

Financial Inequality among Firms: Globalization and the Concentration of Money and Success in European Football

Stefan Legge[†] Steffen Löhrr[‡]

June 14, 2019

Abstract

Football has an enormous following in Europe with more than 100 million fans in the big five European markets alone and numerous more across the continent. It is also insightful from an economics point of view. At the core, it represents a market in which all firms compete domestically and a small subset of them sells its products and services on an international market as well. Furthermore, football is characterized by workers of different skill level, the best of which are highly mobile across countries. In the present study, we examine two features of this market. Using a novel data set, we first document the large and increasing financial inequality among European football clubs. Subsequently, we show how strongly the inequality in financial means correlates with clubs' performance and results.

JEL Classification: firm inequality, football, labor mobility

Keywords: F22, J44, J61, L83

[†] Stefan Legge, University of St.Gallen, Department of Economics, SIAW Institute, Bodanstrasse 8, CH-9000 St.Gallen, Switzerland. (e-mail: stefan.legge@unisg.ch); [‡] Steffen Löhrr, University of Duisburg-Essen, Lotharstr. 53, D-47057 Duisburg, Germany. (e-mail: steffen.loehr@stud.uni-duisburg-essen.de)

1 Introduction

Football is more popular than any other sport in the world. According to Nielsen, more than forty percent of people 16 or older in major population centers around the world consider themselves interested or highly interested in following football.¹ However, football is not only interesting for fans but also for economists. Through the lenses of economics, the market for football is characterized by clubs (‘firms’) hiring talented players (‘productive employees’) to compete for national and international success (‘profit’).

In several ways this ecosystem is different from other businesses. Football clubs usually maximize performance instead of profits.² Athletes typically stay with one club for only a short time period (i.e. job tenure is short) and are highly mobile across national borders. There are also several similarities between football clubs and other firms. While only a small share of (service-oriented) firms engage in exports (Bernard et al., 2018), the same is true for football clubs. In European leagues, only the top 20 to 30 percent of clubs qualify for participation in the Champions and Europa League. Moreover, these top-performing clubs differ from their rivals in that they hire the most talented employees and are substantially better off from a financial point of view. The high mobility of (foreign) football players resembles the mobility of highly trained expatriates.

Both the similarities and the differences make European football an interesting object to study for economist. This even more so due to the recent increase in financial flows: transfer spending and average transfer fees for players doubled between 2014 and 2017. Cross-border transfer spending has been increasing and now accounts for about two thirds of the total.

In the present study, we examine the financial inequality among European football clubs. This sheds light on one aspect which has largely been neglected in the literature on economic inequality that typically studies the distribution of income and wealth among individuals (Piketty and Saez, 2003; Piketty, 2014; Solt, 2016). The financial inequality among firms has attracted

¹“Fan Favorite: The Global Popularity of Football is Rising”, June 12, 2018

²Note that club ownership profiles differ widely across Europe. In some leagues like the English Premier League all clubs are privately owner while others like the German Bundesliga have restrictions on ownership. A small set of 21 European top-division clubs is listed on the stock exchange. Details are provided by the 2017 UEFA European Club Footballing Landscape report.

far less attention. This is not due to lack of importance. As Martin (2019) points out, industry concentration has led to a concentration of profits: “In 1978 the 100 most profitable U.S. firms earned 48% of the profits of all publicly traded companies, but by 2015 the figure was an incredible 84%”.

Using a newly compiled data set, we first document the increasing financial inequality among European football clubs. Subsequently, we analyze how strongly this inequality in financial means correlates with club performance. Our study documents the rising monetary inequality among European football clubs. Comparing clubs’ squad valuations — a broad summary statistic of financial strength — we illustrate the rising gap between top clubs and the rest of the leagues. One key driver behind this trend is the UEFA Champions League which allocates vast amounts of money to only a small and consistent group of clubs. Examining empirically the impact of financial concentration, our findings highlight the strong correlation between finance and success in football.

Our paper makes a fourfold contribution to the literature. First, we describe European football as an important market to study for economists. This adds to prior work by among others Kleven, Landais and Saez (2013) who study the impact of top income tax rates on migration in the context of European football. Second, we highlight the role of financial inequality among firms (here represented by clubs).³ Thereby we contribute to recent work by Autor et al. (2017) who explore how globalization and technology lead to industries being increasingly dominated by superstar firms. Third, we document the strong empirical relationship between financial inequality and differences in performance. Finally, our empirical findings complement recent theoretical work on the globalization of talent (Schetter and Tejada, 2018). More broadly, the study of European football clubs provides insights into the distributional consequences of globalization and free movement of workers (Egger, Nigai and Strecker, 2019).

The paper is organized as follows. Section 2 describes the European football market as well as our data set. Then, Section 3 illustrates the rising financial inequality among clubs, while Section 4 presents our findings on how financial strength affects clubs’ performance. Finally, we conclude and discuss policy implications in Section 5.

³The problem of a small group of firms getting richer has recently been covered in an article entitled ‘We are the 1%’ by *Bloomberg Businessweek* on May 13, 2019.

2 Data

We collected data from 19 countries and 38 upper- and lower-division leagues that are a member (or associate) of the Association of the European Union Premier Professional Football Leagues since 1990 (when available). Table A.1 in the appendix lists all leagues as well as the time span covered by our data set. Note that some countries altered their professional leagues during the past three decades.

In much of our analysis we will focus on the top-5 European leagues: England, France, Germany, Italy, and Spain. This is motivated by their clubs' outstanding international success and financial strength. The top-5 leagues account for 74 percent of European top-division club revenues and 71 percent of global transfer spending. Moreover, their domestic leagues attract the largest numbers of match attendees. The aggregate attendance in their leagues range from 9 to about 15 million per season, compared to 6 million in the Netherlands (ranked 6th in this regard) or 3.7 million in Scotland (7th).

For each club and year, our database includes the final ranking position in the national league, the number of matches played, victories, draws, losses, points as well as the goals scored and conceded. Furthermore, the data set includes club-level information on transfer spending and revenues as well as squad values at the beginning of the season. The latter information is taken from *transfermarkt.com*, the leading provider of estimates for market values of individual football players.⁴ Finally, information on clubs' participation and revenue from the UEFA Champions League and Europa League is added.⁵ For all variables, we provide descriptive statistics in Table A.2 in the appendix. In total, the data set comprises information on 15,299 club-year observations. The set of variables includes club achievements in a season (rank, wins, draws, losses, points, goals scored and conceded), information about financial strength as well as UEFA tournament participation and revenue. Note that 'season' in our data set refers to the year in which a season ended.

⁴Note that we take all values in current Euro and do not adjust for inflation.

⁵This information is taken from the official UEFA Financial reports available at <https://www.uefa.com/insideuefa/documentlibrary/aboutuefa/financialreports/index.html>.

3 Rising Monetary Inequality

In this section, we document how financial inequality among European football clubs has evolved in the past three decades. The best proxies of clubs' financial strength are arguably given by (i) squad values and (ii) transfer spending. Both correlated strongly with player salaries. Data on other key statistics —such as information about individual salaries— is usually available for only a small set of leagues and clubs. For instance, wage inequality is high but individual player salaries are usually unknown. The UEFA reports that the top-4 clubs in the English Premier League spent on average 285 Euro on salaries in 2017. This compares to averages of 162 and 98 million Euro for the clubs 5-8 and 9+ in the Premier League. Hence, the top clubs pay about three times the wages of smaller clubs in England. For other top leagues, wage inequality is much larger. In Spain the ratio is 8.7, in Germany, Italy and France it ranges from 4.2 to 5.6.

3.1 Spread of Squad Values

Arguably the best summary statistic to illustrate financial power of football clubs is the value of their squad. Only clubs that can afford to pay substantial transfer fees and pay extraordinary salaries are likely to be ranked among the top in terms of squad values.

According to the UEFA Benchmarking Report 2017, 28 of the 54 top-tier leagues in Europe have some form of squad limit in place. The most common limit, applied in 17 leagues, consists of a maximum of 25 players (usually with an unlimited number of additional youth players). Most relevant for our study, the limit of 25 players is enforced in England, Spain, Italy, Switzerland, Austria, Denmark, Norway, Russia, and Poland.

In addition to limits on the number of players in a squad, various leagues have in force restrictions on players in terms of locally trained players and nationality. Notably, these rules have been altered in the past. In Germany's Bundesliga, for instance, clubs were allowed only two non-German players on the field until 1992 when the limit was raised to three. Until the season 2006–2007, the restrictions were altered several times, focusing increasingly on non-European players. Such changes were ignited by the the 1995 *Bosman ruling* by the European Court of Justice decision concerning freedom of movement for EU workers. In essence, the ruling

banned restrictions on foreign EU players within national leagues and allowed players in the EU to move to another club at the end of a contract without a transfer fee being paid. Another motivation — potential competitive disadvantages — led the German Football Association to lift most restrictions in 2006. Nonetheless, clubs must still have twelve German players in their squad as well as eight players trained by a German club.

Another aspect that affects market value is the increasing proportion of loans. In particular, the financially stronger clubs increasingly use the potential of young talents and lend them to other clubs. This aspect additionally reinforces financial inequality, since market values would be even higher if lent players were included. For example in the 2018/2019 season, Chelsea had 26 departures, 25 of this are on loan. The market values of these players are attributed to the other clubs in the data from [transfermarkt.com](https://www.transfermarkt.com), but these clubs are not owners of the transfer rights.

If we compare the top leagues in Europe, Plot (a) of Figure 1 shows that the English Premier League has kept a comfortable lead over all other leagues since 2011. The Spanish La Liga remained second but saw its gap to the Premier League increase somewhat. Italy and German are rivals for number 3 with the Italian Serie A ahead of the Bundesliga. However, in contrast to the other three leagues, the Bundesliga only comprises 18 clubs (instead of 20) — hence, we must multiply its value by $20/18 = 1.11$ to obtain a fair comparison.

While Plot (a) of Figure 1 shows that overall club values increased in all top-5 leagues, the rising tide did not lift all boats equally. Within the German Bundesliga, for instance, Bayern has distanced itself from its closest rivals. Plot (b) of Figure 1 confirms the widespread belief that Bayern today is far more ahead from the rest of the league than in past times. At the beginning of the century, Bayern's squad was worth 200 million Euro and topped its rivals' squads by about 30 million. Today Bayern leads with almost 600 million while the closest rival Dortmund has a squad about half the value.

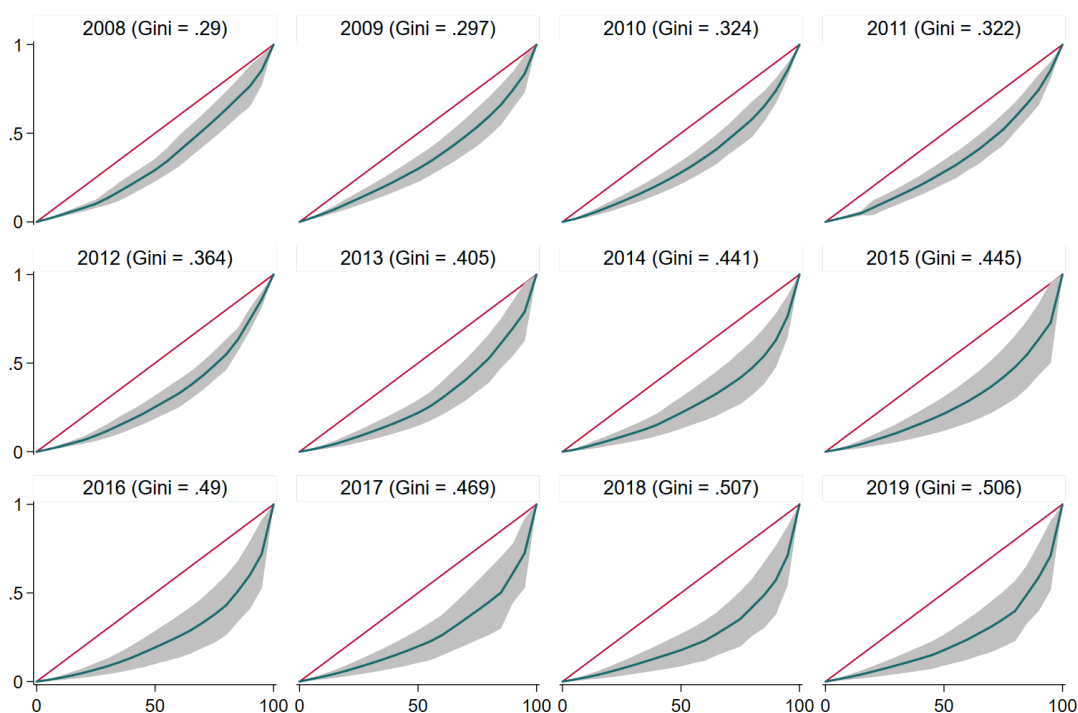
Figure 1: Squad Values over Time



Note: The figures show squad values over time. Plot (a) illustrates the total value of all squads for the top-5 European leagues. Plot (b) shows the values for a selected group of German Bundesliga clubs. Plot (c) documents for the top-5 European football leagues the average market value for the leading club and the rest of the league.

Inequality among clubs' finances can be measured in different ways. Instead of comparing the leading club with the rest of the league as in Figure , we can calculate how unequal the overall distribution in squad values is. It turns out, inequality in this regard has increased as can be shown by the Lorenz curves for the Bundesliga. Figure 2 provides the statistics for the years since 2007.

Figure 2: Lorenz Curves for the Bundesliga



Note: The figure plots Lorenz curves for clubs' squad value at the beginning of the season in the Bundesliga using the Stata package by Jann (2016)). Clubs are sorted according to their squad value on the horizontal axis. The vertical axis shows their accumulated share of the total Bundesliga squad value. The 45-degree red line illustrates perfect equality (Gini coefficient of zero) and the shaded area shows confidence intervals.

The Gini coefficient ranges from zero (total equality) to one (full inequality). For the German Bundesliga, the coefficient increased from about 0.32 in 2007 to 0.45 in 2017, with a reversal of trend in 2018. In other European leagues, we find that the Spanish La Liga and the French Ligue 1 have very unequal distributions (Gini of more than 0.5 in 2018), the Italian Serie A is similar to the Bundesliga (0.45), and the English Premier League is the most equal among the top-5 leagues (0.36).

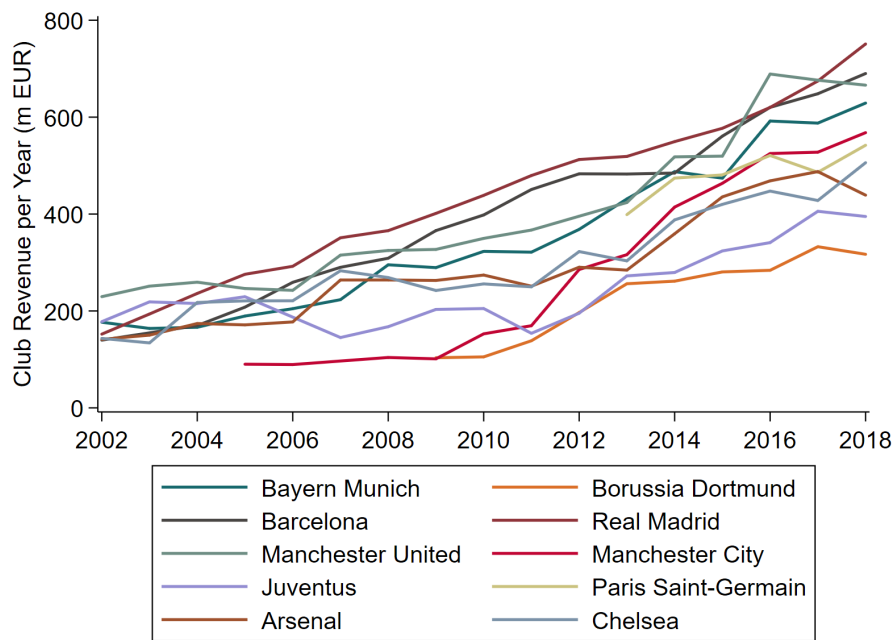
3.2 Total Revenue

Increasing squad values are only possible if clubs' revenues grow. Wages account for more than 60 percent of total spending. According to the UEFA, top-division club revenues have increased by 77 percent over the last ten years, rising from about 11.3 billion Euro to 20.1 billion in 2017. As mentioned earlier, the top-5 leagues account for 74 percent of European top-division club revenues.

Football clubs receive revenue from various sources and the mix has changed substantially in the past. Low growth in gate receipts (tickets) and other revenues (primarily donations) has reduced their relevance. Instead broadcasting revenue has increased enormously (plus 113 percent from 2008 to 2017).⁶ Likewise transfer fees grew by 141 percent and UEFA prize money by 228 percent. These trends, however, largely lifted clubs' revenues only in a few top football leagues. English Premier League clubs saw their revenues grow by 144.3 million Euro on average since 2008. Large increases can be found in Germany (76 million), Spain (72), Italy (37), and France (32) as well. In contrast, clubs in the Dutch Eredivise saw their revenues grow by a modest 4.6 million.

Benefit of squad values: available over long time period for all clubs. To show similar picture from total club revenues, we use data from Deloitte. Top performing clubs in Europe have experienced sharply increasing overall revenues. Drawing on data from Deloitte, we obtain the plot shown in Figure 3.

Figure 3: Total Club Revenue



Note: The figure shows the total club revenue for a selected group of European football clubs. Data is taken from the Deloitte Football Money League.

⁶The importance of broadcasting revenue differs vastly across European leagues and is most relevant in England, making up 54 percent of club revenue. In contrast, Russian or Swiss clubs collect only about five percent of their revenue from this source.

When looking at the top-20, we notice that the set of clubs in this ranking has remained relatively constant in the last two decades. This stability in Europe's elite group of football clubs can also be seen in the fact that the quarter-finalist of the Champions League in the last ten years usually includes the same clubs. The top-20 has consolidated over time. The rise of Manchester City as well as the emergence of Paris Saint Germain are the most notable differing observation. Meanwhile, the successful clubs of Juventus and Borussia Dortmund saw a continuous rise in their revenue since 2012 but are still trailing the top European clubs by several hundred million Euros.

3.3 Causes of Rising Inequality

Market values continue to diverge, as do total revenues. The gap between the top clubs and their rivals in the leagues is constantly growing. This begs the question: what causes the rising inequality among clubs? While there are several causes we argue that one factor stands out: participation in international tournaments. The difference in financial means between clubs that constantly participate in the UEFA Champions League and the other clubs in the national leagues is widening. Similar to firms that export their products and services, the former group of football clubs has access to an additional and very lucrative market to sell its service.

One key object of investigation is thus the prize money that clubs collect from the UEFA Champions League and Europa League — the two primary international football tournaments in Europe. In this regard, we first notice that UEFA prize money is one of the fastest growing sources of club revenues. From 2008 to 2017 the UEFA prize money has grown by 228% according to the UEFA European Club Footballing Landscape 2017. In addition to the direct additional earnings through prize money, clubs participating in the Champions League increase their revenue through better sponsorship and commercial contracts, larger gate and broadcasting receipts, as well as rising transfer revenues.

3.4 UEFA Champions League

The Union of European Football Associations (UEFA) is the administrative body for association football in Europe and consists of 55 national association members. In addition to the UEFA

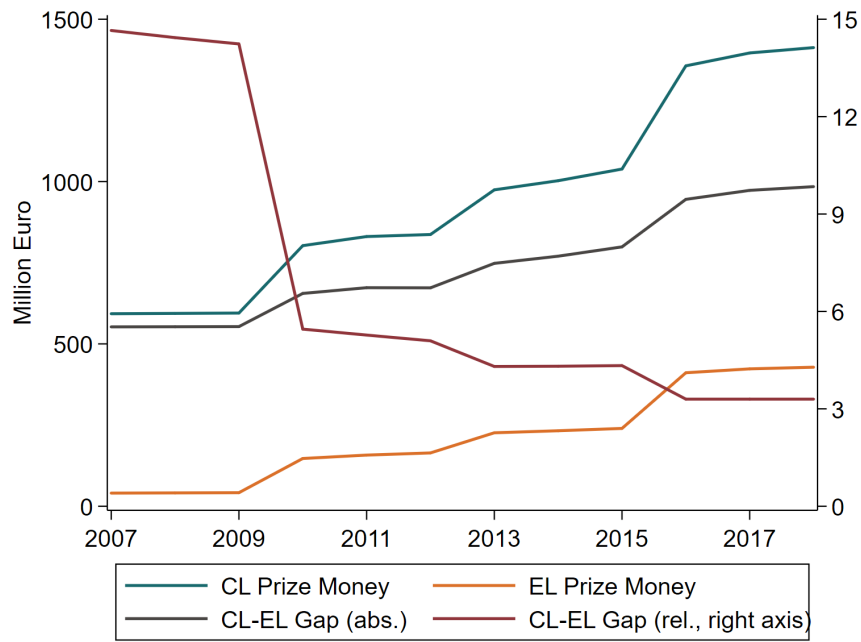
European Championship (a tournament of national teams every four years), it annually runs the UEFA Champions League as well as the UEFA Europa League (formerly UEFA Cup). Football clubs from UEFA member countries can qualify for the latter two competitions. To do so, they must finish among the top in the national league.⁷ Each year, UEFA organizes the Champions League and Europa League and allocates prize money depending on clubs' performance. On top of a starting fee, clubs receive money for each victory as well as for advancing into the final stages of the tournament.

Prize money from participation in UEFA tournaments makes up only about 6 to 12 percent of clubs' total revenue in the top-5 European leagues. However, for individual clubs the importance is much larger. For example, Leicester City collected 30 percent of its 2017 revenue from the UEFA, Sevilla 25 percent, Napoli 33 percent, and Legia Warsaw 50 percent. Furthermore, participation in UEFA tournaments substantially raises revenue from other sources like sponsorship.

For the season 2017–2018, UEFA paid out a total of about 1.4 billion Euro to the clubs in the Champions League. This was allocated to the 32 clubs participating in the group stage, ten clubs eliminated in the qualification, and the two super cup finalists. The top-4 clubs by revenue (Real Madrid, AS Roma, Liverpool, Juventus) received 334 million, or 24 percent. With equal distribution, an average club would receive about 35 million. Yet, the best clubs collected more than twice as much. In the Europa League, the total of 428 million Euro in 2017-2018 was allocated to 48 clubs in the group stage plus eight clubs from the Champions League (finishing third in their group). Hence, the average payout in the Europa League was just 7.6 million on average per club — roughly one fifth of the Champions League value.

⁷Each European football league has a fixed number of clubs that can qualify, depending on clubs' past performance in European tournaments. The current ranking and distribution of spots can be found at: <https://www.transfermarkt.co.uk/uefa/5jahreswertung/statistik>.

Figure 4: Rising Prize Money in the UEFA CL and EL

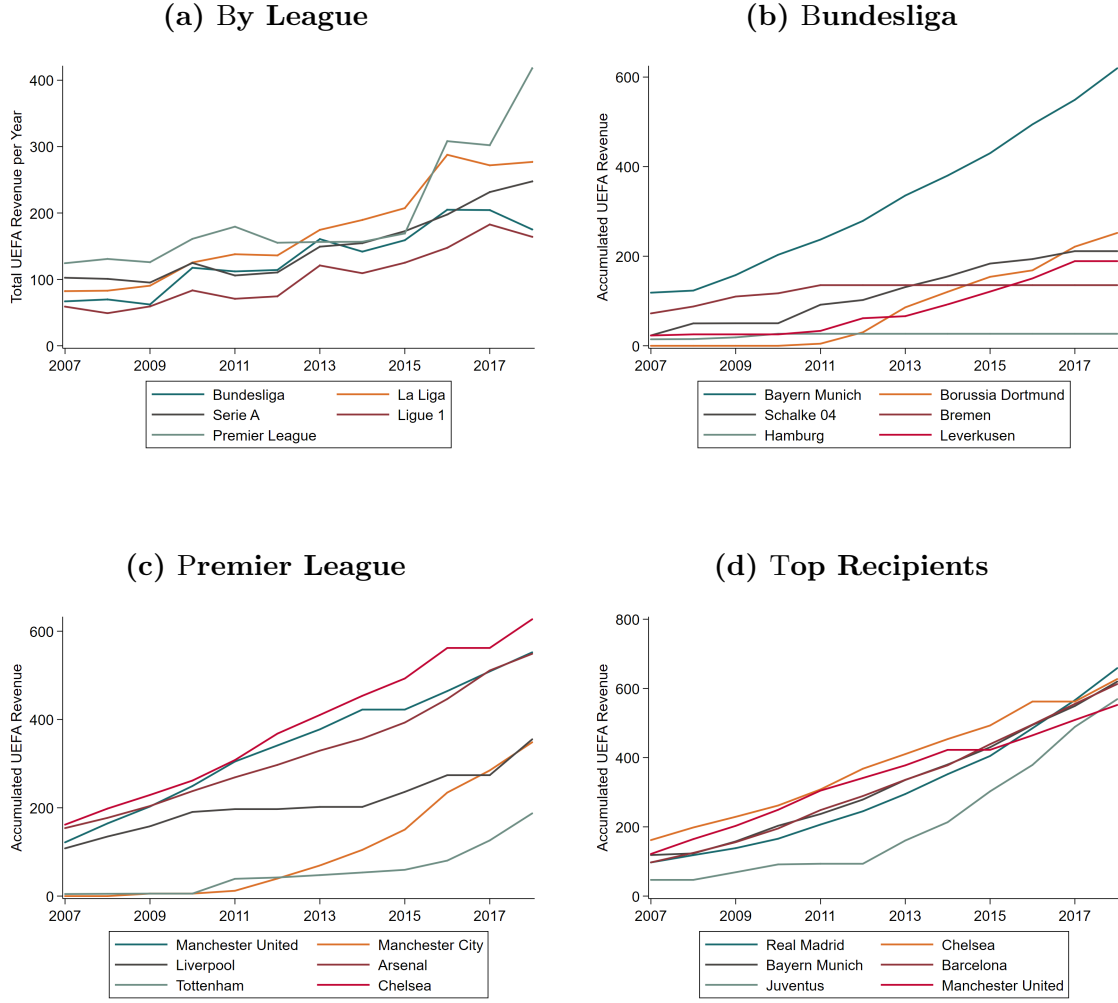


Note: The figure shows the total Champions League and Europa League prize money allocated to participating clubs from 2007 to 2017. In addition, the absolute and the relative gap are plotted.

Figure 4 shows how rapidly UEFA prize money increased in recent years. It more than doubled within a decade. Notably, the absolute gap in prize money between CL and EL revenue widened while the relative gap narrowed. Among the two UEFA tournaments, the Champions League was and continues to be financially much more attractive.

Splitting the allocation by league and clubs, Plot (a) of Figure 5 shows that English Premier League clubs received by far the most prize money in the 2017–2018 season. Particularly notable is the steep increase in prize money collected by English clubs in recent years. However, not all clubs benefit equally from rising UEFA revenue. Within European football leagues, the collection of prize money is often concentrated on a small set of clubs. This is due to the fact that only up to five teams can qualify for the Champions League and three for the Europa League. We illustrate this concentration for the German Bundesliga in Plot (b) and for the Premier League in Plot (c) of Figure 5.

Figure 5: Revenue from UEFA CL and EL by League and Club



Note: The figure shows the total Champions League and Europa League revenue allocated to participating clubs from 2005 to 2017.

Bundesliga clubs in 2017 received 204.4 million Euro from both CL and EL. This was allocated to only six out of 18 clubs: Bayern Munich collected 54.8, Dortmund 52.8, Leverkusen 38.6, and Mönchengladbach 26.6 from the CL. In the EL, the three participants received 17.7 (Schalke), 10.7 (Mainz), and 3.0 (Mönchengladbach after finishing third in the CL group stage). A notable observation in this regard is that —while consistently receiving the largest absolute prize money— Bayern Munich has received a *shrinking* share of the total UEFA prize money allocated to Bundesliga clubs. Nevertheless, Bayern received a total of about 620 million Euro since 2007, compared to 252 million for Dortmund, 211 for Schalke, and 189 for Leverkusen. Internationally, the top receiving clubs are shown in Plot (d) and are given by Real Madrid (659 million Euro since 2007), Chelsea (627), Bayern (620), Barcelona (613), Juventus (569),

and Manchester United (552). The all-time record for prize money collected in one season is held by Juventus which received 110 million for the 2016–2017 season in the Champions League finishing as runner-off.

3.5 Transfer Spending

The increased earnings from selling their services on the international market — through participation in the UEFA Champions and Europa League — allow a small set of clubs to spend much more on hiring the most skilled players. To what extent, however, is it true that these clubs have outspend their rivals when transferring the best athletes?

While two thirds of transfer spending is cross-border, according to the *UEFA European Club Footballing Landscape* the largest transfer flows in European football are found between English clubs (about 5.0 billion Euro in the ten years to 2018–19) as well as Italian clubs (4.2 billion). For the season 2018–19, European clubs in top divisions spent a total of more than 3 billion Euro. Notably, European clubs spend transfer fees on players of more than 160 different nationalities and the concentration is low. The latest *UEFA European Club Footballing Landscape* report illustrates that talent comes from numerous countries with Brazilians representing the largest share (14%) of transfer fees by value, followed by French (9%), Argentinian (6.5%), and Spanish (6.2%). Players of European nationalities represented 56 percent of the expatriate transfers to European clubs.

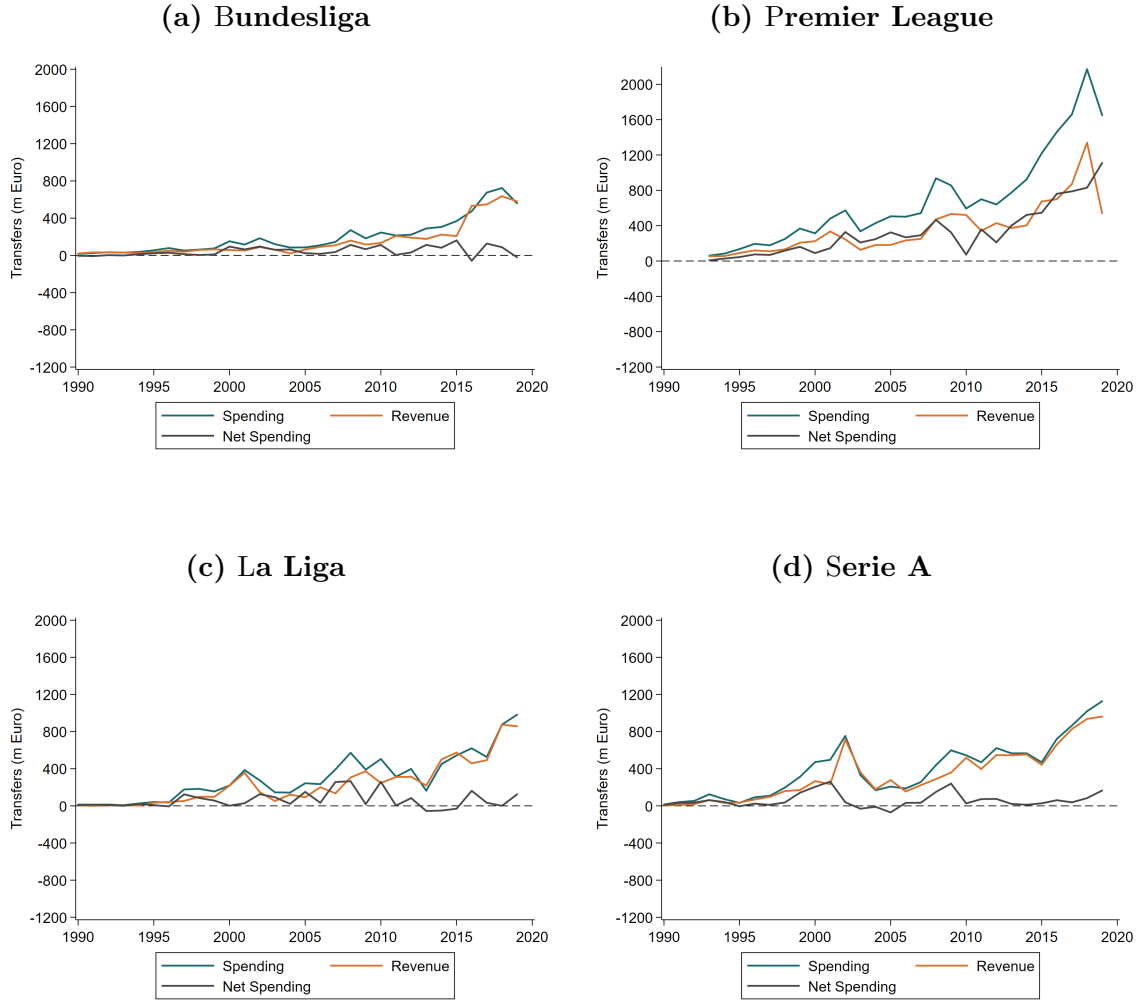
Net spending on transferring players is vastly facilitated by running an operating profit — the underlying ability to generate profits which can be reinvested into transfer activity. The vast majority of clubs in England, Spain, and Germany generate such operating profits. To provide some examples of the magnitude, Manchester United (operating profit of 222 million Euro in 2017), Arsenal FC (144), Bayern Munich (116), Paris Saint-Germain (84), Liverpool (75), Real Madrid (68), and Barcelona (57) were among the top European clubs by operating profits.

3.5.1 European Leagues

Using data on more than 20 years of transfers, we can investigate spending on and revenue from player transfers. Figure 6 shows that total transfer spending on players has increased

dramatically in the most recent seasons. This increase, however, was met by similar revenues. As a result, net spending of Bundesliga clubs has been moderate and turned slightly negative with spending of 566 million and revenue of 580 million Euro for the 2018–19 season.

Figure 6: Transfer Spending and Revenue for Top-4 Leagues



Note: The figure shows the total transfer spending, transfer revenue, and net transfer spending for the German Bundesliga, the English Premier League, the Spanish La Liga, and the Italian Serie A.

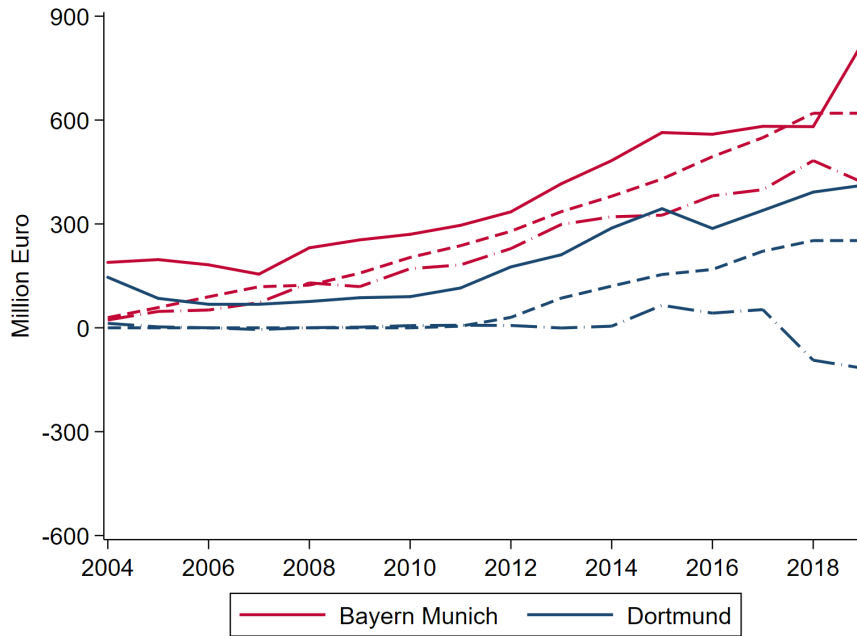
How different are the trends in other European leagues, most notably the English Premier League? Total net transfer spending in England's top football league was less than 500 million Euro per season until about 2013 but has risen sharply since then to more than 1.1 billion in the most recent season 2018–19. This substantial increase in net spending coincided with increasing transfer revenues, partly because of within-league transfers. The Premier League stands out compared to all other leagues. While the Spanish La Liga is the most successful league with respect to the UEFA Champions League and Europa League its success is not

driven by excessive net transfer spending. Plot (c) of Figure 6 shows that net spending on transfers was stable in recent years, hovering around zero. Until recently, clubs of the Italian Serie A show a similarly minimal net spending on player transfers.

3.5.2 Bundesliga

At the club level, we show the divergence between Bayern Munich and Borussia Dortmund. Figure 7 plots for the two clubs (i) the squad value, (ii) the accumulated revenue from UEFA Champions and Europa League as well as (iii) the accumulated net transfer spending.

Figure 7: Transfer Spending and Revenue for Bayern and Dortmund



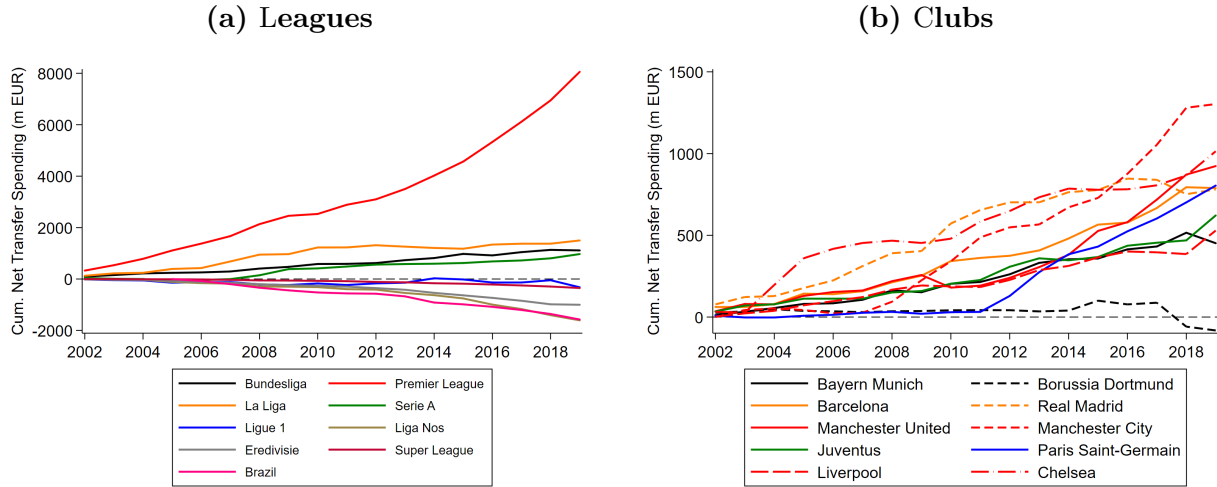
Note: The figure shows the squad value (solid), the accumulated UEFA revenue since 2007 (dashed), as well as the accumulated net transfer spending (longdash-dot) for Bayern Munich and Borussia Dortmund.

Bayern has persistently outspent Dortmund on transfers as shown above. Since 2004, the Bavarian club has invested a net total of about 400 million into new players. Meanwhile, its closest German rival, Dortmund, actually recorded net earnings from player transfers of more than 100 million Euro over the same period. If we just consider transfer spending, Bayern's share of total Bundesliga spending on players averages about 20% for the last decade. In comparison, Dortmund accounted for about 10% of the league's transfer spending.

3.5.3 International Comparison

Which European club has spent the most on new players? If we consider leagues as a whole, we obtain the results show in Plot (a) of Figure 8. The main finding is that no league comes close to how much the English Premier League spends on new players. Since 2002, the cumulative net spending has reached more than 8 billion Euro. In contrast, the Spanish, German, and Italian leagues have each spent between 1.1 and 1.5 billion Euro. There are very few other leagues that record a significant net spending. These include the Russian Premier Liga (800 million), the Turkish Süper Lig (450 million), the Saudi Professional League (315 million), as well as the Qatar Stars League (200 million) and the UAE Arabian Gulf League (150 million). Most football leagues have accumulated net earnings from selling transfer rights for players. For instance, the French Ligue 1 shows net spending of -330 million from 2002 to 2019. The largest net recipients include the Dutch Eredivisie (1.0 billion), the Brazilian Campeonato Brasileiro Serie A (1.6 billion), and the Portuguese Liga Nos (1.6 billion Euro).

Figure 8: Transfer Net Spending – Top European Leagues and Clubs



Note: The figure shows the cumulative net transfer spending for a selected group of international football leagues in plot (a) as well as for selected European clubs in plot (b).

In plot (b), we show cumulative net spending per club since 2002. We observe that recently Manchester City has reached the top in terms of net spending. From 2002 until 2019, the current English champion spent 1.8 billion Euro on new players while collecting 525 million from selling transfer rights. The net spending of 1.25 billion Euro exceeds that of all other

clubs. While Real Madrid spent the most (along with Chelsea) from 2002 to about 2014, the two clubs from Manchester caught up. The blue line in Plot (b) illustrates how quickly Paris Saint Germain joined the top group and outspent, for example, Bayern Munich, Liverpool, or Juventus. Nevertheless, Paris never reached the semi-final of the UEFA Champions League. In contrast to those clubs with large net spending, there are also some that accumulated a substantial profit from player transfers. These include at the top FC Porto (net earnings of almost 500 million Euro from 2002 to 2019), Benfica Lisbon (440 million), and AS Monaco (280 million).

One important qualification of these numbers is that the vast spending on transfers documented in this section does not turn European clubs into loss-making entities. UEFA released the tenth edition of its annual club licensing benchmarking report on European club football, named “The European Club Footballing Landscape” in January 2019. According to their statistics, in 2017 more than 60 percent of clubs in the top-20 leagues recorded net bottom-line profits. This includes 18 of the 20 Premier League clubs, 17/20 in La Liga, and 15/18 in the Bundesliga. Even clubs with large transfer spending record net profits. Among others, Liverpool (45 million Euro), Juventus Turin (43), Manchester United (39), and Bayern Munich (39) show a high bottom-line profitability.

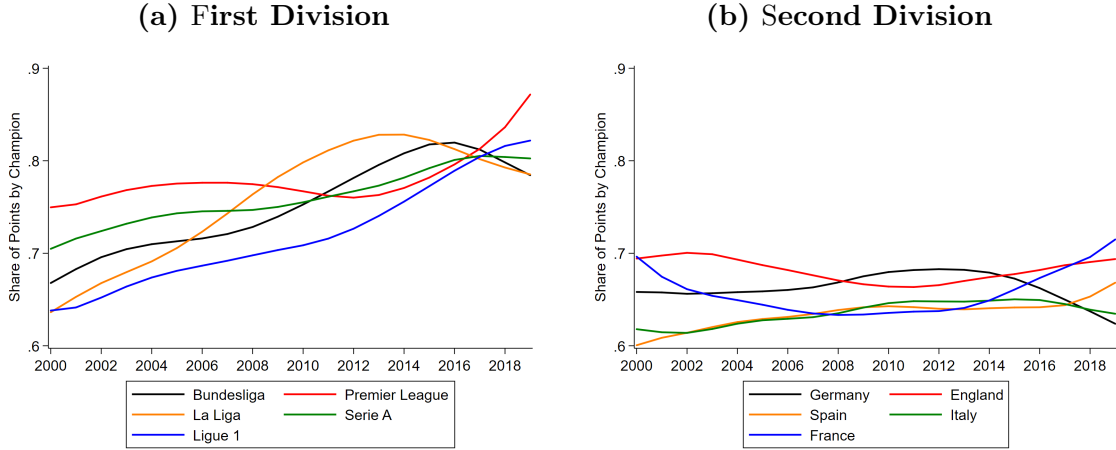
4 The Impact of Financial Inequality on Performance

How does rising financial inequality among European football clubs affect performance? There are two conflicting types of anecdotes on this question. On the one hand, those clubs with the strongest finances — like Real Madrid, Juventus, or Bayern — far outperform their national rivals with smaller purses. In contrast, there are stories like Leicester City winning the 2016 Premier League or FC Fulham being ranked second-to-last in this season despite spending 112 million Euro on new players at the beginning of the season. In this section, we use our data set to test empirically how strongly financial inequality shapes performance in European football.

4.1 The Champions Distance Themselves

The first way to explore whether there has been a concentration of success in European football is to check whether the national champion of a league has increased its share of maximum points over time. We show this share for the respective champions in all top-5 leagues in Figure 9, separately for the first and second division.

Figure 9: Share of Maximum Points achieved by the National Champion



Note: The figure shows the share of the points achieved by the winning club within the league. Plot (a) shows the top-5 leagues in Europe, while plot (b) documents the respective second divisions. All lines are smoothed using a bandwidth of two seasons.

As is shown in Plot (a), the share of maximum points achieved by the national champion has increased in all top-5 leagues. We can fit a linear regression model to test whether the increase visible in Figure 9 is statistically significant. The model is specified as $S_{l,t} = \beta Y_t + \delta_l + \varepsilon_{l,t}$ with $S_{l,t}$ being the share of maximum points achieved by the winner of league l in year t , Y_t denoting the season, δ_l a league-fixed effect, and $\varepsilon_{l,t}$ denoting the standard error which we cluster at the league-level. The results suggest that each year the winner's share increases by about 0.3 percentage points.⁸ In sharp contrast, for the second divisions the regression shows basically no time trend and thus confirms the impression from Plot (b) in Figure 9. As Schetter and Tejada (2018) argue, the absence of any increase in the second divisions is due to the fact the these clubs (with very rare exceptions) do not participate in any international tournaments.

⁸The point estimate is given by $\hat{\beta} = 0.0032$ with a t-statistic of 2.61 and an R-squared of 0.37.

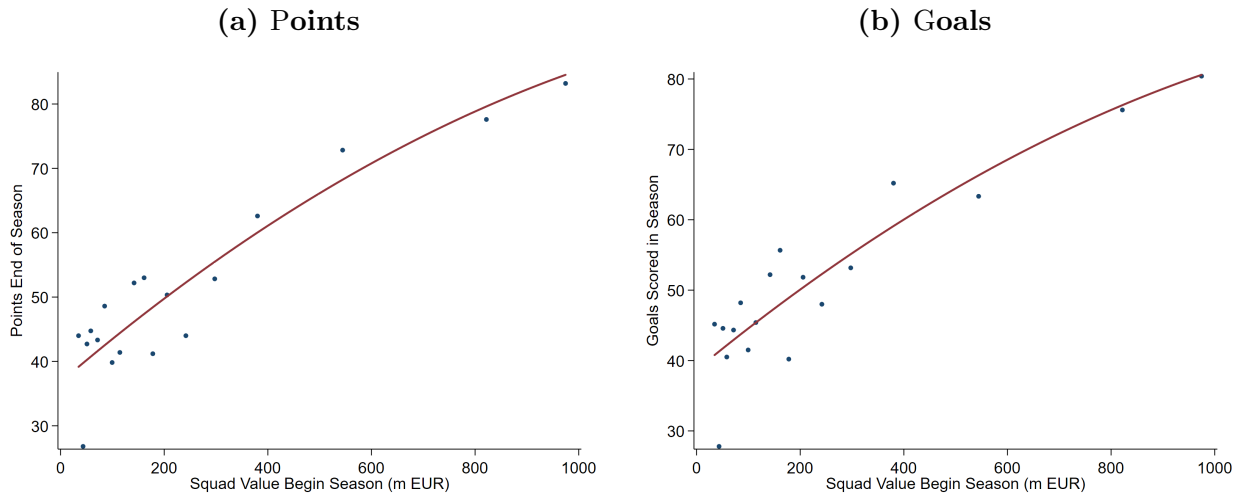
4.2 Money and Success

There is a well-known and widespread quip among football fans that ‘money scores goals’, suggesting a strong relationship between financial might and clubs’ performances. Following former German club manager Heribert Bruchhagen, there is a clear association between money and success in football:

“Usually, the license player budget of the past five years added and divided by five and the tabular ranking added and divided by five result in an almost one hundred percent congruence.”⁹

We explore this by means of several tests. Plot (a) of Figure 10 shows for the top-5 European leagues the relationship between clubs’ squad value at the beginning of the season and their point score at the end of the season. The figure illustrates the tight association between the two variables. Clubs with the highest squad value are by far more successful in their national leagues. As is shown in Plot (b) we obtain a similar relationship between goals scored and squad values, supporting the well-know quip among football supporters: ‘Money scores goals’ (Schmedders, Snyder and Tinz, 2013).

Figure 10: Squad Value and Points at the End of Season for Top-5 Leagues in 2018



Note: The figure shows two binscatter plots, mapping points at the end of a season against teams’ squad value at the beginning of the season. The dashed lines show a quadratic fit. The R-squared is 0.57 in plot (a) and 0.50 in plot (b).

⁹In an interview with *Der Spiegel* in August 2014, Bruchhagen said in the original, “Normalerweise ergeben der Lizenzspieleretat der vergangenen fünf Jahre addiert und durch fünf geteilt und das tabellarische Ranking addiert und durch fünf eine fast hundertprozentige Kongruenz.”

In a simple regression with points as dependent variable and squad values as explanatory variable, we obtain a coefficient of $\beta = 0.094$ (t-statistic of 27). This suggests that an increase of a club’s squad value by about 10 million is associated with one additional point in the season.

5 Conclusion

The present study documents two stylized facts: (i) a rising financial inequality among European football clubs and (ii) a tight relationship between finance and clubs’ performance. It is the combination of the two fact that can be problematic in the sense that it could lead to a concentration of success. In turn, this might render tournaments less interesting for the audience. In Formula One, for example, a similar phenomenon has contributed to a 50 percent decline in worldwide viewership since 2008, from about 600 to 300 million (‘A New Formula For Formula One’, *Bloomberg Businessweek*, May 13, 2019). In football, it is ironically the English Premier League and the UEFA Champions League which are the most egalitarian tournaments with respect to the participating clubs’ financial strength. Arguable this makes them more attractive for the audience as their outcomes are less predictable.

While our paper provides descriptive evidence on why inequality among clubs increased, future research can exploit unique regulatory changes (e.g., the Bosman ruling, the introduction of the Champions League, homegrown quotas in England, or the number of foreigners in the German Bundesliga) to establish causal effects. Based on such research, policy recommendations can be developed. These might include novel redistribution mechanisms. For instance, the allocation of broadcasting revenue could be made more equal and less dependent on placement in the national league.¹⁰ As an example, TV revenue is spread fairly even in the English Premier League. The ratio of high to median clubs is only 1.3 in England, the second lowest ratio in Europe. This contrasts with a ratio of 2.5 in France and Germany, 3.1 in Spain, or 15.4 in Portugal — the only major league in which clubs sell their TV rights individually. According to the UEFA, 14 leagues have a more equal distribution of TV revenues today than in 2008. The Spanish La Liga as well as the Italian Serie A, for instance, went from a ratio of 6.2 to 3.1

¹⁰Attempts to alter the allocation have been made, for example, in the German Bundesliga by traditionalist clubs Hertha BSC Berlin and Hamburg. In addition to the final ranking, factors like the number of club members, TV ratings or number of away fans should determine the allocation of broadcasting revenue.

and from 4.4 to 3.0 in 2017. However, in ten leagues the distribution has become less equal. This includes Germany's Bundesliga (from 1.9 to 2.5) and the French Ligue 1 (from 2.1 to 2.5). Other streams of revenue will likely remain highly unequal. In 2017, for example, the top-20 European clubs alone collected half of all gate receipts (ticket sales). Sponsorship and commercial revenues are also distributed very unequally. In 2008, the top-12 European clubs had total revenues in this domain of 805 million Euro. This was 22 percent of all European clubs' sponsorship and commercial revenues at that time. However, in 2017 the top-12 added 1.6 billion Euro in revenues and their share of all clubs' sponsorship and commercial revenues climbed to 39 percent. Hence, other more fundamental changes could be considered to mitigate financial inequality in European football. These might include wild cards for participation in UEFA tournaments, club-level salary caps, or regulation on player transfers.

References

- Autor, David, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen.** 2017. "The Fall of the Labor Share and the Rise of Superstar Firms."
- Bernard, Andrew B., J. Bradford Jensen, Stephen J. Redding, and Peter K. Schott.** 2018. "Global Firms." *Journal of Economic Literature*, 56(2): 565–619.
- Egger, Peter H., Sergey Nigai, and Nora M. Strecker.** 2019. "The Taxing Deed of Globalization." *American Economic Review*, 109(2): 353–390.
- Jann, Ben.** 2016. "Estimating Lorenz and concentration curves." *Stata Journal*, 16(4): 837–866.
- Kleven, Henrik Jacobsen, Camille Landais, and Emmanuel Saez.** 2013. "Taxation and International Migration of Top Earners: Evidence from European Football Market." *American Economic Review*, 103(5): 1892–1924.
- Martin, Roger L.** 2019. "The High Price of Efficiency." *Harvard Business Review*, Jan-Feb: 42–55.
- Piketty, Thomas.** 2014. *Capital in the 21st Century*. Cambridge, MA:Harvard University Press.
- Piketty, Thomas, and Emmanuel Saez.** 2003. "Income Inequality in the United States, 1913-1998." *The Quarterly Journal of Economics*, 118(1): 1–39.
- Schetter, Ulrich, and Oriol Tejada.** 2018. "Globalization and the Concentration of Talent."
- Schmedders, Karl, Charlotte Snyder, and Sophie Tinz.** 2013. "Germany's Bundesliga: Does Money Score Goals?" *Harvard Business Review*, Case Study.
- Solt, Frederick.** 2016. "The Standardized World Income Inequality Database." *Social Science Quarterly*, 97(5): 1267–1281.

Appendix

Table A.1: Football Leagues in the Data Set

Country	Division	League	First Season	Last Season
Austria	1	Austrian Football Bundesliga	1994	2019
Austria	2	Austrian Football First League	2006	2019
Belgium	1	Belgium First Division A	1990	2019
Belgium	2	Proximus League	2006	2017
Belgium	2	Belgium First Division B	2018	2019
Denmark	1	Danish Superliga	1996	2019
Denmark	2	Danish 1st Division	1996	2019
England	1	Premier League	1993	2019
England	2	EFL Championship	1993	2019
Finland	1	Veikkausliiga	2000	2019
Finland	2	Ykkönen	2003	2019
France	1	Ligue 1	1990	2019
France	2	Ligue 2	1994	2019
Germany	1	Bundesliga	1990	2019
Germany	2	Zweite Bundesliga	1993	2019
Greece	1	Super League	1990	2019
Greece	2	Football League	2006	2019
Italy	1	Serie A	1990	2019
Italy	2	Serie B	1990	2019
Netherlands	1	Eredivisie	1990	2019
Netherlands	2	Eerste Divisie	1990	2019
Norway	1	Tippeligaen	1990	2016
Norway	1	Eliteserien	2017	2019
Norway	2	1. Divisjon	1997	2004
Norway	2	Adeccoligaen	2005	2013
Norway	2	1. Divisjon	2014	2014
Norway	2	OBOS-Ligaen	2015	2019
Poland	1	Ekstraklasa	2003	2019
Poland	2	I Liga	2008	2019
Portugal	1	Primeira Liga	1990	2019
Portugal	2	LigaPro	1991	2019
Russia	1	Russian Top Division	1998	2001
Russia	1	Premier League	2001	2019
Russia	2	Russian First Division	2008	2010
Russia	2	Russian Football National League	2012	2019
Scotland	1	Scottish Premier League	1999	2013
Scotland	1	Scottish Premiership	2014	2019
Scotland	2	Scottish First Division	1999	2013
Scotland	2	Scottish Championship	2014	2019
Spain	1	La Liga	1993	2019
Spain	2	Segunda División	1990	2019
Sweden	1	Allsvenskan	1993	2019
Sweden	2	Superettan	2000	2019
Switzerland	1	Swiss Super League	1990	2019
Switzerland	2	Swiss Challenge League	1996	2019
Ukraine	1	Vyshcha Liha	1993	2008
Ukraine	1	Ukrainian Premier League	2009	2019
Ukraine	2	Ukrainian First League	1998	2019

Note: The table shows all football leagues in the data set. For each league, we show the range of seasons covered. Note that season refers to the year in which a season ended.

Table A.2: Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Season	2006.369	7.985	1990	2019	15299
Rank	9.242	5.411	1	24	15299
Matches Played	34.567	5.123	0	46	15299
Wins	12.663	5.043	0	34	15299
Draws	9.242	3.412	0	26	15299
Losses	12.664	4.978	0	35	15299
Goals Scored	45.57	14.07	0	121	15299
Goals Conceded	45.556	13.369	0	107	15299
Goals Difference	0.387	20.586	-93	90	15299
Points	45.946	15.587	-65	106	15299
Squad Value at Begin of Season (m EUR)	95.803	129.934	1	1114	1831
CL Participant	0.174	0.379	0	1	1553
CL Revenue (m EUR)	35.463	17.346	3.2	110	270
EL Participant	0.16	0.367	0	1	1261
EL Revenue (m EUR)	6.23	6.315	0.3	44.5	202
UEFA Solidarity Pay (m EUR)	1.011	1.441	0.2	4	9
Total UEFA Revenue (m EUR)	0.709	5.341	0	110	15299
Club Revenue (Deloitte, m EUR)	232.528	138.868	83.100	751	374
Transfer Spending (m EUR)	18.371	32.659	0	359.5	2660
Transfer Revenue (m EUR)	13.776	24.861	0	318.75	2660
Transfer Net Spending (m EUR)	4.596	23.844	-180.55	226.15	2660

Note: The table shows descriptive statistics for all variables in the data set.