et al., 2013; Müller et al., 2017), while others include the player's past performance such as the number of appearances and minutes played, goals, assists, tackles, dribbles, and cards received (e.g. Carmichael & Thomas, 1993; Carmichael et al., 1999; Garcia del Barrio & Pujol, 2007; Dobson et al., 2000; Franck & Nüesch, 2012; Bryson et al., 2013; Müller et al., 2017). Still, others look at the popularity of a player using variables such as press citations, Google search trends, Wikipedia page views, and YouTube videos (e.g. Garcia del Barrio & Pujol, 2007; Franck & Nüesch, 2012; Müller et al., 2017).

This preprint research paper has not been peer reviewed. Electronic copy available at: https://ssrn.com/abstract=3689563

In this paper, we consider the market value of a player as a theoretical construct that aims at approximating the current market price for releasing that player from an existing contract, irrespective of its remaining length or status. The market price of a player is determined by the overall situation of the player market, i.e. supply and demand, the player's performance, his individual characteristics, as well as his popularity. In contrast, a transfer fee is compensation money to offset the financial losses incurred by the releasing club from the contractual expiry of the asset, either as part of an agreement between the releasing and the acquiring club or following the execution of a release clause included in the players' current contract. The two concepts are summarized in Table 1. Despite these differences, market values are a good proxy for transfer fees as they are highly correlated (Franck & Nüesch, 2012; Herm et al., 2014).

< Insert Table 1 about here >

3. Data and empirical model

3.1 Data collection

The data we use to estimate our regression models (see below) comes from the 20 clubs playing in the EPL for the 27 seasons between 1992/93 and 2018/19, yielding a total of 540 club-season-observations. Due to promotion and relegation, the number of different clubs over the observed time period is 49, with some clubs appearing in the dataset only once and others in every single year. Information on club revenues, team wage bills, and net transfer spending were retrieved from the annual reports of the individual clubs. The player market value estimates are available only from the season 2005/06 onwards and were retrieved from the website "transfermarkt.de". In each season, each of the 20 clubs employed a squad consisting of 20 to 48 players, yielding 10,043 player-season-observations for the 15 seasons 2005/06 to 2019/20.

3.2 Empirical model

Several fixed-effects models that account for unobserved heterogeneity across the clubs form the basis of our predictions that we will present below. The dependent variables we employ here are the team wage bill of team *i* in season *j*, the net transfer spending of club *i* in season *j,* and the average player value of club *i* in season *j*. The explanatory variables are the clubs´

9

revenues in season *i-1* (or the components of these revenues, i.e. match income, TV revenues, and commercial income respectively). Thus, we hypothesize:

(1) *Team Wage Bill = f (Total Revenues of Club)*

(2) *Net Transfer Expenses = f Total Revenues of Club)*

(3) *Squad Market Value = f (Total Revenues of Club)*

Our regression model is, therefore, of the following general form:

(1) $ln(WB_{ij}) = \alpha_0 + \alpha_1 \ln(CR_{ij-1}) + \sum SD + \varepsilon$

(2) $NTE_{ij} = \alpha_0 + \alpha_1 CR_{ij-1} + \sum SD + \varepsilon$

(3) $ln(APV_{ij}) = \alpha_0 + \alpha_1 \ln(CR_{ij-1}) + \sum SD + \varepsilon$

where $\ln(WB_{ij})$: natural log of wage bill of club *i* in season *j*,
NTE_{ij}: net transfer expenses of club *i* in season *j*,[6]
$\ln(APV_{ij})$: natural log of average player value of club *i* in season *j* to control for differences in squad size
$\ln(CR_{ij-1})$ or CR_{ij-1}: (natural log of) revenues of club *i* (or sources of income, i.e. match, TV, commercial) in year *j*-1
$\sum SD$: vector of season dummies
E: error term

In a second step, we present three different scenarios representing the most likely development of club revenues, based on what we know to date with respect to the likely consequences of COVID-19 on the revenue sources of the EPL clubs. Based on the results of the regression analyses and the three forecast scenarios, we then predict the development of player salaries[7], net transfer expenses, and player values due to COVID-19.

4. Results

4.1 The impact of income sources on player salaries, net transfer expenses, and player market values

First, we estimate model (1) to understand how the three different revenue sources of football clubs influence player salaries. Since we use the natural logarithm of the variables on both sides of the equation, the coefficients can be interpreted as elasticities: Thus, according to the

---

[6] Since net transfer spending includes positive as well as negative values, we cannot use the natural logarithm as negative values are not defined.
[7] Player salaries are estimated by the Team Wage Bill, which includes all salaries of a club

10

results displayed in Table 2, a 1% increase (10% increase) in total club revenues increases player salaries by 0.728% (7.28%). It also appears from Table 1 that TV revenues are by far the most important revenue source with respect to player salaries, followed by match revenues and commercial revenues.

< Insert Table 2 about here >

When estimating model (2), we cannot use logs because net transfer expenses (net spending) also includes negative values (i.e., clubs earn more from selling players than they spend to sign new players) and the log of negative values is not defined. As a consequence, the interpretation of the coefficients in Table 3 is slightly different: Here, each additional British Pound coming from, e.g., TV revenues increases net transfer expenses by 44.3 pence. What is perhaps surprising is that each revenue source seems to have a similar impact on net spending, because the respective impact of match and commercial revenues is almost identical to that of TV revenues.

< Insert Table 3 about here >

In the case of player market values (model 3), we again use logs on both sides of the equation. It appears from Table 4 that a 1% (10%) increase in total income is associated with an 0.955% (9.55%) increase in player values. Similar to the results of model (1), TV revenues are far more important than either match or commercial revenues.

< Insert Table 4 about here >

In further analyses (see Tables 5, 6, and 7), we distinguish the "Big 6" clubs (Arsenal, Chelsea, Tottenham Hotspur, Liverpool FC, Manchester City, and Manchester United) from the other 14 teams, the composition of which changes every year due to promotion and relegation. This split between large clubs and the rest allows us to examine whether the above results change depending on the clubs´ market size.

< Insert Tables 5, 6, 7 about here >

Regarding player salaries, we find that a decrease of total club revenues leads to a larger reduction of salaries for Big 6 clubs than for the Other-14 teams (see Table 5), suggesting that player salaries at large clubs respond more to changes in club revenues than at small clubs. In addition, a change in match revenues impacts player salaries at Big 6 clubs more than the

11

salaries at the remaining 14 teams.

Interestingly, in contrast to player salaries, the results from Table 6 indicate that large clubs are expected to adjust their net transfer expenses less than small clubs due to a change in club revenues. Finally, there is no significant difference between large and small clubs regarding the impact of changes in club revenues on average player values (see Table 7).

4.2 The impact of the COVID-19 pandemic

We proceed in two steps: First, we derive three possible coronavirus scenarios and calculate the COVID-19 induced impact on the three revenue sources (match revenues, TV revenues, and commercial revenues). Second, we then forecast the impact of the COVID-19 pandemic induced revenue losses on player salaries, transfer expenses, and player market values in the three coronavirus scenarios based on the regression coefficients obtained from our empirical models. We assume that the correlations from Section 4.1, determined for a phase of uninterrupted growth, can also be observed in the opposite direction in recession phases. As a consequence, we conclude that a drop in total revenue of 10% will lead to a decrease in player salaries of 7.28% and a loss of player market value of 9.55%. In addition, a drop in total revenue of £1 results in a reduction of net transfer expenses by 19.7 pence.

We outline three possible scenarios for the economic development of EPL clubs in the post-COVID-19 era. The scenarios distinguish the three revenue sources and are summarized in Table 8. The change in absolute values is given in million British Pounds with the percentage change displayed in brackets.

< Insert Table 8 about here >

TV revenues: The EPL signed its latest broadcasting agreement in 2019 for the three seasons up to 2022, which guarantees an average amount of £152M per club for 2019, accounting for 59% of revenues. While numerous media experts expect lower income from broadcasting in the future (Dixon, 2020), this possible reduction will not come before the new broadcasting agreement is signed, which is post-2022. We, therefore, assume the reduction to be in line with the penalty payment of £330M for the postponed games in the 2019/20 season in all three scenarios, which translates into a decrease of 5.4% for the two successive seasons.

Commercial revenues: Interviews with industry experts confirmed the predictions made by

sports marketing company Two Circles expecting a 37% year-on-year decrease in global sports sponsorship rights fees as a result of the COVID-19 pandemic. According to one expert, sponsorship prices in the EPL were down by 30% to 40% as of August 2020, while several front-of-shirt sponsorships were still available for Championship clubs shortly before the start of the season, which is unprecedented according to that source. In our worst-case scenario, we thus assume a 40% decrease in commercial revenues, while our average case scenario assumes a 20% decrease. In the best case, premium sports sponsorship opportunities will recover quickly, leading to a reduction in commercial revenues of only 10%.

Match revenues: During the 2018/19 season, EPL clubs enjoyed an average capacity utilization of 96% (worldfootball.net), and match revenues contributed 13% to the total revenues of the average EPL club. As of August 2020, the EPL has not yet communicated its plans for spectator admissions for the 2020/21 season. However, the Deutsche Fussball Liga (DFL), which served as a trailblazer among sports leagues in terms of measures and actions in times of COVID-19, released its hygiene concept to prevent the spread of the virus among stadium visitors for the German Bundesliga on July 15th, 2020. This concept contains three scenarios, including different numbers of visitors to be allowed in each stadium. In case of a high pandemic level, with ≥ 35 new infections per week per 100,000 inhabitants, no spectators will be allowed in the stadium as in the final weeks of the 2019/20 season. In case the pandemic level is medium, with ≥ 5 and <35 new infections per week per 100,000 Inhabitants, the concrete number of fans allowed in the stadium has yet to be defined. Finally, in the case of <5 new infections per week per 100,000 inhabitants, there will be a successive return to normal operation, depending on agreements between the clubs and the respective local health authorities. In any case, not more than 30% or 50% of the stadium´s capacity can be used. In terms of match revenues, this means that in the worst-case scenario we assume no match revenues at all since no spectators will be allowed in the stadium. In the average case scenario, we assume a reduction in match revenues of 70% and in the best-case scenario a decrease of 50%.

< Insert Figure 2 about here >

Figure 2 displays match revenues (dotted line), TV revenues (dashed line), and commercial revenues (solid line) from the season 1992/93 up to 2018/19. The colored lines illustrate the different coronavirus scenarios: red displays the worst case, orange the medium case, and green the best-case scenario. The COVID-19 induced reduction in all three revenue sources is

clearly visible. Match revenues experience the strongest decline. Here, our model predicts a reduction of £18.5M (best case) up to £37.1M (worst case). TV revenues are expected to decrease by £7.8M in all three scenarios, while commercial revenues might drop between £8.0M and £32.1M.

Based on the above calculations and the results from our regression models, we are now able to calculate the COVID-19 induced impact on salaries, net transfer expenses, and player market values for the upcoming EPL season 2020/21:

< Insert Figure 3 about here >

Figure 3 illustrates player salaries (solid line), net transfer expenses (dotted line), and player market values (dashed line) for the seasons 1992/93 up to 2018/19. Again, the colored lines illustrate the different coronavirus scenarios. Player market values are expected to experience the largest drop: -26.7% in the worst case (red line), -17.2% in the medium case (orange line), and -12.4% in the best case (green line) scenario. Net transfer expenses and player salaries follow a similar pattern.[8]

Moreover, as derived in Section 4.1, we expect the reduction in player salaries to be stronger for the Big 6 clubs compared to the Other-14 teams. The opposite is true for net transfer expenses. Here, we expect a larger drop for the Other-14 teams compared to the Big 6 clubs.

5. Discussion

Based on our regression findings presented above, we conjecture that the COVID-19 induced negative effects on EPL club revenues will translate into reductions in team wage bills, squad market values, and net transfer expenses. While the impact will be economically relevant for each of these variables, their impact will remain rather small from a historical perspective. Even in the worst-case scenario, team wage bills, squad market values, and net transfer expenses only decline to the level they were in the 2017/18 season.

In contrast to the other Big 5 European football leagues, where most players agreed to voluntary pay-cuts, such as in the German Bundesliga or the Spanish La Liga, the majority of EPL players have refused to accept any salary reductions in the light of COVID-19 (Harris,

---

[8] Remember that the impact on net transfer expenses is calculated in absolute values since we cannot use logs for the estimation model.

2020). With average remaining contract lengths between 1.5 (Crystal Palace) and 3.2 years (Tottenham Hotspur) (CIES, 2018), it is, however, only a matter of time until lower player salaries will be observed across EPL teams too. Moreover, new player contracts are likely to include clauses according to which clubs are entitled to cut wages in case of another (unforeseen) pandemic or similar events that lead to a second lockout of fans.

The discussion of the pros and cons of salary caps, which are common practice in North American Major League sports (e.g., Dietl et al., 2013; MacInnes, 2017), have gained new momentum in light of the financial consequences of COVID-19 for football clubs. For a long time, legal specialists questioned whether salary caps are consistent with national and European anti-trust regulations. However, recent expertise by the Scientific Services of the German Parliament concludes that a salary cap is compatible with national as well as European law in the case it is introduced and monitored by UEFA (Deutscher Bundestag, 2020).

According to media reports, UEFA is currently indeed assessing the possibility of introducing a salary cap on a European level (Rumsby, 2020). Meanwhile, the English Football League has been a first mover and introduced salary caps for English third- and fourth-tier football in August 2020, with salary caps at £2.5M and £1.5M per annum, respectively (BBC, 2020a).

The question remains whether salary caps can prevent those clubs that are willing to spend more than allowed, to do so in the absence of rigorous monitoring to detect and sanction violations (Dietl et al., 2011). Monitoring the sources of players' ancillary requires far more effort than monitoring possible accounting shenanigans by clubs violating UEFA´s Financial Fairplay regulations.

6. Conclusion

The majority of countries worldwide are affected by the coronavirus and a large number of major sports events have in the meantime been postponed or canceled. 2020 was supposed to be an important year for sport with major events such as the UEFA Euro 2020 and the Summer Olympics in Tokyo. Both events have been postponed to 2021 causing significant financial as well as political disturbances.

The economic consequences of the COVID-19 pandemic on the sports industry in general and on European football, in particular, are still largely unexplored. Our paper tries to shed first light on the expected impact on professional football. Using data from the EPL, we develop an

empirical model to forecast the likely consequences of COVID-19 on player salaries, player market values, and transfer expenses in three possible coronavirus scenarios.

Our empirical model shows how changes in the different income sources of football clubs (TV revenues, match revenues, and commercial revenues) affect player salaries, player market values, and net transfer expenses. Our results suggest that TV revenues are by far the most important source of income for player salaries and market values, followed by match revenues and commercial revenues. Interestingly, each revenue source seems to have a similar impact on net transfer expenses.

Based on our regression estimations, we calculate the expected impact on the three revenue sources of EPL clubs and forecast the impact on their players´ salaries, market values, and transfer expenses in three possible coronavirus scenarios. In the forthcoming EPL season 2020/21, we expect total club revenues to decrease by 28% (worst case), 18% (medium case), and 13% (best case). Match revenues will most likely suffer the most (in the worst-case scenario they will be zero), while TV revenues are the least affected of the three revenue sources (only -5%). Our empirical model suggests that player salaries, market values, and transfer expenses will all decrease in the upcoming season. The magnitude of the reduction depends on the scenario and ranges from -20.4% to -9.5% for player salaries, from -26.7% to -12.4% for player market values and from £-14.1M to £-6.4M for transfer expenses. Thus, with an average annual salary for an EPL player of around £4M, this means a loss of salary of £400'000 (best case) or £800'000 (worst case) per year. The traditionally negative transfer balances of most English clubs, on the other hand, will fall from an average of £74.1M to £60.1M (worst case) or £67.7M (best case).

When splitting the sample into the Big 6 clubs and the remaining 14 teams, our model predicts that player salaries will decline more in the Big-6 clubs than in the other 14 teams, while the opposite is true for net transfer expenses. Player market values are expected to decrease equally across all 20 clubs.

This study adds to the understanding of the still unexplored effects of COVID-19 on sports and aims at providing new insights to sport management professionals as for the development of the football players´ labor and the transfer market. Thus, our findings serve as a reference point for future research on sports labor markets, and managers of football leagues and clubs.

16

Admittedly, our study suffers from various limitations that, however, can be overcome by expanding the data used and by extending the regional focus. Moreover, differences in owner strategies are likely to translate into differences in spending behavior – be it in wages or in transfer fees. Our approach that relies on three different scenarios to forecast the revenue paths of EPL clubs post-COVID-19 may serve critics to develop their own (more realistic?) perspective and to come up with figures that are different from the ones we have presented here.

Future research may replicate this study with data from other leagues where club financials are accessible, such as the French Ligue 1/2 or the English Championship. The economic consequences and implications of the COVID-19 pandemic remain a fertile and important line of inquiry for sport management scholars.

REFERENCES

Barker, D. (2020). Ligue 1 starts with concern. Retrieved on August 21, 2020 from: https://sportsfinding.com/ligue-1-starts-with-concern/56097/

BBC (2020a). League One & Two clubs vote to introduce salary cap. Retrieved on August 20th, 2020 from: https://www.bbc.com/sport/football/53696424

BBC (2020b). RB Leipzig given green light for 8,500 fans to return. Retrieved on September 6th, 2020 from: https://www.bbc.com/sport/football/53990367

Bryson, A., Frick, B., & Simmons, R. (2013). The returns to scarce talent: Footedness and player remuneration in European soccer. Journal of Sports Economics, 14(6), 606-628.

Burt, J. (2020). Broadcasters due £36m in rebates for every week Premier League extends beyond July 16. Retrieved on May 20, 2020 from: https://www.telegraph.co.uk/football/2020/05/19/broadcasters-due-36m-rebates-every-week-premier-league-extends.

Carmichael, F., & Thomas, D. (1993). Bargaining in the transfer market: theory and evidence. Applied Economics, 25(12), 1467-1476.

Carmichael, F., Forrest, D., & Simmons, R. (1999). The labour market in association football: who gets transferred and for how much? Bulletin of Economic Research, 51(2), 125-150.

Chanavat, N., & Desbordes, M. (2017). The marketing of football: history, definitions, singularities, strategies and forms of operationalization. In Routledge handbook of Football Marketing (pp. 9-59). Routledge.

CIES (2018). CIES Football Observatory Weekly Post Contract Policy: Spanish Giant leads the table. Retrieved on August 20th, 2020 from: https://footballobservatory.com/IMG/sites/b5wp/2017/222/en/

Cunningham, A. C., Goh, H. P., & Koh, D. (2020). Treatment of COVID-19: old tricks for new challenges.

Cutler, M. (2020). Sponsorship spend to fall $17.2bn; Financial Services by $5.7bn. Retrieved on May 20, 2020 from: https://twocircles.com/us-en/articles/projections-sponsorship-spend-to-fall-17-2bn.

Damodaran, A. (2007). The dark side of valuation. Pearson Education India.

Damodaran, A. (2014). Price and value: Discerning the difference. New York University.

de Dios Crespo Pérez, J. (2014). Employment relationships at national level: Spain. In M. Colucci & F. Hendrickx (Eds.), Regulating employment relationships in professional football: A comparative analysis. Nocera Inferiore, Italy: Sports Law and Policy Centre.

Deloitte Touche (1998) Deloitte & Touche Annual Review of Football Finance, Deloitte Touche Tohmatsu, Manchester, 50.

Deloitte (2019a). Deloitte Football Money League 2019. Retrieved August 26, 2019 from: https://www2.deloitte.com/uk/en/pages/sports-business-group/articles/annual-review-of-football-finance.html.

Deloitte (2019b). World in motion: Annual Review of Football Finance 2019. Retrieved on May 12, 2020 from: https://www2.deloitte.com/uk/en/pages/sports-business-group/articles/annual-review-of-football-finance.html

Deutscher Bundestag (2020). Möglichkeit von Gehaltsobergrenzen im Fußball für Spieler und Berater sowie der Deckelung von Ablösesummen. Retrieved on August 20th, 2020 from: https://www.bundestag.de/resource/blob/707918/dd648d95bc3f3a0f092e289243ad3ae7/WD-10-031-20-pdf-data.pdf

Deutscher, C. (2018). Determining the drivers of player valuation and compensation in professional sport: traditional economic approaches and emerging advances. In Personnel Economics in Sports. Edward Elgar Publishing.

Dietl, H., Duschl, T., & Lang, M. (2011). Executive Pay Regulation: What Regulators, Shareholders, and Managers Can Learn from Major Sports Leagues. Business and Politics, 13(2), 1-30.

Dietl, H., Fort, R., & Lang, M. (2013). International sport league comparisons. In Routledge Handbook of Sport Management. Routledge

Dixon, E. (2020). Report: Broadcasters predict TV rights value decline post Covid-19. Retrieved on August 28, 2020 from: https://www.sportspromedia.com/news/tv-rights-value-decline-premier-league-coronavirus

Dobson, S., & Gerrard, B. (1999). The determination of player transfer fees in English professional soccer. Journal of Sport Management, 13(4), 259-279.

Dobson, S., Gerrard, B., & Howe, S. (2000). The determination of transfer fees in English nonleague football. Applied Economics, 32(9), 1145-1152.

FIFA TMS (2018). Global Transfer Market Report 2018: Men's football. A review of all international football transfers in 2018. Retrieved on May 12, 2020 from: https://www.fifatms.com/wp-content/uploads/dlm_uploads/2019/01/fifa_tms_gtm_men_A4_online_f01.pdf

FIFA TMS (2019). Global Transfer Market Report 2019: Men's football. A review of international football transfers worldwide. Retrieved on May 12, 2019 from: https://resources.fifa.com/image/upload/global-transfer-market-report-2019-men.pdf?cloudid=x2wrqjstwjoailnncnod

Franck, E., & Nüesch, S. (2012). Talent and/or popularity – what does it take to be a superstar? Economic Inquiry, 50, 202–216.

Franzke, R. (2020). Zwölf Vereine haben bereits TV-Geld abgetreten: 13 der 36 Profiklubs droht Insolvenz - noch in dieser Saison. Retrieved on April 12, 2020 from: https://www.kicker.de/773385/artikel

Frick, B. (2006). Salary determination and the pay–performance relationship in professional soccer: Evidence from Germany. In P. Rodriguez, S. Kesenne, & J. Garcia (Eds.), Sports economics after fifty years: Essays in honour of Simon Rottenberg (pp. 125–146). Oviedo, Spain: Ediciones de la Universidad de Oviedo.

Frick, B. (2007). The football players' labor market: Empirical evidence from the major European leagues. Scottish Journal of Political Economy, 54(3).

Frick, B. (2011). Performance, salaries, and contract length: Empirical evidence from German soccer. International Journal of Sport Finance, 6, 87–118.

Frick, B., & Lehmann, E. (2001). Die Kosten der externen Rekrutierung qualifizierten personals: Empirische Evidenz aus dem professionellen Fußball. Entlohnung, Arbeitsorganisation und personalpolitische Regulierung. Munchen: Rainer Hampp Verlag, 243-63.

Garcia-del-Barrio, P., & Pujol, F. (2007). Hidden monopsony rents in winner-take-all markets—sport and economic contribution of Spanish soccer players. Managerial and Decision Economics, 28(1), 57-70.

Garcia-del-Barrio, P., & Szymanski, S. (2009). Goal! Profit maximization versus win maximization in soccer. Review of Industrial Organization, 34(1), 45-68.

Grohmann, K. (2020). Olympics: IOC expects costs of up to $800 million for delayed Tokyo Games. Retrieved on May 15, 2020 from: https://www.reuters.com/article/us-health-
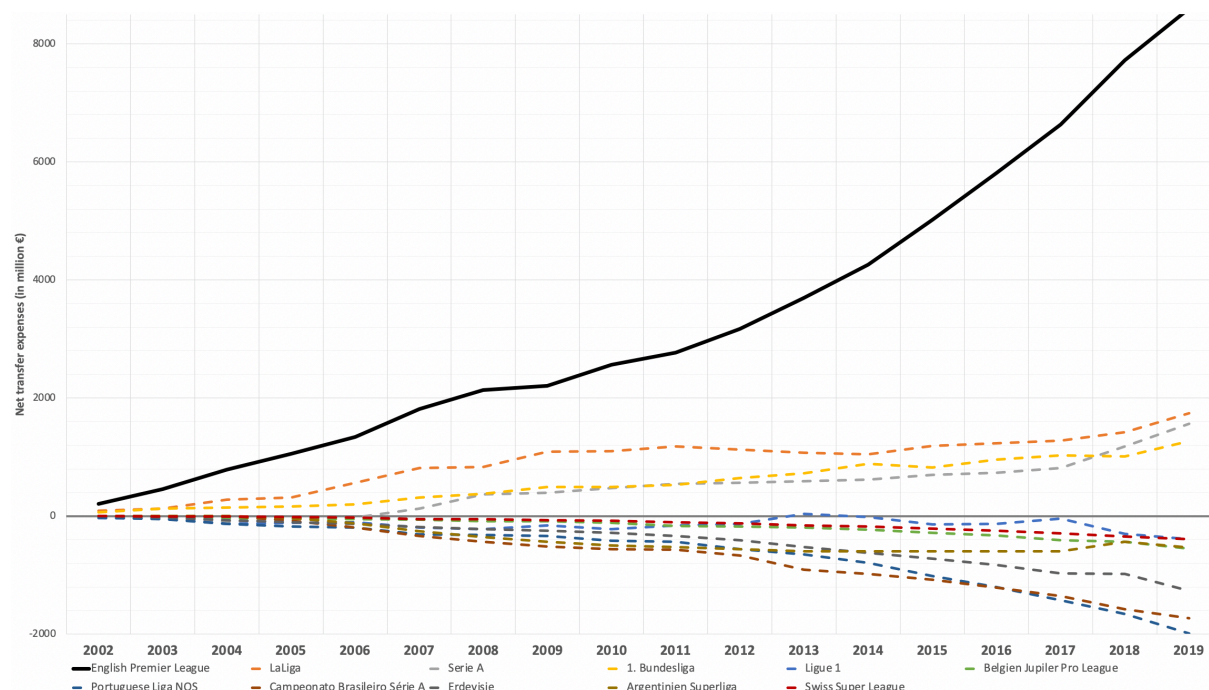
coronavirus-ioc/olympics-ioc-says-expects-costs-of-up-to-800-million-for-delayed-tokyo-games-idUSKBN22Q2OC

Harris, R. (2020). Premier League stars face backlash over pay during pandemic. Retrieved on August 20th, 2020 from: https://abcnews.go.com/Sports/wireStory/premier-league-stars-face-backlash-pay-pandemic-69945036

Herm, S., Callsen-Bracker, H. M., & Kreis, H. (2014). When the crowd evaluates soccer players' market values: Accuracy and evaluation attributes of an online community. Sport Management Review, 17(4), 484-492.

KEA European Affairs & Centre de droit et d'économie du sport (2013). The Economic and Legal Aspects of Transfers of Players. Retrieved on May 12, 2020 from: https://ec.europa.eu/assets/eac/sport/library/documents/cons-study-transfers-final-rpt.pdf.

Késenne, S. (2006). The win maximization model reconsidered: Flexible talent supply and efficiency wages. Journal of Sports Economics, 7(4), 416-427.

Kirschstein, T., & Liebscher, S. (2019). Assessing the market values of soccer players–a robust analysis of data from German 1. and 2. Bundesliga. Journal of Applied Statistics, 46(7), 1336-1349.

MacInnes, P. (2017). Uefa's Aleksander Ceferin talked about a salary cap – but could it ever happen? Retrieved on August 20th, 2020 from: https://www.theguardian.com/football/2017/jul/09/uefa-ceferin-smaller-leagues-talk-wage-cap

Majewski, S. (2016). Identification of factors determining market value of the most valuable football players. Journal of Management and Business Administration, 24(3), 91-104.

Memish, Z. A., Steffen, R., White, P., Dar, O., Azhar, E. I., Sharma, A., & Zumla, A. (2019). Mass gatherings medicine: Public health issues arising from mass gathering religious and sporting events. The Lancet, 393(10185), 2073–2084.

Müller, O., Simons, A., & Weinmann, M. (2017). Beyond crowd judgments: Data-driven estimation of market value in association football. European Journal of Operational Research, 263(2), 611-624.

Panja, T. (2020). Germany Prepares for Soccer's Return. Retrieved on May 18, 2020 from: https://www.nytimes.com/2020/04/08/sports/germany-soccer-coronavirus.html.

Parnell, D., Widdop, P., Bond, A., & Wilson, R. (2020). COVID-19, networks and sport. Managing Sport and Leisure, 1-7.

Prockl, F., & Frick, B. (2018). Information Precision in Online Communities: Player Valuations on www. Transfermarkt. De. International Journal of Sport Finance, 13(4).

Reinefeld, L., Fleischmann, M., & Späth, E. (2020). Brose zieht sich aus Basketball zurück. Retrieved on May 20, 2020 from: https://www.np-coburg.de/sport/regional/sp_sport/sportnp/Brose-zieht-sich-aus-Basketball-zurueck;art83524,7246571.

Rumsby, B. (2020). Aleksander Ceferin: Uefa considering post-coronavirus salary cap. Retrieved on August 20th, 2020 from: https://www.telegraph.co.uk/football/2020/05/20/aleksander-ceferin-uefa-considering-post-coronavirus-salary/

Sæbø, O. D., & Hvattum, L. M. (2015). Evaluating the efficiency of the association football transfer market using regression-based player ratings. In NIK.
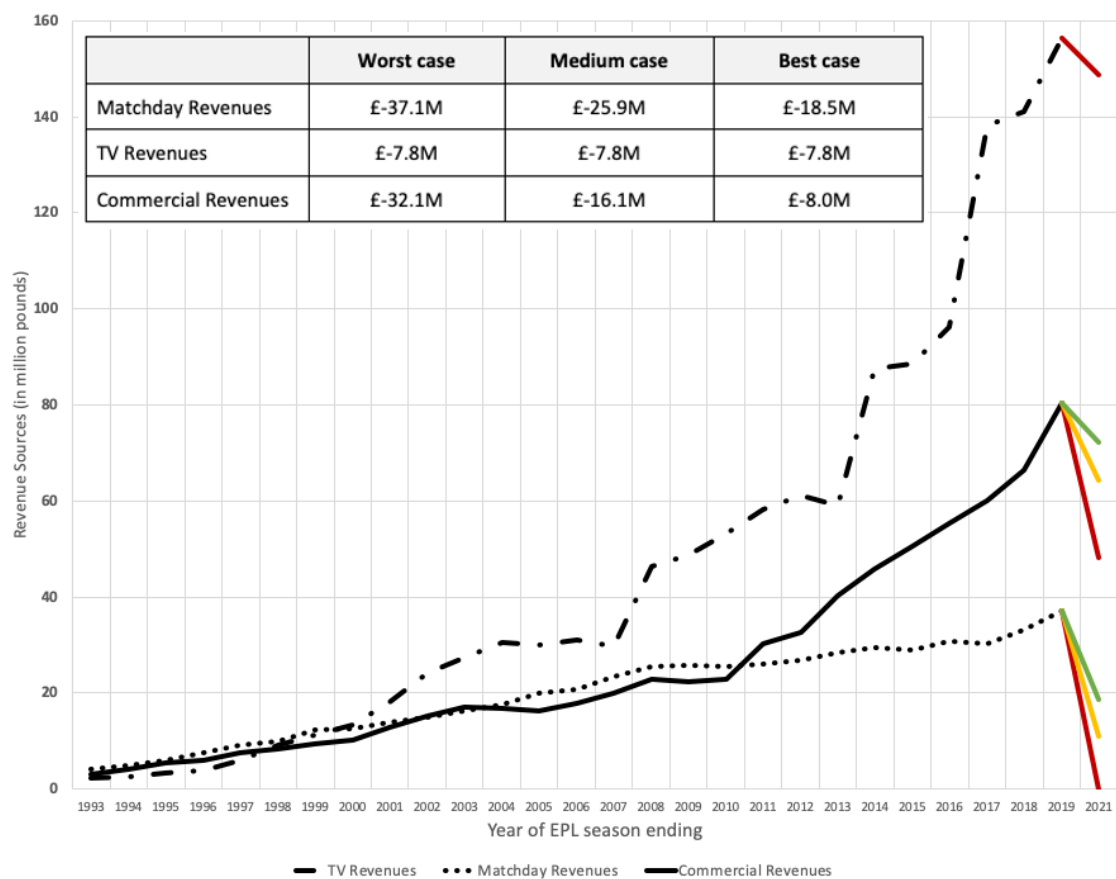
Sánchez-Fernández, R., Iniesta-Bonillo, M. Á., & Holbrook, M. B. (2009). The conceptualisation and measurement of consumer value in services. International Journal of Market Research, 51(1), 1-17.

Simmons, R. (2007). Overpaid athletes? Comparing American and European football. Working USA, 10(4), 457-471.

Simmons, J. P., Nelson, L. D., Galak, J., & Frederick, S. (2010). Intuitive biases in choice versus estimation: Implications for the wisdom of crowds. Journal of Consumer Research, 38(1), 1-15.

Slater, M. (2020). Explained: The 'terrible' state of Premier League clubs' finances. Retrieved on May 18, 2020 from: https://theathletic.co.uk/1729003/2020/04/08/premier-league-finances-accounts/

Sloane P. J. (2006). Rottenberg and the Economics of Sport after 50 Years, in Rodriguez P., Kesenne S. and Garcia J., editors, Sports Economics after 50 Years; Essays in Honour of Simon Rottenberg, University of Oviedo, Spain, 2006, 211-226.

Szymanski, S. (2013). Wages, transfers and the variation of team performance in the English Premier League. In The econometrics of sport. Edward Elgar Publishing.

Thrane, C. (2019). Performance and Actual Pay in Norwegian Soccer. Journal of Sports Economics, 20(8), 1051-1065.

VanOpdorp, D. (2020). Bundesliga: Angela Merkel rules out fans in stadiums for now — reports. Retrieved on August 17, 2020 from: https://www.dw.com/en/bundesliga-angela-merkel-rules-out-fans-in-stadiums-for-now-reports/a-54600649

Weimar, D., & Wicker, P. (2017). Moneyball revisited: Effort and team performance in professional soccer. Journal of Sports Economics, 18(2), 140-161.

Wicker, P., Prinz, J., Weimar, D., Deutscher, C., & Upmann, T. (2013). No pain no gain? Effort and productivity in professional soccer. International Journal of Sport Finance, 8(2), 124–139.

Wright, D. (2020). Foot the bill: English teams face going out of business if season not finished with EFL worried about coronavirus insurance crisis. Retrieved on May 12, 2020 from: https://www.thesun.co.uk/sport/football/11195778/english-football-threat-coronavirus

FIGURES

Figure 1: Net transfer expenses in leading European and non-European leagues

Figure 2: Revenues by Source in the English Premier League, 1992/93 thru 2018/19

	Worst case	Medium case	Best case
Matchday Revenues	£-37.1M	£-25.9M	£-18.5M
TV Revenues	£-7.8M	£-7.8M	£-7.8M
Commercial Revenues	£-32.1M	£-16.1M	£-8.0M

22

Figure 3: Player salaries, net transfer expenses and player market values in the English Premier League, 1992/93 thru 2018/19

	Worst case	Medium case	Best case
Player salaries	-20.4%	-13.1%	-9.5%
Market value	-26.7%	-17.2%	-12.4%
Transfer expenses	£-14.1M	£-9.2M	£-6.4M

23
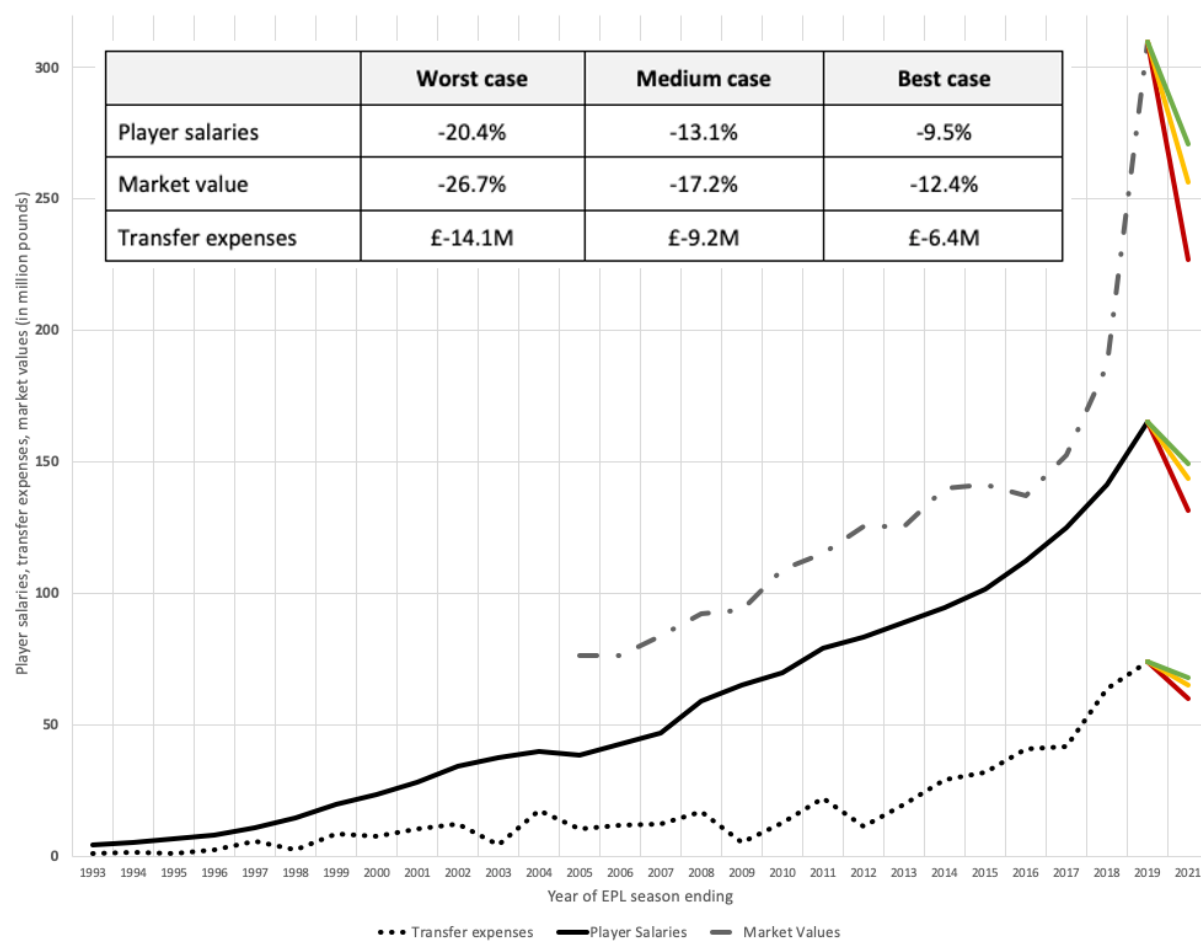
Table 1: Market value versus transfer price

Concept	Market value	Transfer price / fee
Subject	The player as a theoretical construct, irrespective of contract status	The player registration with member association, which ties the player to a club for the life of his contract
Manifestation	Non-observable, estimated by club officials, sports journalists, academics and service providers	Negotiated cash-settlement between two clubs for premature termination of contract or as pre-defined in player contract
Determinants	▪ Overall pricing situation on the player market (supply/demand) ▪ Player performance ▪ Popularity of player ▪ Player characteristics	Market value determinants in addition to the current contract status and contract conditions (release clause, duration, free agency)
Issues	▪ Have a subjective element ▪ Might be biased depending on evaluator or model used (club characteristics, nationality, etc.)	▪ Player market not efficient and fee depends on club needs, know-how, negotiation skills, and market power ▪ Not always publicly available ▪ Can be distorted due to money laundry, corruption and secret "deals" ▪ Conditional fees are often not displayed

Source: Own table

Table 2: Impact of Revenue Sources on Player Salaries in the EPL

	(1) Log(Wages)	(2) Log(Wages)	(3) Log(Wages)	(4) Log(Wages)
Log(Total Club Revenues)	0.728*** (0.0693)	---	---	---
Log(Match Revenues)	---	0.334*** (0.0844)	---	---
Log(TV Revenues)	---	---	0.487*** (0.120)	---
Log(Commercial Revenues)	---	---	---	0.273*** (0.0781)
Year Dummies	included	included	included	included
Constant	-0.135 (0.156)	1.059*** (0.124)	1.035*** (0.137)	1.187*** (0.100)
N of Observations	*542*	*538*	*540*	*540*
N of Teams	*49*	*48*	*48*	*48*
N of Observation per Team	*1-27*	*1-27*	*1-27*	*1-27*
R2 within	*97.5*	*96.3*	*96.2*	*96.2*
R2 between	*95.6*	*92.5*	*86.9*	*87.9*
R2 overall	*97.0*	*94.3*	*90.3*	*93.2*

Standard errors (clustered at team id) in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Impact of Revenue Sources on Net Transfer Expenses (Net Spending) in the EPL

	(1) Net Spending	(2) Net Spending	(3) Net Spending	(4) Net Spending
Total Club Revenues	0.197*** (0.0324)	---	---	---
Match Revenues	---	0.428*** (0.138)	---	---
TV Revenues	---	---	0.443*** (0.132)	---
Commercial Revenues	---	---	---	0.415*** (0.0432)
Year Dummies	included	included	included	included
Constant	-1.013 (2.526)	-2.181 (3.247)	-0.935 (2.723)	-0.367 (2.246)
N of Observations	*542*	*542*	*542*	*542*
N of Teams	*49*	*49*	*49*	*49*
N of Observations per Team	*1-27*	*1-27*	*1-27*	*1-27*
R2 within	*41.7*	*35.6*	*37.2*	*44.8*
R2 between	*78.7*	*73.2*	*77.0*	*81.8*
R2 overall	*47.1*	*39.0*	*42.6*	*51.2*

Standard errors (clustered at team id) in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Impact of Revenue Sources on Average Market Values in the EPL

	(1) Log(Average Player Value)	(2) Log(Average Player Value)	(3) Log(Average Player Value)	(4) Log(Average Player Value)
Log(Total Club Revenues)	0.955*** (0.111)	---	---	---
Log(Match Revenues)	---	0.487*** (0.125)	---	---
Log(TV Revenues)	---	---	0.844*** (0.200)	---
Log(Commercial Revenues)	---	---	---	0.347** (0.156)
Year Dummies	included	included	included	included
Constant	-2.973*** (0.462)	-0.397 (0.354)	-1.930*** (0.685)	0.0421 (0.410)
N of Observations	*296*	*296*	*296*	*296*
N of Teams	*39*	*39*	*39*	*39*
N of Observation per Team	*1-15*	*1-15*	*1-15*	*1-15*
R2 within	*68.0*	*62.4*	*64.2*	*60.7*
R2 between	*73.4*	*68.4*	*46.0*	*49.9*
R2 overall	*80.5*	*74.6*	*59.9*	*68.2*

Standard errors (clustered at team id) in parentheses
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 5: Revenue Sources and Player Salaries in the EPL, 1992/93 thru 2018/19 by Size of Club

Dep. Variable: (Log Wages)	(1.1) Big 6	(1.2) Rest	(2.1) Big 6	(2.2) Rest	(3.1) Big 6	(3.2) Rest	(4.1) Big 6	(4.2) Rest
Log(Total Club Revenues)	0.753*** (0.127)	0.669*** (0.0729)	---	---	---	---	---	---
Log(Match Revenues)	---	---	0.480*** (0.116)	0.235*** (0.0813)	---	---	---	---
Log(TV Revenues)	---	---	---	---	0.402 (0.216)	0.491*** (0.0888)	---	---
Log(Commercial Revenues)	---	---	---	---	---	---	0.248 (0.153)	0.310*** (0.0661)
Year Dummies	included	included	included	included	included	included	included	included
Constant	-0.213 (0.348)	-0.00658 (0.139)	0.848** (0.273)	1.124*** (0.0651)	1.419*** (0.314)	0.920*** (0.0721)	1.438*** (0.283)	1.071*** (0.0624)
N of Observations	158	384	158	380	158	382	158	382

Standard errors (clustered at club id) in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Revenue Sources and Net Spending in the EPL, 1992/93 thru 2018/19 by Size of Club

Dep. Variable: Net Spending	(1.1) Big 6	(1.2) Rest	(2.1) Big 6	(2.2) Rest	(3.1) Big 6	(3.2) Rest	(4.1) Big 6	(4.2) Rest
Total Club Revenues	0.308** (0.0865)	0.351** (0.134)	---	---	---	---	---	---
Match Revenues	---	---	-0.0314 (0.390)	0.687** (0.281)	---	---	---	---
TV Revenues	---	---	---	---	0.0994 (0.299)	0.396** (0.191)	---	---
Commercial Revenues	---	---	---	---	---	---	0.672*** (0.0868)	0.877* (0.444)
Year Dummies	included	included	included	included	included	included	included	included
Constant	-4.154 (6.416)	-1.549 (1.758)	0.980 (5.935)	-1.272 (1.800)	0.444 (6.823)	0.0998 (1.464)	-2.352 (5.475)	-0.912 (1.899)
N of observations	158	384	158	384	158	384	158	384

Standard errors (clustered at club id) in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Revenue Sources and Average Player Values in the EPL, 2006/07 thru 2018/19 by Size of Club

Dep, Variable: Log(Average Player Value)	(1.1) Big 6	(1.2) Rest	(2.1) Big 6	(2.2) Rest	(3.1) Big 6	(3.2) Rest	(4.1) Big 6	(4.2) Rest
Log(Total Club Revenues)	1.053*** (0.122)	1.007*** (0.232)	---	---	---	---	---	---
Log(Match Revenues)	---	---	0.689** (0.213)	0.654*** (0.184)	---	---	---	---
Log(TV Revenues)	---	---	---	---	1.091*** (0.256)	0.625*** (0.202)	---	---
Log(Commercial Revenues)	---	---	---	---	---	---	0.560 (0.286)	0.336 (0.204)
Year Dummies	included	included	included	included	included	included	included	included
Constant	-3.290*** (0.616)	-3.243*** (0.891)	-0.804 (0.868)	-0.931** (0.420)	-2.417* (0.986)	-1.414** (0.649)	-0.296 (1.020)	-0.118 (0.426)
N of Observations	90	206	90	206	90	206	90	206

Standard errors (clustered at team id) in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Possible COVID-19 scenarios

	Worst case	Medium case	Best case
Match Revenues	-34.0M (-100%)	-23.8M (-70%)	-17.0M (-50%)
TV Revenues	-8.3M (-5%)	-8.3M (-5%)	-8.3M (-5%)
Commercial Revenues	-29.1M (-40%)	-14.6M (-20%)	-7.3M (-10%)
Total Revenues	**-71.4M (-28%)**	**-46.6M (-18%)**	**-32.5M (-13%)**