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A longitudinal and comparative analysis of competitive balance in five European football leagues

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Abstract

Purpose

This paper aims to provide empirical evidence on competitive balance in the 'big five' European football leagues; namely the English Premier League, French Ligue 1, German Bundesliga, Italian Serie A and Spanish La Liga.

Design/Methodology/Approach

Our paper utilises recognised measures of competitive balance to measure levels of concentration (within-season competitive balance) and dominance (between-season competitive balance) in the selected leagues over 22 seasons between 1995/96 and 2016/17.

Findings

Ligue 1 emerged as the most balanced league in terms of both concentration and dominance measures. Our analysis also points to a statistically significant decline in competitive balance in all leagues apart from Serie A (Italy).

Originality/Value

The findings of this study are concerning for league organisers. Competition intensity is a key component of a sport league and a league that is dominated by one or a select few clubs is less attractive within the marketplace. This paper presents challenges at league governance level for the five leagues examined.

Keywords: competition, competitive balance, professional team sports, sport finance, European football.

Word Count: 8,161

Introduction

Managing any particular team in any particular context is a challenging task. Indeed, the notion of a team working together in the first place implies that there must be collaboration between different actors over time (Berlin, 2014). Furthermore, it is important that there are common incentives for a team to function effectively alongside the following important components of: common responsibility (Thompson and McHugh, 2002), adaptability (Barker, 1999), trust (Moreland and Levine, 2002; Morita and Burns, 2012), communication (Berry, 2011) and co-operation (Schuman, 2006). It is also important to note that common incentives are not primarily about pursuing one's own interests, but instead they focus on the organisations goals and objectives (Sorauren, 2000), thus, in turn, contributing to the effective functioning of the team.

As such, the notion of teamwork, and the managing of teams, is a particular challenge in many fields (Carlstrom (2012) cites pubic organisations as one example). Our paper uses the notion of teamwork (and performance management of teams) in the context of professional team sport (notably, football). In the world of professional sport, the notion of managing teams is arguably an even more complex situation as individual teams operate in individual leagues that often form part of a bigger collection of leagues. An example of this is the English Football League structure which consists of four main leagues - the English Premier League (which currently has 20 teams) - and the three leagues - Championship, League 1 and League 2 - that constitute the Football League (which currently have 24 teams each).

Indeed, in this sense it may be that league is perceived as a 'team' with a necessity to ensure that its members (clubs) are sufficiently homogeneous to generate competition, as organisations in other sectors may look for a sufficient homogeneity between their members in terms of status, pay and incentives to favour cohesion and sustainability. However, this

analogy is still fraught with complexity as each league (team) has individual clubs (members) within it that all have individual goals but also require all other clubs (members) to buy into a shared goal to aid competition. As such, the study of professional sport teams and leagues also contributes to the broader literature on coopetition (defined as simultaneous cooperation and competition (Brandenburger and Nalebuff, 1996)). Since this seminal text, coopetition has been the subject of an increasing amount of research in the field of strategic management and measuring its impact on performance (Le Roy and Czakon, 2016). Scelles, Mignot, Cabaud and Francois (2017) state that this concept of coopetition in sport is highly relevant in the sense that if opponents are competitors on the field, they need each other to produce the competition and, as such, they are economic partners . Further articles have dealt with coopetition in professional football (Lardo et al., 2016; Robert et al., 2009). The aforementioned literature is important for the framing or our study as the concepts of teamwork and coopetition are relevant when considering a key economical function of professional team sports; competitive balance.

In team sport competitions it is stated that the perfect game is a symbiotic contest between equally matched opponents, essentially through the acquisition of equal playing talent. The practical economic problem is that professional sport leagues form imperfectly competitive natural cartels where games are played between teams with asymmetric market power (Vrooman, 2015). Comparisons between the economic environment of professional team sports and that of more traditional commercial businesses have been well documented by sports economists (e.g. Dobson and Goddard, 2011; Leach and Szymanski, 2015). Professional team sports are intrinsically different from other businesses, in which a firm is likely to prosper if it can eliminate competition and establish a position as a monopoly supplier (Dobson and Goddard, 2011). In sport, however, it does not pay for one team to establish such a position due to the joint nature of 'production' in sports.

This study focuses on examining competitive balance in the European football industry using a comparative, longitudinal research design. The European football market has grown exponentially over the course of the last two decades. Indeed, financial analysts began documenting reports on the football market in the early 1990s following the inception of the English Premier League (hereafter referred to as the EPL) in 1992. This time period has seen unprecedented change and development across the global game, perhaps felt most acutely by the EPL. At the time of writing, the EPL is the highest revenue generating league in European football grossing €4.87 billion in 2015/16, over €2 billion ahead of its nearest rival the Bundesliga in Germany (€2.71 billion) (Deloitte, 2017). Spain (€2.44 billion), Italy (€1.92 billion) and France (€1.49 billion) sit next on the collective revenue list. The abovementioned leagues are collectively labelled as the 'big five' in Europe.

In recent years, the EPL has moved further away from its rivals in revenues terms. This is due primarily to the broadcasting deals in place for EPL clubs and the central distribution mechanism. The new broadcasting deal that commenced at the beginning of the 2016/17 season is worth £5.1 billion in UK rights alone, representing a 70% increase on the previous £3 billion deal. In light of this increase, the club that finished bottom in the EPL in 2016/17 (Sunderland) earned £100 million in broadcasting revenue under the current distribution mechanism. This figure - which is purely broadcasting income - is higher than the total revenue of the majority of clubs across the 'big five' European leagues - further underlining the EPL's status as the richest league in world football. Furthermore, revenue distribution is less equal in other European leagues, meaning that certain teams gain a greater share of broadcasting money than other teams which could result in unequal levels of investment in playing talent. Whilst there have been moves in Spain and Italy (for the latest broadcasting cycle) towards a more collective approach to distribution, there remains considerable differences between payments allocated to teams at the top and bottom end of

respective leagues, which creates revenue disparity within leagues and has the potential to influence competitive balance.

The increasing amount of revenue generated for clubs from broadcasters, sponsors and fans places sport finance at the heart of any contemporary debate about professional team sport. Additionally, it also has a bearing on one of the founding principles of sport economics in the form of competitive balance and uncertainty of outcome. The concept of competitive balance was first pioneered by Rottenberg (1956) and has played a central role in shaping the literature around modern-day sport economics.

Against this theoretical debate, and the background context of the European football market, this paper examines the level of competitive balance in the 'big five' European leagues through a longitudinal study covering 22 seasons between 1995/96 and 2016/17. The primary aim of this paper is to provide empirical evidence in relation to the academic debate on competitive balance in European football by analysing the level of competition within and between selected individual leagues. This paper updates and advances the existing research in the field using recognised techniques. There is a further relevance of the topic from a practical perspective when one considers the directive of European football's governing body, the Union of European Football Associations (UEFA). Indeed, the president of UEFA, Aleksander Ceferin, stressed recently that "the biggest challenge [to develop football in Europe] over the next few years will be competitive balance" (Inside World Football, 2017).

The rest of the paper is structured in the following order. The next section covers relevant literature relating to competitive balance in professional team sports. We then proceed to outline the details of the methods used and the analysis undertaken before presenting our results and discussion. The paper concludes by identifying the main issues and implications for the industry and a direction for future research.

Literature review

The discourse on competitive balance in professional team sports is extensive. Its origins lie in U.S. professional leagues, where revenue sharing has become a common mechanism to maintain competitive balance. The European model of professional team sports is uniquely different although both models (European and North American) consider the importance of competitive balance in their structure and the implications it may have on demand for the 'product'. Indeed, in relation to successful sport leagues, Groot (2008) stated that "each competitor has an inherent interest in maintaining the health of their rivals" (p. 25). A potential implication in this context is that an excessively imbalanced competition might have a negative effect on fan interest and, hence, on demand (Kesenne, 2006; Zimbalist, 2003). Narrative surrounding fan interest in relation to competitive balance has led to two distinct strands of academic literature as outlined by Fort and Maxcy (2003). They categorise the theoretical and empirical literature on competitive balance in terms of: (1) analysis of competitive balance (ACB) literature, which focuses on what has happened to competitive balance over time or as a result of changes in the business practices of sports leagues; and, (2) literature on competitive balance that analyses its effect on fans, i.e. which tests the longstanding uncertainty of outcome hypothesis (UOH). It is the first of these approaches (i.e. ACB) that this research is concerned with.

There have been a number of studies that cover ACB with substantial research focusing on sports leagues in North America (for examples see: Maxcy and Mondello, 2006; Mills and Fort, 2014; Price and Sen, 2003; Zimbalist, 2002). In more recent years, there have been several studies that have focused on competitive balance in professional team sports in Europe, most notably in football but occasionally in other sports such as rugby union (e.g. Williams, 2012). Additionally, one or two studies focus on other professional sports such as Formula One (Schreyer and Torgler, 2016) and tennis (Del Corral, 2009), although these are

less relevant to this paper given the non-league structure of these more individual sports compared to professional team sports.

In relation to professional football, previous research examining competitive balance has almost exclusively focused on the so called 'big five' leagues (England, France, Germany, Italy and Spain) with a small number focusing on smaller leagues such as Austria and Switzerland (e.g. Pawlowski and Nalbantis, 2015). Aside from these papers, it appears that little attention has been given to football leagues in other European countries (Ramchandani, 2012). Our paper provides an update to the research on the 'big five' leagues in Europe and extends the field of evidence by employing a longitudinal and comparative approach to data analysis. Within European professional football, past evidence (see Table 1 for a summary). presents an inconclusive picture. Some studies detect no significant changes in competitive balance across European leagues including German, French and Spanish first divisions (Goossens, 2006), French and Spanish first divisions (Groot, 2008), Dutch first division (Koning, 2000), French first division (Michie and Oughton, 2004) and English first division (Szymanski, 2001). Others report a decline in competitive balance in some leagues including English and Italian first divisions (Goossens, 2006), English, German, Italian and Dutch first divisions (Groot, 2008) and Spanish first division (Montes, *et al.,* 2014).

<Table 1 here>

The above literature focuses exclusively on the first divisions of respective leagues. More recently, Plumley et al., (2017) evaluated the state of competitive balance in the entire English football league system (the four main professional leagues). Here, the authors found a reduction in competitive balance in the EPL over time and concluded that the EPL was less balanced overall relative to the lower divisions comprising the Football League, which is

partly influenced by the financial disparity between teams in the EPL and the Football League. Another recent study by Plumley and Flint (2015), which examined the competitive balance of the UEFA Champions League group stages, found flaws in the ranking and seeding system used by UEFA and that, historically, the group stages of the Champions League have seen competitive imbalance. Furthermore, they argue that the seeding system continues to benefit the 'bigger' clubs in Europe and provides them with a greater opportunity of progression to the knockout rounds of the competition. It is worth noting here that progression to the knockout rounds of this competition represents a lucrative revenue stream for clubs, which in turn provides them with a financial advantage over competitors in their respective domestic leagues that could conceivably be spent on increasing player talent within their squads.

The contrast in these studies is also reflective of wider issues in relation to competitive balance research. As Pawlowski (2013) states, it may be that the empirical evidence is 'wrong' because the proxies used to measure competitive balance are inadequate. Indeed, Dobson and Goddard (2011) proclaim that the problem of measuring competitive balance within a sports league has attracted considerable attention in the academic sport economics literature in recent years. Furthermore, measuring competitive balance in a sports league has a long history of competing methods (Martinez and Willner, 2017). Researchers have applied several measures of concentration or inequality, some of which are borrowed from industrial economics, to sports teams' win ratio or league points data and there are many indices proposed and employed for measuring competitive balance, a number of which can be found in the texts of Groot (2008) and Michie and Oughton (2004).

There have been a number of studies that have shown that competitive balance is not as important as previously suggested in past studies (e.g. Andreff and Scelles, 2015; Pawlowski and Anders, 2012; Scelles, Durand, Bonnal, Goyeau and Andreff, 2013).

However, these papers focus more on analysing competitive balance against the concept of UoH and fan attendance. Our paper is concerned with the concept of ACB over time in respect of league structures. Indeed, in recent years, the European governing body of the sport (UEFA) have stressed that competitive balance is the most important challenge for European football over the next few years. This issue was also a driving force behind their introduction of Financial Fair Play regulations in 2011 which aimed to create a more 'level' playing field across European football by encouraging clubs to spend within their means among other things. This underlines the relevance of the topic area from a practical perspective when considering ACB over time.

In this paper, we distinguish between two aspects of competitive balance which the ACB literature aims to measure - the level of concentration and the level of dominance. The first of these relates to the extent of the closeness between teams in a league within a season whereas the latter considers the extent to which the same teams consistently achieve milestones such as winning the league across a number of seasons. The essential difference between these two concepts is that the identity of the team does not matter for measures of concentration but it does matter for measures of dominance. A league with fewer different title winners over a long time period suggests that they have a higher level of dominance within the league. Buzzacchi, et al., (2003, p. 174) contend that "fans care about balance in the sense that they want a reasonable prospect that the identity of the winners will change from time to time (although they may also care about the variance of success among the teams within a season)." They analysed the number of teams that had the highest win percentages, in the regular season of the MLB, NFL and NHL, and the number of teams that won the league championships in soccer in England, Italy and Belgium between 1950 and 1999 and found that open leagues are less balanced than closed leagues in general. Syzmanski and Kuypers (1999) also report this measure for English and Scottish football,

from 1946/47 to 1997/98, illustrating that England had sixteen different champions in this time frame whilst Scotland had eight in the same period - meaning that twice as many teams won the league title in England as opposed to Scotland.

Other researchers have sought to examine the identities of dominant teams in an effort to explain as why changes in competitive balance occur. Curran, Jennings and Sedgwick (2009) formulated a "Top 4 Index" by counting the number of occasions that each team finished a league season in the top four places, summing the incidence of the four teams with the most occurrences and expressing the total as a proportion of the total number of available places over the period of the measure. They calculated values for the top league of professional football in England from the 1948/49 to 2007/08 seasons (inclusive) and for ten year intervals. Their findings suggested that competitive balance in the English top league has decreased and that the league is in danger of becoming a monopoly of the few.

Based on the distinctions drawn in the ACB literature our research examined: (1) the level of concentration within and between the 'big five' European football leagues; and, (2) the level of dominance in each league over time. The next section details the measures that we used for our study alongside the data collection and analysis techniques employed.

Methods

There are a variety of measurement techniques used when considering competitive balance in professional team sports, which have their respective strengths and weaknesses (see Mills and Fort, 2014; Owen and King, 2015). Furthermore, within competitive balance measurement (ACB) there are two main approaches (summarised by Booth, 2005): within-season competitive balance (concentration) and between-season competitive balance (dominance).

A review of the empirical literature on competitive balance including game and season uncertainty, primarily in the context of North American sports leagues by Fort et al.

(2016), indicated that the most commonly used measure, where drawn games are rare or non-existent, is the standard deviation of team winning percentage within a season. By contrast, in sports such as European football, where drawn games are possible and common, it is argued that winning percentages might be a biased indicator (Pawlowski *et al.*, 2010). Our analysis utilises Mitchie and Oughton's (2004) Herfindahl Index of Competitive Balance (HICB) to measure within-season competitive balance which is an industry standard measure adapted from the Herfindahl-Hirschman Index. The rationale for using HICB to measure overall league concentration is two-fold. First, it has been used in previous academic research focusing on football leagues (see for example, Pawlowski et al., 2010; Plumley et al., 2017); second, it allows comparisons between leagues, with a different number of teams and, within leagues when the number of teams changes over time. This is particularly relevant given the focus of the study looking at the 'big five' European leagues where the total number of teams in these leagues has ranged from 18-22 over the time period studied - see Table 2.

<TABLE 2 HERE>

HICB scores were calculated using the formula (HHI / (1/N)) x 100, where HHI is the sum of the squares of the points share for each club contesting a league in a given season and N is the number of teams in that particular league and season. For a perfectly balanced league of any size, the index takes a value of 100. As the index rises, competitive balance declines.

The research also examined specific aspects of competitive balance that are likely to be of interest to both fans and league authorities: competition for the title and competition for survival. Our approach to this analysis utilises the methods proposed by Plumley et al. (2017) in their analysis of the English football league system. The time frame chosen for this analysis was 1995/96 to 2016/17 (22 seasons) because this was the time period where all five

leagues converted to a structure of awarding 3 points for a win and 1 point for a draw - a fundamental policy change that may affect competitive balance and also provides a robust rationale for a comparative study when comparing like for like. We explicitly excluded any points deductions imposed on teams as this would have the potential to artificially skew the results of the research. For example, there were several instances where a team was given a point(s) deduction for varying reasons. Such deductions were ignored in our analysis with our focus being on the actual number of points a team achieved for on-pitch performance regardless of any penalties

For all five leagues, competition for the title was measured in terms of the gap between the points per match won by the team finishing first and the average points per match won by other likely title contenders, who were judged to be the teams that finished second, third and fourth. In the 2016/17 season for example, Chelsea won the EPL title accumulating 93 points. The average number of points won by teams that finished second (Tottenham, 86 points), third (Manchester City, 78 points) and fourth (Liverpool, 76 points) in that season was 80. All EPL teams played 38 games and therefore the gap in terms of the competition for the title was 0.34 points per match (i.e. (93 - 80) / 38). To investigate the competition for survival, we compared the average points per match of the teams ranked in the bottom three places in each league with the equivalent number of teams that finished immediately above them in the league.

Pearson's correlation coefficient (r) was used to examine the pattern of overall competitive balance (HICB), competitiveness for the title and survival within each league over time. Time in this context refers to the seasons under review (so 1995/96 = 1, 1996/97 = 2 and so on). A one-way ANOVA was conducted to establish whether differences between leagues were statistically significant. Post hoc tests were also undertaken for statistically significant differences.

In order to examine the levels of dominance in each league we considered the following indicators across the 22 seasons examined:

- the number of different teams to win the title;

- the maximum number of titles won by a single team;

- the number of different teams to finish in the top 4 positions in the league; and,

- the maximum number of top 4 finishes achieved by a single team.

The use of these indicators was informed by previous research by Syzmanski and Kuypers (1999) and Curran, Jennings and Sedgwick (2009).

Results

Measures of concentration

Figure 1 shows the highest, lowest and mean HICB scores across the 22 seasons for each league. The variation in HICB scores appears to be greatest in Spain and smallest in the case of France. HICB scores for each league were normally distributed as determined by the Shaprio-Wilk test ($p > 0.05$) and no outliers were detected from inspection of boxplots. The homogeneity of variances assumption was not violated, as assessed by Levene's Test of Homogeneity of Variances ($p > 0.05$). The HICB score was found to be statistically different between the leagues ($F (4, 105) = 6.119$, $p < 0.001$). A Tukey HSD post-hoc test revealed that the HICB scores for Ligue 1 was significantly lower in comparison with the EPL and Serie A ($p < 0.001$).

<FIGURE 1 HERE>

When looking at trends in competitive balance over time, there appears to have been a statistically significant decline in competitive balance in all leagues apart from Italy and this decline is strongest in the case of Spain. This point is illustrated by the Pearson correlation coefficient and the associated significance threshold for each league in Figure 2. Higher positive correlations coefficients in this case correspond to a more pronounced reduction in competitive balance over the 22 completed seasons.

<FIGURE 2 HERE>

For each league examined, Figure 3 shows the difference in the points achieved by the team that won the league title and the average number of points achieved by the teams that finished in second, third and fourth place. This difference is expressed on a 'points per match' basis to facilitate a better comparison between the different European leagues. For example, each team in the EPL contested 38 matches whereas those in the Bundesliga contested 34 matches. Lower gap scores in Figure 3 indicate better competition for the title. No significant differences in the mean gap scores were detected between leagues as determined by a one-way ANOVA ($F(4,105) = 0.536$, $p = 0.710$). Figure 3 also shows the absolute gap between the average points per match achieved by the bottom three teams in each league and the average points per match achieved by the equivalent number of teams finishing immediately above them. There was statistically significant difference in the mean gap scores between the leagues ($F (4, 105) = 3.739$, p = 0.007). A Tukey HSD post-hoc test revealed that the mean gap scores for the French Ligue 1 and the Spanish La Liga were both significantly lower (indicating better competitive balance) in comparison with the Italian Serie A (p = 0.018 and p = 0.008 respectively).

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<FIGURE 3 HERE>

As shown in Figure 4, there does not appear to be any discernible trend when considering competition for survival over time within the five leagues. However, in the case of France, Germany and Spain, there has been a moderate, statistically significant, decline in terms of competition for the title.

<FIGURE 4 HERE>

Measures of dominance

Figure 5 plots the number of different teams in the top divisions of the five European football leagues to have won the domestic league title in the 22 seasons since 1995/96 on the horizontal axis against the maximum number of domestic league titles secured by the most successful team in each league in the same time frame on the vertical axis. Competitive balance is judged to be greatest in instances where there is a lower value for the latter and a higher value for the former. In other words, competitive balance is associated with lesser dominance of a league by one or a few teams. The axes intersect at the median values for the two indicators (five and 11 respectively).

<FIGURE 5 HERE>

It can be seen that Ligue 1 is positioned in the bottom right quadrant of Figure 1, which means that it is more balanced in terms of dominance than the comparator leagues on both these indicators. A total of ten different teams in Ligue 1 won the league title and the most successful team in the 22 seasons examined (Lyon) won the league title on seven occasions.

By contrast, only five teams in England, Italy and Spain and six teams in Germany won their respective league titles. The maximum number of domestic league titles won by the most successful team in these leagues varied between 10 (Spain) to 14 (Germany).

If we broaden our analysis to consider the dominance for the top four positions in each league, then Ligue 1 again emerges as the most balanced by virtue of being positioned in the bottom right quadrant of Figure 6. Spain also has the same number of teams as in France (11) to have been placed in the top four on one or more occasions in the 22 seasons examined, however the most successful team in La Liga (Barcelona) has 21 top four finishes compared to the most successful team in Ligue 1 (Lyon) with 18. Both the EPL and the Italian Serie A exhibit the fewest number of unique teams (11) to have be placed in the top four in these leagues. While more unique teams in the German Bundesliga secured top four finishes than in the top divisions in England and Italy (15 v 11), Bayern Munich achieved a top four finish in every season (22) compared with Manchester United (20) and Juventus (18).

<FIGURE 6 HERE>

Discussion

Our analysis shows evidence of a decline in overall competitive balance (as measured using HICB) in four of the 'big five' European football leagues (with the exception of Italy) over the last two decades and, more significantly, since the inception of lucrative broadcasting rights packages in the mid-1990s that have enhanced club revenue profiles. The evident decline in overall league competitive balance over time particularly in the case of La Liga (see Figure 2) is in conflict with the fundamental premise of a sport league in terms of the 'joint' nature of production and the requirement for competition within leagues (e.g. Dobson and Goddard,

2011). Historically, the two biggest Spanish clubs, Barcelona and Real Madrid, have monopolised the television rights deals for the league through individual selling of rights, which at one stage in recent years led to them securing almost half of the total rights value for themselves alone (see Deloitte, 2017). Such a distortion in the distribution of revenues could have an impact on the overall competitive balance of the league itself, which our findings confirm. It will be interesting to see in the future whether a move towards a more collective broadcasting agreement between all clubs can go some way to redressing the balance in La Liga. In comparison with academic literature that examines trends in competitive balance within individual leagues over time (see Table 1) our research provides the following insights:

- For England, our results differ from Szymanski (2001) who reported no significant changes in competitive balance in the English first division between 1978-1998; but are in line with Goossens (2006), Ramchandani (2012) and Plumley et al. (2017) who reported a decline in competitive balance in the English first division over varying time periods.

- For Germany, our results differ from Goossens (2006) who reported no significant changes in competitive balance in the German first division between 1964-2005; but are in line with Groot (2008) who reported a decline in competitive balance in this league between 1946-2006.

- For Spain our results differ from Groot (2008) who reported no significant changes in competitive balance in the Spanish first division between 1946-2006; but are in line with a more recent study by Montes et al. (2014) who reported a decline in competitive balance in this league between 1929-2012.

- For France our results differ from Goossens (2006), Groot (2008) and Michie and Oughton (2004) who reported no significant changes in competitive balance in the French first division over varying time periods.

- For Italy our results contradict previous studies (Goossens, 2006; Groot, 2008) that suggest a decline in competitive balance in the Italian first division.

Contradictory findings in this regard can be attributed to a combination of factors including differences in the time periods examined and the choice of competitive balance measures employed by different researchers.

When comparing the competitive balance between leagues using the HICB indicator some statistically significant differences between leagues emerged. Specifically, we found that competitive balance in the top tier of French football has been generally better than the corresponding divisions in England and Italy (see Figure 1). Ligue 1 was also found to be more balanced relative to Serie A when considering the level of competition for survival (see Figure 3). Furthermore, Ligue 1 tends to be dominated by more teams in comparison with all the other leagues examined (see Figure 5 and 6). These findings are consistent with previous research by Ramchandani (2012) who, using alternative measures, found that the most competitive top division football league in 2010 in Europe was France, which consistently appeared at the top of the competitive balance rankings. However, this finding was based on a single season. Using a longitudinal analysis, our results confirm this static 'one point in time' evidence.

It is worth considering here the revenue profile of clubs and leagues. A football club generate its income from three main sources: matchday revenue (from ticket sales), commercial revenue (from sponsorship deals) and broadcasting revenue (from TV companies). The first two of these are earned income (e.g. the club has ultimate control over

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their generation) but the final one (broadcasting revenue) is unearned (e.g. the club does not control the value of the TV deals and subsequent payment to clubs). As such, it is important to consider the nature of broadcasting deals (and the way in which they are shared out between clubs for the 'big five' leagues in the context of our results owing to the fact that clubs can use this money to invest in playing talent. France has the lowest total revenue for all clubs (€1.49 billion) and the lowest broadcasting deal (€0.66 billion) of all five leagues. England has the highest total revenues and highest broadcasting deal (€4.87 billion and €2.58 billion respectively). The distribution mechanism for broadcasting fees in the EPL is one of the most equal in Europe but the 'top' clubs still have the chance to earn more TV revenue through a combination of where they finish in the league and the number of times they are broadcast live on TV. Consequently, the fact that the EPL also command the highest broadcasting revenues in total (which in turn boosts the revenue of individual clubs) could go some way to explaining why there has been a decline in competitive balance in this league over the time period studied in direct comparison to the French league. However, we have not empirically tested for competitive balance against TV deals and subscriptions so it is important not to generalise here and recognise that there are also other potential factors at play.

In lieu of our findings it is also perhaps pertinent to revisit the discussion about the formation of a European Super League, a concept previously suggested whereby the 'top' clubs in the largest European leagues form a break-away European closed league and effectively disband from their own league association (see Vrooman, 2007). This has been a controversial topic in recent years, however, from a competitive balance perspective our findings do support the case for it. We support this case based on our findings around measures of dominance and the fact that, with the exception of Ligue 1 in France, the other four leagues have been dominated by a select number of clubs in relation to winning the title

and finishing in the top four. Thus, a breakaway European Super League (by removing the 'top' teams in respective leagues) may bring about the potential for a more balanced league comprising of the clubs left behind in their own domestic leagues. In respect of previous findings by Curran et al. (2009), there may also be an advantage for the breakaway teams if the European Super League was a closed league as their findings suggested that closed leagues are more competitively balanced than open leagues. Furthermore, it has been suggested that changes in competitive balance in domestic football leagues are related to the increased value of pay-outs from Pan-European competitions such as the UEFA Champions League (Pawlowski et al., 2010) meaning that the current European competitions that the top clubs compete in also provides them with a competitive financial advantage in their own respective domestic league versus those clubs that do not compete in European competitions.

As such, a logical recommendation to league organisers based on the extant literature would be to revisit the respective broadcasting distribution systems with a view to making them more equal and in line with the revenue sharing agreements present in US professional sports. A further, and more contentious, suggestion would be to alter the regulations on transfer fees, player wages and/or the number and value of commercial deals that an individual club can sign. Presently, there are a select number of clubs in each league that have the ability to attract more lucrative commercial deals than their rivals, thus further distorting revenue balance. A third option would be to cap ticket prices at a certain level or introduce a flat fee across the board again with a view to closing the revenue gap between clubs. The only differentiator in this case would then be the size of a respective clubs stadium whereby a larger capacity stadium would still retain the ability to earn more in gate money although charging a flat fee across the league would still negate the financial gap to a certain extent in respect of ticket sales.

Whilst these suggestions are controversial, they are not outside the scope of possibility. Indeed, the UEFA president has discussed with other officials recently the ideas of salary caps, luxury tax, squad limits and even reforming the transfer system within European football (Inside World Football, 2017). Radical overhauls of the current regulations (or lack of) could fuel further debate around a breakaway European Super League (which has its own advantages and disadvantages outlined previously) but discussions around such controversial suggestions already appear to be taking place within the industry itself.

However, the practical problem with these recommendations is that given the industry context league organisers may not even think that they have a problem to solve. Put simply, despite the statistical evidence suggesting a moderate decline in competitive balance over time, the actual leagues themselves - and the majority of their member clubs - are posting their highest revenue figures of all time, driven primarily by the increases in broadcasting deals in recent years. Whilst this remains the case, it can be proposed that is no real reason to change or challenge the status quo. However, if broadcast deals were to decrease in the next cycle, this could present a practical problem for the leagues and their member clubs moving forward. Given that our analysis spans two decades, and aligned with previous research stretching further back in time, there is clear evidence that competitive balance in a number of high profile European leagues appears to be declining and these findings are important given UEFA's directive that competitive balance is a key challenge for the industry moving forward.

Conclusion

Given the academic literature and the background context of sport economics the findings of this study are concerning for league organisers and associations. Competitive balance is a key component of a sport league and the consensus of the theoretical debate in the field is that a

league that is dominated by one or a select few teams is not an attractive product within the marketplace. Our findings, however, show this to be case in four out of the 'big five' European professional football leagues over the last twenty years. This is juxtaposed to the increasing television revenues that we have seen throughout the industry in recent years which is perplexing given extant economic theory. The theory states that decreases in competitive balance lead to a 'less attractive' product to take to market yet the broadcasting fees paid by television companies to the leagues (in particular the EPL) are currently at an all-time high (at the time of writing). With this in mind, it could be argued that it is time to rethink the economic theory of team sports given that we have provided confirmation that top flight football in the 'big five' European leagues continues to confound economic theory on the operation of sports leagues. There is perhaps a speculation here that the seemingly insatiable public demand for football (such as its deep cultural significance and the tribal nature of sports team support) could to some extent account for this situation but it may also be time to rethink the current the theory regarding the economics of professional team sport in the modern-day industry. Future research in the area may wish to consider such a proposal from a theoretical perspective.

The findings from this research also provide a useful starting point for wider comparative reviews. The European football market is much larger than the five leagues covered in this study. Indeed, UEFA consists of 55 national football associations; therefore a natural extension of this research would be to replicate the analysis for the remaining top division leagues in Europe to provide a full picture of the state of competitive balance on the continent. Such analysis would also provide a valid basis for monitoring the impact of UEFA's financial fair play regulations on the level of competitiveness in European football leagues. Given the timing of the introduction of financial fair play and the timing of the first reporting period, a logical extension of this research would be to begin to consider the nature

of competitive balance in a post-FFP climate. Whilst it may still be too early to draw substantial statistical evidence in relation to this topic it is a worthwhile avenue for future research direction.

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Table 1 - Overview of competitive balance studies in European football

Author(s)	Leagues Examined	Timeframe for Analysis	CB Measures
Koning (2000)	Dutch first division.	1970-2000	Standard deviation of points, concentration ratios.
Szymanski (2001)	English first division.	1978-1998	Co-efficient of variance (CV), Standard deviation of win percentages.
Michie and Oughton (2004)	French, English, Italian, German & Spanish first division.	1948-2004	Standard deviation of win percentages, five club concentration ratio (C5 index), Herfindhal Index of Competitive Balance (HICB), Lorenz Seasonal Balance Curve (LSBC).
Goossens (2006)	Belgium, Danish, French, English, Italian, German, Greece, Dutch, Portuguese, Sweden & Spanish first division.	1964-2005	Win percentage, three club concentration ratio (C3 index), Lorenz Seasonal Balance Curve (LSBC).
Groot (2008)	French, English, Italian, German, Dutch & Spanish first division.	1946-2006	Standard deviation of points, surprise index, top three and bottom three concentration ratios, superiority index.
Ramchandani (2012)	English Premier League.	1992-2010	Inter-quartile range (IQR), Top-bottom quartile (TBQ) gap, Coefficient of variance (CV), Top 25% concentration ratio (C25%), Top 50% concentration ratio (C50%), Hirschmann-Herfindhal index (HHI).
	German, Spanish, Italian, French, Dutch, Portuguese, Scottish, Swiss & Russian first divisions.	2010	
Montes et al. (2014)	Spanish first division.	1929-2012	Standard deviation of points, Gini index, Montecarlo test.

1

Table 2: Comparison of league sizes

Country	League	Time Period	Number of Seasons	Number of Teams
England	EPL	1995/96 - 2016/17	22	20
Germany	Bundesliga	1995/96 - 2016/17	22	18
Spain	La Liga	1995/96 - 1996/97	2	22
		1997/98 - 2016/17	20	20
Italy	Serie A	1995/96 - 2003/04	9	18
		2004/05- 2016/17	13	20
France	Ligue 1	1995/96 - 1996/97	2	20
		1997/98 - 2001/02	5	18
		2002/03 - 2016/17	15	20

2

Figure 1: HICB scores by country/league

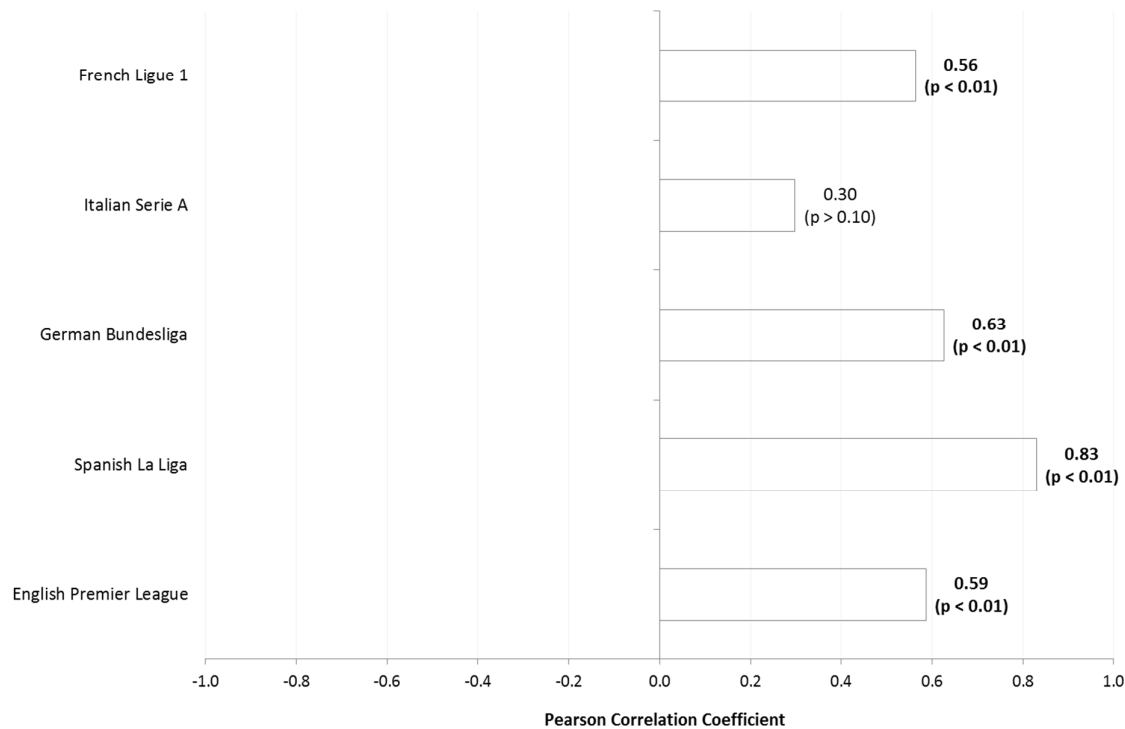Figure 2: Pearson correlation coefficient by country/league for HICB scores

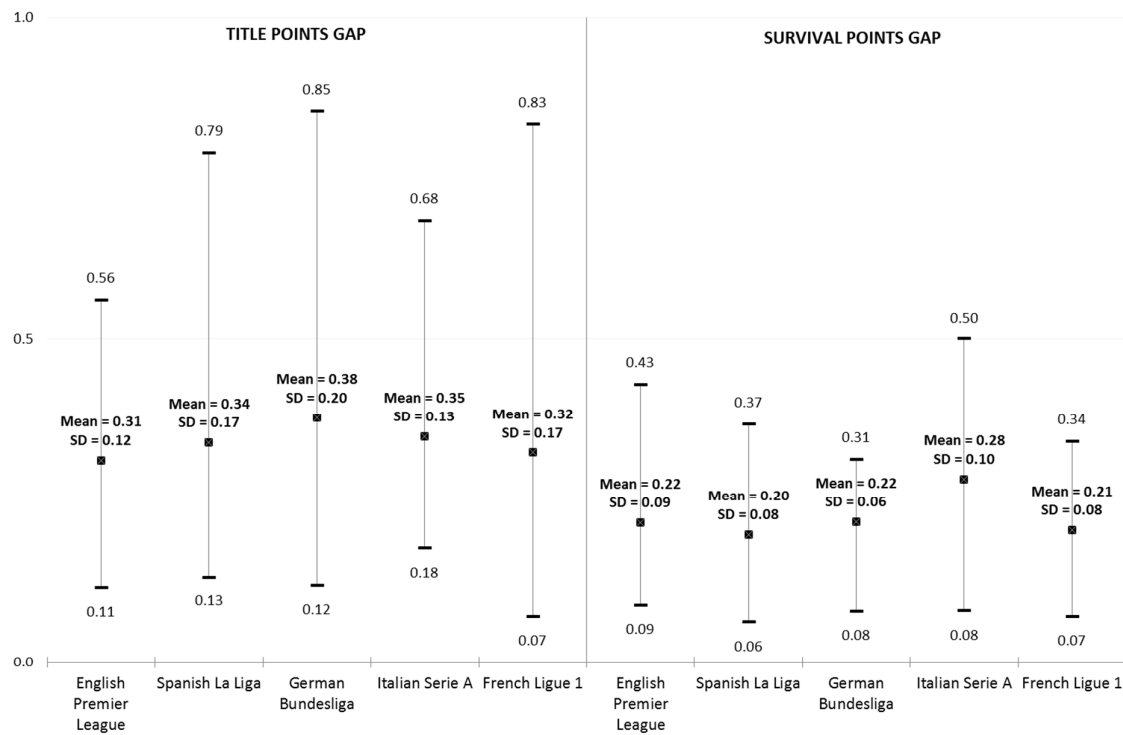Figure 3: Title points gap and survival points gap

Figure 4: Pearson correlation coefficient by country/league for title gap and survival gap
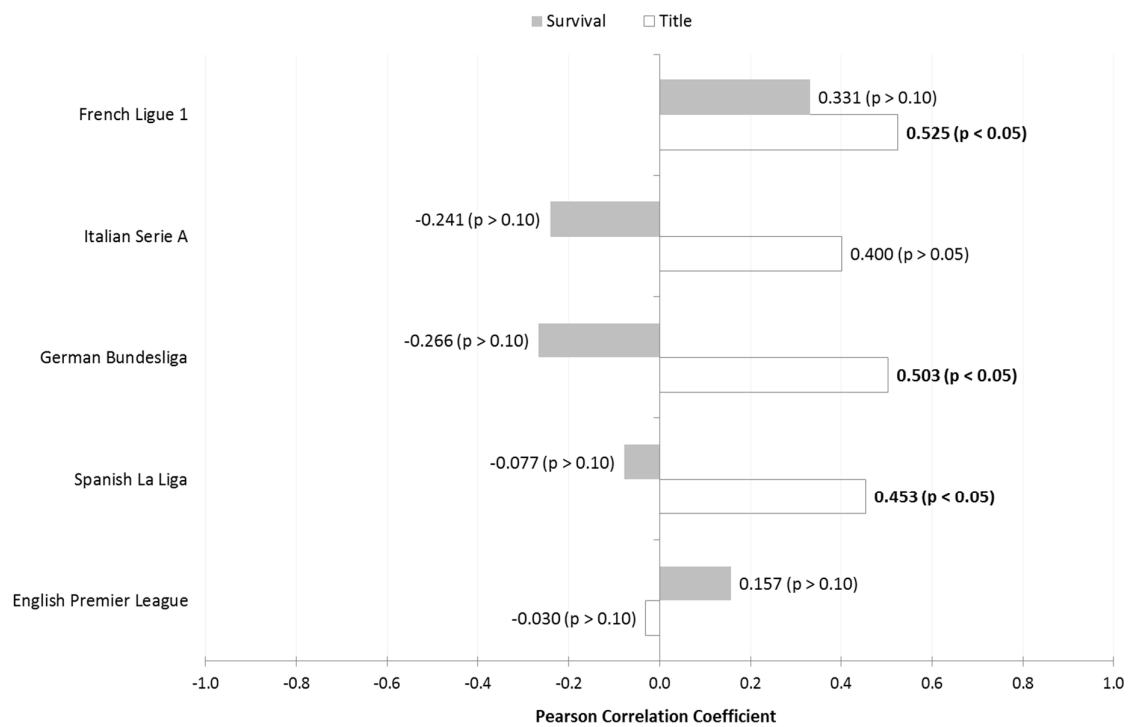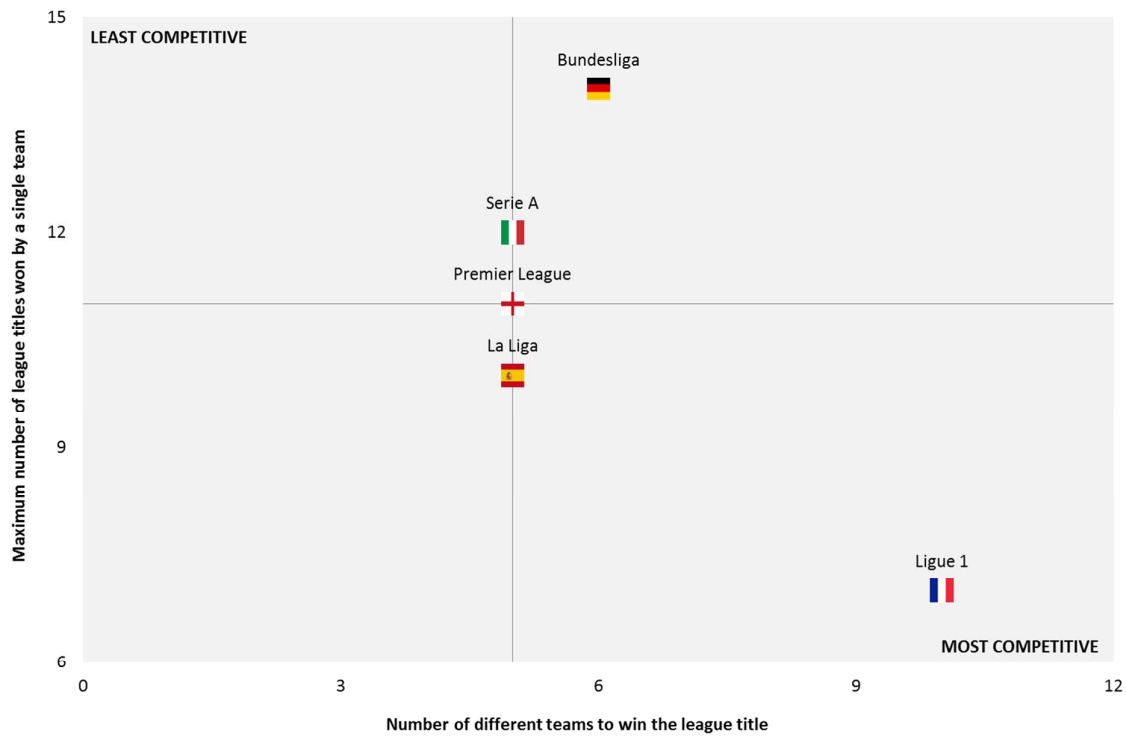
Figure 5: Dominance for winning the league title by country/league

Figure 6: Dominance for top four positions by country/league