Do all sporting prizes have a significant positive impact on attendance in a European national football league? Competitive intensity in the French Ligue 1

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Abstract

Research question: This article investigates the determinants of attendance at French football Ligue 1 matches over the 2008-2011 period, with a focus on the effect of competitive intensity. This is measured by dummies that are functions of the point difference for the home team in relation to the different sporting prizes: title, qualification in UEFA (Union of European Football Associations) club competitions, relegation. The objective is to answer the following question: do all sporting prizes have a significant positive impact on attendance?

Research methods: We specified and estimated a standard attendance equation including 35 explanatory variables of which 9 are related to sporting prizes. The estimations are based on a Tobit model with individual cut-off points to allow for truncation of attendance at the upper bound given by stadia capacity (i.e. sold-out games). 1135 observations are included.

Results and findings: Our results show that all sporting prizes have a significant positive impact on attendance. In particular, there is a significant impact of prizes for potential qualification in the UEFA Europa League which are dependent on the outcome of domestic cups (known only in the last part of season).

Implications: This research contributes to the optimisation of competition format and knowledge on competitive intensity and determinants of attendance. It provides an argument in favour of current sporting prizes for managers in the main European national football leagues.

Keywords: competitive intensity, sporting prizes, attendance, European football, French Ligue 1.

Introduction

In sports economics, uncertainty of outcome has been considered as a key success factor for professional team sports leagues ever since the seminal articles by Rottenberg (1956), Neale (1964) and Sloane (1969, 1971). It is generally associated with competitive balance in the literature (Andreff & Scelles, 2014; Fort & Maxcy, 2003; Fort & Quirk, 1995; Groot, 2008; Humphreys, 2002; Késenne, 2000; Maxcy & Mondello, 2006; Szymanski, 2003; Vrooman, 1995, 2013). According to this, a balanced contest between teams is required to generate uncertainty of outcome which attracts fans and thus creates public demand, which is measured through stadium attendance and TV audience. Nevertheless, the concept of competitive balance suffers from the weakness of not incorporating sporting prizes (winning the title, qualification in continental competitions or playoffs, promotion, relegation) that allow possible measures of incentives for teams and fans (Kringstad, 2005; Andreff, 2009). As Sloane (2006) argues, competitive balance between two teams becomes unimportant if there is no chance of a sporting success - no sporting prizes to be competed for.

In European national football leagues, the different sporting prizes and the competitive balance should be analysed bearing in mind the necessity to have teams competing for success in continental competitions. To achieve this, a national league should have strong teams with a better level than the others in the domestic championship and thus avoid a too balanced competition (Andreff, 2014; Andreff & Bourg, 2006; Jardin, 2009; Scelles, Desbordes & Durand, 2011a). More precisely, European national football leagues seem to require local rather than global competitive balance: competition among teams in contention for the title and qualification into the UEFA (Union of European Football Associations) Champions League; among teams in contention for qualification into the UEFA Europa League and among teams in contention for relegation. In other words, we need a concept that

includes both local competitive balance or uncertainty of outcome and sporting prizes. Kringstad and Gerrard (2004, 2005, 2007a, 2007b) propose such a concept through competitive intensity.

The aim of this article is to investigate the determinants of attendance at French football Ligue 1 matches over the 2008-2011 period with a focus on examining the effect of competitive intensity before a match. The model is inspired by Scelles, Durand, Bonnal, Goyeau and Andreff (2013a, 2013b). In this article, competitive intensity is measured by dummies that are functions of the difference in points for the home team in relation to different sporting prizes. We want to answer the following question: do all sporting prizes have a significant positive impact on attendance? If so, it will justify current sporting prizes in most European national football leagues. In particular, an objective is to know the impact of prizes for potential qualification in the Europa League which are dependent on the outcome of domestic cups (known only in the last part of season). Does the uncertainty on the definite consequence of such prizes reduce their interest for fans?

The article is structured as follows. First, we review the literature about competitive intensity, sporting prizes and attendance at European national football leagues. Second, we present the organisational structure of European football club competitions and, in particular, the French Ligue 1. Third, we outline the model specification for Ligue 1 attendance. Fourth, empirical results obtained for the 2008-2011 period (1135 observations[1]) are reported. Fifth, they are discussed with regard to their implications on the organisational structure in European football. Sixth, limitations and future directions are drawn.

Literature review

[1] There are 380 matches during each season. 5 matches are excluded from the analysis because they have been played *in camera* or in another stadium than the usual one.

The concept of competitive intensity

Kringstad and Gerrard (2004, 2005, 2007a, 2007b) propose competitive intensity as a concept integrating both outcome uncertainty and sporting prizes. According to them, as well as the degree of equality between team playing strengths, audiences are also interested in the prizes (sporting successes) that may be distributed in the league (Kringstad & Gerrard, 2007b). Consequently, competitive intensity relates to different sporting prizes: qualification for European competitions, relegation to lower divisions in European leagues or playoff selections in both North American and European leagues. Scelles et al. (2011a) use a measure of intra-championship competitive intensity – by contrast with intra-match competitive intensity (Scelles, Durand, Bah & Rioult, 2011b) – which is an extended approach in comparison to Kringstad and Gerrard's (2004) as it also includes the addition of changes in the league position. These changes and uncertainty of outcome correspond to the "League Standing Effect" (Andreff & Scelles, 2014; Neale, 1964). Intra-championship competitive intensity measures both uncertainty of outcome linked to sporting prizes (what is the percentage of teams in a situation of uncertainty considering the league table?) and changes in the league table related to sporting prizes. The inclusion of sporting prizes constitutes an extension to the "League Standing Effect" expressed by Neale (1964).

Competitive intensity and attendance

Neither Kringstad and Gerrard (2004, 2005, 2007) nor Scelles et al. (2011a) test the impact of intra-championship competitive intensity (called competitive intensity after this) and thus sporting prizes on attendance. Andreff (2009) notes that research in the 1980's and 1990's opened the way in showing a significant impact of sporting prizes on attendance: Jennett

(1984); Borland (1987); Cairns (1987); Dobson and Goddard (1992); Baimbridge, Cameron and Dawson (1996). None of these studies incorporate the point difference for the home team in comparison with its closest competitor with a different sporting prize, or the number of matches needed for a change of sporting prize, or a consideration of the sporting prizes at the bottom of the league as well as the top. Andreff (2009) notes that this research direction ceased because of its complexity. Scelles et al. (2013a) restart the debate through the concept of competitive intensity applied to the French Ligue 1. They find a significantly positive impact for competitive intensity measured by the point difference for the home team in comparison with its closest competitor with a different sporting prize.

Following this first contribution, Scelles et al. (2013b) have been interested in competitive intensity measured by dummies that are function of the point difference for the home team in relation to sporting prizes. The authors choose eight match temporal horizons: if the point difference makes a change in the sporting prize in the league possible as a result of the following match, the following two matches… until the following eight matches. In addition, they highlight the fact that in the Ligue 1, the fifth and sixth positions in the league can potentially qualify for the Europa League and are positions that guarantee qualifying or not qualifying dependent on the results of the two French cups, for which the outcomes are only known in the last part of the season (we develop this in the next section). According to the authors, competitive intensity can be measured with only definite sporting prizes in the league but also both definite and potential sporting prizes. Their results show that competitive intensity has a significantly positive impact at least at the 5% level only from the horizon of the three next matches with only definite sporting prizes but for all the horizons with both definite and potential sporting prizes.

Scelles et al. (2013b) test again their model but instead of considering dummies for an entire horizon of matches (the following three matches for example), they include dummies

measuring uncertainty of outcome only at the end of the horizon (only after the third match in our example). With these new dummies, only the first three are significant at the 1% level with only definite sporting prizes and only the first two with definite and potential sporting prizes for which the authors note that the results are more consistent. Indeed, the horizon of four matches is less significant than that of five matches with only definite sporting prizes, whereas this is the opposite with definite and potential sporting prizes, which is more logical. Scelles et al. (2013b) conclude that such results could indicate that spectators are interested in both definite and potential sporting prizes.

The importance of the different sporting prizes

A criticism of Scelles et al. (2011a) and Scelles et al. (2013a, 2013b) is the absence of distinction between the different sporting prizes. For these authors, the important point is that all teams have a sporting prize to compete for no matter what it is. There will be an assumption that the sporting prizes at the top of the standing are more attractive than the 'prize' of avoiding relegation. In line with this, Kringstad and Gerrard (2005) propose weightings for the European national football championships with 1 for the title, $1/1.5^2$ for direct entry to the Champions League, $1/1.75^2$ for entry to the Champions League qualifying rounds, $1/2^2$ for entry to the UEFA Cup (now Europa League) and $1/3^2$ for relegation. However, they do not test that each prize has a significant positive impact on attendance.

Pawlowski (2013) also distinguishes between different sporting prizes in German professional football: fight for the title, fight for qualification into the Champions League, fight for qualification into the Europa League and the fight against relegation. His objective was to measure what he calls the perceived competitive balance of fans through a written survey administered to German football fans. In particular, he asked them if they consider

that the fight for every sporting prize mentioned above remains exciting late into the season. Pawlowski (2013) finds that the respondents perceive the fight for the Champions League and Europa League and the fight against relegation as being very exciting and suspenseful. Nevertheless, he does not test their impact on attendance. This is the aim of our article.

Structure of European football club competitions and the French Ligue 1

Structure of European football club competitions

European football leagues operate on a merit-based pyramidal structure. Within any one country, the best performing teams are promoted from a given national league division to its immediately senior division on the basis of league ranking at the end of each season, with the poorest performing teams relegated to the immediately junior division on the same grounds (Szymanski, 2003). In the top division, the performance incentive is to achieve one of the highest ranking positions which offer qualification into Europe-wide continental competitions (the Champions and Europa Leagues). The number of places in continental competitions for a country depends on its UEFA country coefficient, which in turn is determined by the results of the clubs within a particular national association in the continental competition games over the previous five seasons. The UEFA ranking determines the number of teams competing in the season after the next one, not in the immediate season after the publication of the ranking. Thus, the rankings at the end of the 2013-2014 season determine the team allocation by association in the 2015-2016 UEFA season. However, the actual teams that will be participating are determined at the end of the 2014-2015 season when the individual

association classifications and national cups are finalised[2]. Table 1 sets out the impact of the UEFA country ranking on the number of places in continental club competitions.

Table 1

For a national league organiser, the objective is to have successful teams in continental competitions as it improves the league prestige and increases its UEFA country ranking. As a result, there are more domestic teams in continental competitions, meaning more chances to be successful (virtuous circle). Besides, more places in continental competitions provides more incentives for teams to reach a top ranking and *a priori* more incentives for fans to attend games. One place is allocated to the domestic cup winner. If the latter has already qualified for a continental competition through its placing in the league championship, its place as domestic cup winner was allocated to the domestic cup runner-up until 2013-2014 (to the team not already qualified in a continental competition with the best ranking in the championship from 2014-2015). If the domestic cup runner-up had also already qualified for a continental competition through the championship, the place in respect of the domestic cup was allocated to the team with the best ranking in the league championship not already qualified for a continental competition. As the domestic cup final ordinarily takes place at the end of a season, inevitably there is uncertainty around the consequences of attaining one position in the national league (i.e. qualifying or not for the Europa League) during the season itself. In the English Premier League and the French Ligue 1, there is a second place not allocated through the championship as it is intended to the league cup winner.

Structure of the French Ligue 1

[2] Source: http://en.wikipedia.org/wiki/UEFA_coefficient. Accessed January 2015.

The French football Ligue 1 is recognized as one of the six major European leagues, along with the English Premier League, German Bundesliga 1, Italian Serie A, Portuguese Primeira Liga and Spanish Liga 1 (see Table 1). It is a championship organized by the French professional football league (Ligue de Football Professionnel, LFP). The competition involves 20 teams and starts in late July or early August to conclude in middle or late May. Each team plays every other team, both home and away, so that there are 38 game weeks. For each match, a success provides 3 points, a draw 1 point and a defeat 0 point. At the end of season, the first ranked team is the champion whereas the three last teams are relegated. In the Ligue 1, as for the other European national leagues, the qualification of a team into European competitions depends on its final position in the league:

- the first two qualify for the next Champions League without participating in the preliminary round;
- the third qualifies for the Champions League preliminary round with the risk of being eliminated in this round and placed into the Europa League;
- the fourth qualifies for the Europa League.

The fifth and the sixth can also qualify for the Europa League dependent on the results of the two French cups: “La Coupe de France” and “La Coupe de la Ligue”. “La Coupe de la Ligue” is a contest between professional clubs only whereas “La Coupe de France” involves both professional and amateur clubs. The winners qualify for the UEFA Europa League (or the Coupe de France runner-up if the winner had already qualified for European competitions as a consequence of its position in the Ligue 1 until 2013-2014). If a winning club is part of the four first positions in the Ligue 1, the fifth qualifies for the Europa League; if the two French cup winner(s) is(are) part of the four first positions in the Ligue 1, then both the fifth and the sixth qualify for the Europa League. Consequently, the fifth and sixth ranks are

potentially qualifying ranks (rather than definite qualifying ranks) and become definitely qualifying or not qualifying ranks according to progress in the two French cups, for which the outcomes are only known in the last part of the season.

Model specification

We specify and estimate a fairly standard demand equation that makes distinctions among the explanatory factors that have an effect on attendance, the following groups of variables: socioeconomic variables, variables proxying the expected quality of the match, those capturing incentives for attending a match, the "season effect" (since there are three seasons) and variables measuring competitive balance and intensity.

The endogenous variable is the log-attendance for a match. Among the socioeconomic variables we include four indicators for the home team: the log-urban area population, the departmental percentage of young people (less than 25 years old), the log-arrondissement per capita income by hour and the departmental unemployment rate for the current month. The urban area population is comparable with the American Standard Metropolitan Statistical Area. Nevertheless, data about other socioeconomic variables is not available for the French urban areas. Our idea is to select values which correspond to the territorial scales that are not too different from urban areas. France is organized in different territorial scales, from the larger to the smaller: *régions*, *départements*, *arrondissements* and *villes* (cities). The level that best equates with an urban area is the arrondissement but data is available only for income on that scale, which is why we have selected departmental values for young people and unemployment. We expect to see the positive effects of population, percentage of young people and unemployment, and a negative effect of income. Indeed, previous studies about

football find it is an inferior good (Bird, 1982; Baimbridge, Cameron and Dawson, 1996; Falter and Pérignon, 2000; Scelles et al., 2013a, 2013b).

The expected quality of the match can first be measured by what Garcìa and Rodrìguez (2002) call ex ante quality, that is the quality of both teams at the beginning of the season, independent of performance previous to the match, and secondly by those variables proxying the most recent performance of both teams (current quality). In the first group, we take into account the log-budgets for both teams. Garcìa and Rodrìguez (2002, p. 20) note that "*they depend, among other things, on the salaries of the players, which should proxy their productivity*". Among the variables considered when capturing the recent performance of both teams we include the standings for both teams and the average number of goals scored at home by the home team before the match (for the first match of the season at home, we rely on the average number of goals during the last season). We expect all variables of increasing quality to have a positive effect on attendance, that is to say a negative sign for standings because the best rank is 1 and the worst is 20.

We include the game week and its square and a set of dummies so as to capture incentives for attending a football match. We incorporate television dummies, a geographical derby dummy, hooliganism dummy, a substitute dummy, a "waiting for a new stadium" dummy and a "promotion effect" dummy. A typical game week took place as follows over the 2008-2011 period: six matches at 7 pm on Saturday, one match at 9 pm on Saturday, two matches at 5 pm on Sunday and one match at 9 pm on Sunday. This latter is the major match of the game week and is broadcast on the paid subscription channel *Canal +*. This channel could be subscribed to alone or as part of a set of channels called *Canal Sat* that made the six matches at 7 pm on Saturday and the two matches at 5 pm on Sunday accessible. The match at 9 pm on Saturday was broadcast on *Orange Sport* which required a separate subscription. Matches were occasionally played during the week.

The substitute dummy incorporates possibilities that there is (a) rugby club(s) which play(s) in the first division in the urban area. In the French context, football is the most popular sport and generates much more income than the other sports. Nevertheless, rugby – which has known a strong economic development since 1995 and its professionalization – seems likely to become competition for football. The only cities with both clubs in the first division of football and rugby are Paris (one rugby club in 2008-2009, two in 2009-2010 and 2010-2011), Montpellier and Toulouse.

The hooliganism dummy involves one team in a single season: Paris-Saint-Germain (PSG) in 2010-2011. PSG had problems between two supporters associations which corresponded to the two stands in its stadium (Parc des Princes): Auteuil and Boulogne. In the 2010-2011 season, PSG ex-President Robin Leproux decided to stop subscriptions for Auteuil and Boulogne and established a random distribution of tickets in these stands. This decision, which was necessary to improve the atmosphere in the stadium, is expected to have a negative effect on attendance during the 2010-2011 season.

The "waiting for a new stadium" dummy is based on the future construction of seven new enclosures in Bordeaux (Girondins de Bordeaux, GB), Le Havre (Havre Athletic Club, HAC), Le Mans (Mans Football Club, MFC), Lille (Lille Olympique Sporting Club, LOSC), Lyon (Olympique Lyonnais, OL), Nice (Olympique Gymnaste Club Nice, OGCN) and Valenciennes FC (VAFC) (see Table 2). The new stadia will improve public comfort and the new capacity will be more consistent with potential local attendance.

Table 2

The "promotion effect" dummy concerns teams which played in Ligue 2 (French football second division) during the previous season.

We incorporate the "season effect" to distinguish whether matches were played in 2008-2009, 2009-2010 or 2010-2011.

Competitive balance is measured with betting odds through the Theil (1967) measure:

$$THEIL = \sum [p_i * log(\sum p_i / p_i)] / \sum p_i,$$

where p_i reports the home team's winning probability, the away team's winning probability as well as the draw probability of a certain match. The index is increasing with increasing (*a priori*) uncertainty of match outcome (Pawlowski & Anders, 2012).

Competitive intensity is measured by dummies that are functions of the point difference for the home team in relation to sporting prizes and the nature of these. The different sporting prizes are the following:

1) winning the league (first position);
2) direct entry to the Champions League (second position);
3) entry to the Champions League qualifying round (third position);
4) direct entry to the Europa League (fourth position and fifth position if the finalists of the French Cup belong to the four first ranks);
5) entry to the Europa League qualifying round (fifth position if the winner of the League Cup is in the four first positions, but not the winner or the finalist of the French Cup; or sixth position if both the finalists of the French Cup and the winner of the League Cup hold the five first positions);
6) potential direct entry to the Europa League (fifth position as long as we do not know if two teams among the four first position will participate in the French Cup final);
7) potential entry to the Europa League qualifying round (sixth position as long as we do not know if two teams among the five position ranks will participate in the French Cup final and one team among the five first positions will win the League Cup);

8) double prize (if the home team is concerned by sporting prizes both at the top and the bottom of the standing);
9) relegation (three last positions, i.e. eighteenth, nineteenth and twentieth).

It is important to specify that if a team is in contention for several sporting prizes among the first seven ("top prizes"), only the prize associated to the best ranking is taken into account (1 for this prize, 0 for the other prizes). We have to choose a temporal horizon to calculate our dummies, that is to say we have to determine what maximum point difference and thus what maximum number of matches are relevant to consider competitive intensity. Scelles et al. (2013b) suggest that the next match and the next two matches could be the most appropriate temporal horizons in explaining attendance but also find a significant positive impact for the next three and four matches. We rely on the first three horizons and control whether the fourth is too large to maintain public interest by adding two variables in the model for the next three matches: top prizes and relegation for the next fourth match.

So as to limit the number of observations with "double prize" which is difficult to interpret, we apply the following rule for the second and third horizon: if 1 match (2 matches) is sufficient for a top (bottom) prize whereas 2 matches (3 matches) are required for a bottom (top) prize, the prize is considered as a top (bottom) prize. For instance, for the second horizon, if a team is 2 points behind the sixth and 4 points ahead of the eighteenth, it is considered in contention for sixth position.

The basic data set comes from the French football league (LFP). The descriptive statistics and the sources of the variables are presented in Table 3.

Table 3

To allow for truncation of attendance at the upper boundary given by stadia capacity (i.e. sold-out games), we implement a Tobit model with individual cut-off points as in Burdekin and Idson (1991). Since the actual stadia capacity may vary from game to game due to safety measures etc., we set a capacity limit of 95% by further controlling for robustness at 90% as suggested by Forrest, Simmons and Szymanski (2004) as well as at 98% of capacity utilization as suggested by Pawlowski and Nalbantis (2015). The estimated standard errors are robust to heteroscedasticity (White, 1980).

Results

We estimated several versions of our equation using 1135 observations corresponding to the 1135 matches that took place in the French football Ligue 1 during the 2008-2011 period and can be integrated in our data (see footnote 1). We want to answer the following question: do all sporting prizes have a significant positive impact on attendance? When using a limit of 95% of capacity utilisation, attendance figures for 49 matches are right censored. We test the robustness of the results by employing a 90% and a 98% of capacity utilization limit as indicated before (respectively 171 and 18 right censored matches). Table 4 reports the results of the Tobit regression models using a limit of 95% of capacity utilization. When significance is different with 90% or 98% of capacity utilization limit, a note is added at the end of the table. The results for the different sporting prizes (other than relegation) are those without incorporation of the home team standing which captures an important part of their impact[3]. Our comments focus only on the different sporting prizes. For the other explanatory variables, results are globally consistent with our expectations and with Scelles et al. (2013a, 2013b).

[3] Their results with the home team standing are available upon request.

Table 4

Winning the title (prize 1), direct entry to the Champions League (prize 2), potential entry to the Europa League qualifying round (prize 7), double prize (prize 8) and relegation (prize 9) have a significant positive impact with the three horizons. It is also the case for entry to the Europa League qualifying round (prize 5) with the limit of 90% of capacity utilisation (not significant for the next match with the limits of 95% and 98%). Entry to the Champions League qualifying round (prize 3) and direct entry to the Europa League (prize 4) have a significant positive impact for the next two matches and the next three matches, but only with the limit of 90% of capacity utilisation for the next two matches for direct entry to the Europa League. Potential entry to the Europa League (prize 6) is not significant for the three horizons, except for the two next matches with the limit of 90% of capacity utilisation. In the model for the next three matches, relegation for the next fourth match has a significant positive impact only at the 10% level and top prizes for the next fourth match are not significant. This is partially consistent with the hypothesis that the horizon of the next fourth match is too large to maintain public interest. Summing up, all sporting prizes (except top prizes for the next fourth match) have a significant positive impact for at least one horizon with at least one limit of capacity utilisation.

An additional test consists of identifying whether sporting prizes have a significant positive impact for the next match, the next second match (instead of the next two matches, meaning that the next match is excluded so as to consider a possibility of change only at the end of the second match) and the next third match (instead of the next three matches). The problem with such a test is that we have to decide whether it is the importance or the closeness of the sporting prize that we have to promote. For instance, if a team can reach the

first position at the end of the next third match and the second position at the end of the next match, should we put a dummy equal to 1 for winning the title for the next third match (importance) or direct entry to the Champions League for the next match (closeness)? We test again our model by distinguishing the two cases: 1) the main sporting prize is promoted (importance); 2) the closest sporting prize is promoted (closeness). Table 5 reports our results[4].

Table 5

For the next match, all 9 sporting prizes have a significant positive impact in at least one of the two tests. For the next second match, this is the case for 8 sporting prizes with potential entry to the Europa League qualifying round (prize 7) being the only exception (not significant). For the next third match, this is the case for 6 sporting prizes, the exceptions being Europa League qualifying round (prize 5) and potential entry to the Europa League qualifying round (prize 7) which are not significant, and potential entry to the Europa League (prize 6) which has a significant negative impact (but only three matches are concerned); double prize (prize 8) has a significant positive impact only at the 10% level and with a limit of 90% of capacity utilisation in both tests.

For the next match, 8 out of 9 sporting prizes have a significant positive impact in both tests, potential Europa League (prize 6) being the only exception (not significant for importance). For the next second match, this is the case for 7 sporting prizes with Champions League qualifying round (prize 3) the only exception (not significant for closeness) among the 8 sporting prizes significant in at least one of the two tests. For the next third match, this is the case for only 3 sporting prizes among the 6 sporting prizes significant in at least one of

[4] We only report the results for the different sporting prizes. Those for the other explanatory variables are unchanged and available upon request.

the two tests. Indeed, winning the title (prize 1) and Champions League qualifying round (prize 3) are not significant for closeness and potential Europa League (prize 6) is not significant for importance). Summing up, all sporting prizes have a significant positive impact with both tests for at least one horizon.

Discussion

Our results are consistent with Scelles et al. (2013a) who find a significant positive impact of sporting prizes without distinguishing the different sporting prizes and Scelles et al. (2013b) who suggest that the next match and the next two matches could be the best temporal horizons to consider competitive intensity. Our research extends knowledge about the latter by showing that all sporting prizes are significant in a European national football league. This is consistent with the assumption expressed in Introduction which set out that European national football leagues require local rather than global competitive balance considering the need for strong teams that are better than the others so as to be competitive in European competitions.

Our results indicate that being in contention for a potential qualification in the Europa League or its qualifying round has a significant positive impact for at least one horizon. In other words, the uncertainty concerning the definite consequence of the fifth and sixth positions during the major part of the season does not prevent these positions from being attractive for fans. It gives an argument for LFP managers who organize both the Ligue 1 and "La Coupe de la Ligue" to keep this stance, although many French football stakeholders are not convinced that it is useful because it can remove a qualifying position for the Europa League. This is consistent with Scelles et al. (2013b) for whom taking into account potential sporting prizes in addition to definite ones when considering competitive intensity is relevant

as it leads to more logical results. Not only does “La Coupe de la Ligue” not have a negative impact on competitive intensity in the Ligue 1, but also it can “save the season” for a club which has no possibility of sporting success in other competitions. Generalisation of this aspect is limited in Europe as only England also allocates a place in the Europa League through its League Cup.

The significant positive impact of relegation on attendance is useful as it makes the argument in favour of keeping opened leagues rather than changing to closed or nearly-closed leagues in European professional football and more generally European professional team sports. In the specific framework of French major leagues (football, rugby and basketball), some managers highlight the weaknesses of opened leagues (Scelles, 2009, 2010). At microeconomic level, relegation and also the possibility of relegation are considered as economically bad for a club: relegation means less revenue and significantly less use of the stadium with possible dramatic consequences for clubs (examples of Le Mans, Grenoble and Strasbourg in France in the past years); the possibility of relegation is frightening for investors, sponsors and new stadium projects. At mesoeconomic level, opened leagues do not guarantee teams with the best economic potential in the championship. These problems, identified for French leagues, are applicable for the other European national leagues. Some authors suggest creating closed or nearly-closed European Superleague for the best teams (Hoehn & Szymanski, 1999; Szymanski, 2007; Vrooman, 2007). The fact that relegation, but also sporting prizes related to qualification (or possibility of qualification) in the continental competitions, have a significant positive impact on attendance provides an argument in favour of open national leagues with all domestic teams and sporting prizes related to qualification in the continental competitions rather than say a closed European Super League.

Limitations and future directions

Optimising competition format

Our research shows that all sporting prizes have a significant positive impact on attendance for at least one horizon. Nevertheless, 115 matches out of 1135 were without sporting prize with the horizon of the next three matches (77 matches with the horizon of the next four matches). This means that the Ligue 1 format could be improved, for example by the addition of sporting prizes which could be a qualification to relegation play-offs like in Russia (in fact, this will appear in the French Ligue 1 from 2016-2017 for the 18th position) and an additional place in continental competitions. However, at this juncture the Ligue 1 is closer to losing a place rather than gaining an addition qualification place (see Table 1). An alternative approach would be to reduce the Ligue 1 to 18 clubs in order to make those in the middle of the championship closer to sporting prizes at the same time diminishing the number of matches, considered by some actors as a factor decreasing French clubs' performance in continental competitions (Thiriez, 2013). Such a plan has been proposed by former LFP President Frédéric Thiriez (who has resigned on the 15th of April 2016; Get French Football News, 2016) and the French Minister of Sports Patrick Kanner but most of clubs are against this evolution and would prefer the disappearance of "La Coupe de la Ligue" (Foot01, 2014). A third solution would be to implement playoffs at the end of season. For example, the first eight teams could take part, meaning that the first eight positions would represent a sporting prize instead of the first six. The Belgian and Dutch leagues have established such playoffs. It would be interesting to measure whether competitive intensity for a qualification into the playoffs has a significant positive impact on attendance as current sporting prizes related to qualification in continental competitions.

Taking into account fans' expectations

Our results do not allow us to establish a clear overall hierarchy among the different sporting prizes from the perspective of what is most attractive for fans. Besides, when considering the horizon of the next second match, it can seem surprising that entry to the Europa League qualifying round (0.191±0.032 or 0.170±0.041) is more attractive than direct entry to the Europa League (0.085 or 0.086±0.041). How can we explain this unexpected result? Our proposition is that the attractiveness of sporting prizes for fans does not only depend on their absolute importance but also the anticipated position of the home team. Thus, if fans expect their club can be champion but it is only in contention for qualification in the Europa League, some of them will not attend matches. By contrast, if fans expect their club is not going to win or qualify for European competitions and it has the potential to reach the Europa League qualifying round, they will be more likely to attend matches. An avenue for future research could be to distinguish the determinants of attendance according to the club's budget (predictor for expected sports performances) and their stability in the first division over the period studied (no presence in the second division).

Extending the understanding of fan support

In our data, we do not distinguish whether the home team looks at keeping its position or reaching a better one. Now, this could impact attendance. In our results, the comparison between double prize and relegation for the next third match retains our attention. Indeed, double prize (including relegation) has a significant positive impact only at the 10% level and with a limit of 90% of capacity utilisation, whereas relegation has a significant positive impact. It could mean that fans are more likely to attend when their team is in a greater

difficulty and needs more support. This is consistent with the fact that relegation has a significant positive impact whereas top prize is insignificant for the horizon of the next fourth match. When testing again our last models (Table 5) by distinguishing whether a team has to keep or change its position for relegation with the next third match and the next fourth match, we find that only the next third match is significant for keeping its position whereas both the next third match and the next fourth match are significant for changing its position, consistent with the aforementioned interpretation[5]. Future research could extend the understanding of fan support according to their team position.

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[5] Results are available upon request.

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Tables

Table 1. Influence of the UEFA country ranking on the number of places in continental club competitions.

Ranking 2015-2016 as of 14 April 2016	Member association	Champions League places	Europa League places	Total places	Number of clubs	% places
1	Spain				20	35
2	Germany	4	3	7	18	39
3	England				20	35
4	Italy				20	30
5	Portugal	3	3	6	18	33
6	France				20	30
7	Russia				16	25
8-15		2	3	5		
16-31		1	3	4		
32	Liechtenstein	0	1	1		
33-51		1	3	4		
52	Gibraltar	1	1	2	10	20
53	Andorra				8	37.5
54	San Marino	1	2	3	15	20

Source: Wikipedia (UEFA coefficient)

Table 2. Urban area population, initial and new capacities, percentage of rise and year of inauguration of seven French stadia.

Club	Population	Initial capacity	New capacity	Percentage of rise	Year of inauguration
Bordeaux	1 009 316	34 500	42 000	21.7 %	2015
Le Havre	288 496	16 500	25 000	51.5 %	2012
Le Mans	304 937	16 500	25 000	51.5 %	2011
Lille	1 163 939[1]	18 000	50 000	277.8 %	2012
Lyon	1 757 183	41 000	61 500	50 %	2016
Nice	999 682	18 500	35 000	89.2 %	2013
Valenciennes	399 144	16 500	25 000	51.5 %	2011

[1] French part of Lille urban area but the city is close to the Belgian border and LOSC attracts Belgian spectators. The population to take into account would be rather around 1 800 000 inhabitants.

Sources: LFP, SPLAF and Wikipedia

Table 3. Descriptive statistics and sources.

Variable	Mean	Standard deviation	Source
Attendance	20,290	11,402	LFP (http://www.ligue1.com/)
Population	1,184,588	2,473,448	SPLAF (http://splaf.free.fr/)
Per capita income by hour (in €)	12.75	1.343	INSEE (http://insee.fr/en/)
Unemployment rate	0.064	0.011	Governmental Web Site (http://travail-emploi.gouv.fr/)
Young people (-25) rate	0.311	0.028	INSEE
Budget home team (M€)	51.92	34.72	France Football magazine
Budget away team (M€)	51.77	34.52	
Standing home team	10.73	5.692	
Standing away team	10.32	5.667	
Goals home team at home	1.332	0.539	
Game week	19.61	10.97	
(Game week)²	504.9	441.7	LFP
Game on weekdays	0.095	0.293	
Game on Saturday 7pm	0.539	0.499	
Game on Saturday 9pm	0.078	0.267	
Game on Sunday 5pm	0.195	0.396	
Game on Sunday 9pm	0.093	0.291	
Derby	0.072	0.259	Wikipedia (http://www.wikipedia.org/)
Rugby club in the area	0.132	0.339	
Hooliganism	0.017	0.128	
New stadium to come	0.300	0.458	UCPF (http://www.ucpf.fr/)
Home promotion effect	0.150	0.357	Wikipedia
Away promotion effect	0.150	0.357	
2008-2009	0.334	0.472	LFP
2009-2010	0.331	0.471	

2010-2011	0.335	0.472	
Competitive balance	1.038	0.068	Football Data (http://www.football-data.co.uk/)
Winning the league / next match	0.115	0.318	
Champions League / next match	0.096	0.295	
Champions League qualifying round / next match	0.072	0.259	
Europa League / next match	0.032	0.175	
Europa League qualifying round / next match	0.011	0.102	
Potential Europa League / next match	0.012	0.110	
Potential Europa League qualifying round / next match	0.028	0.166	LFP and Wikipedia
Double prize / next match	0.107	0.309	
Relegation / next match	0.201	0.401	
Winning the league / next 2 matches	0.218	0.413	
Champions League / next 2 matches	0.102	0.303	
Champions League qualifying round / next 2 matches	0.033	0.180	
Europa League / next 2 matches	0.045	0.207	
Europa League qualifying	0.010	0.100	

round / next 2 matches		
Potential Europa League / next 2 matches	0.007	0.084
Potential Europa League qualifying round / next 2 matches	0.014	0.118
Double prize / next 2 matches	0.130	0.337
Relegation / next 2 matches	0.270	0.444
Winning the league / next 3 matches	0.276	0.447
Champions League / next 3 matches	0.074	0.262
Champions League qualifying round / next 3 matches	0.033	0.180
Europa League / next 3 matches	0.033	0.180
Europa League qualifying round / next 3 matches	0.010	0.100
Potential Europa League / next 3 matches	0.008	0.089
Potential Europa League qualifying round / next 3 matches	0.014	0.118
Double prize / next 3 matches	0.146	0.353
Relegation / next 3 matches	0.304	0.460
Top prizes / next 4th match	0.011	0.106
Relegation / next 4th match	0.022	0.147

Table 4. Estimates of the attendance equation.

	Next match			Next 2 matches			Next 3 matches + top prizes and relegation for the next 4th match		
	Coef.	St. err.	Sig.	Coef.	St. err.	Sig.	Coef.	St. err.	Sig.
Population	0.221	0.003	***	0.220	0.009	***	0.222	0.009	***
Income	-1.976	0.096	***	-1.986	0.097	***	-2.023	0.096	***
Unemployment	2.204	0.950	**	2.310	0.954	**	2.155	0.949	**
Young people	1.344	0.280	***	1.287	0.280	***	1.204	0.283	***
Budget home team	0.719	0.022	***	0.725	0.022	***	0.730	0.022	***
Budget away team	0.192	0.016	***	0.188	0.016	***	0.186	0.016	***
Standing home team	-0.007	0.002	***	-0.007	0.002	***	-0.008	0.002	***
Standing away team	-0.003	-0.001	**[1]	-0.003	-0.001	**[1]	-0.003	-0.001	**
Goals home team at home	-0.003	0.013		-0.004	0.013		-0.003	0.013	
Game week	-0.009	0.003	***	-0.012	0.003	***	-0.013	0.003	***
(Game week)²	0.0003	0.0001	***	0.0004	0.0001	***	0.0004	0.0001	***
On weekdays	-0.038	0.027		-0.046	0.028	*[3]	-0.045	0.027	*[3]
Saturday 7pm	-0.001	0.025		-0.008	0.025		-0.005	0.025	
Saturday 9pm	0.001	0.029		-0.003	0.030		0.001	0.029	
Sunday 5pm	-0.034	0.026		-0.041	0.026		-0.037	0.026	
Sunday 9pm					ref.				
Derby	0.134	0.024	***	0.133	0.025	***	0.130	0.024	***
Rugby	-0.023	0.035		-0.016	0.035		-0.011	0.035	
Hooliganism	-0.187	0.038	***	-0.207	0.038	***	-0.217	0.038	***
New stadium to	-0.443	0.017	***	-0.442	0.017	***	-0.442	0.017	***

come									
Home promotion effect	0.217	0.020	***	0.223	0.021	***	0.222	0.020	***
Away promotion effect	0.075	0.018	***	0.066	0.018	***	0.067	0.018	***
2008-2009				ref.					
2009-2010	-0.173	0.017	***	-0.173	0.018	***	-0.168	0.019	***
2010-2011	-0.218	0.019	***	-0.214	0.019	***	-0.205	0.019	***
Competitive balance	-0.041	0.140		-0.065	0.141		-0.030	0.143	
Winning the league	0.152	0.022	***	0.137	0.026	***	0.171	0.032	***
Champions League	0.095	0.024	***	0.072	0.027	***	0.110	0.034	***
Champions League qualifying round	0.030	0.024		0.070	0.038	*	0.108	0.041	***
Europa League	-0.003	0.034		0.039	0.030	[4]	0.095	0.039	**[6]
Europa League qualifying round	0.071	0.048	[1]	0.148	0.040	***	0.137	0.052	***
Potential Europa League	0.084	0.072		0.093	0.057	[5]	0.075	0.077	
Potential Europa League qualifying round	0.133	0.036	***	0.141	0.055	**[6]	0.147	0.055	***
Double prize	0.083	0.031	***[2]	0.076	0.032	**[1]	0.105	0.036	***
Relegation	0.049	0.020	**[1]	0.050	0.023	**[1]	0.092	0.030	***
Top prizes / next 4th match		-			-		0.039	0.056	
Relegation / next		-			-		0.101	0.055	*

4th match									
Constant	-4.341	0.554	***	-4.288	0.561	***	-4.292	0.556	***
Observations					1135				
Log pseudolikelihood		209.3			202.2			202.7	
Sigma	0.194	0.004		0.195	0.004		0.195	0.004	

Robust standard errors in parentheses. * means $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$.

[1] Significant at the 1% level when censoring at 90%.

[2] Significant at the 5% level when censoring at 98%.

[3] No significant when censoring at 90% and 98%.

[4] Significant at the 10% level when censoring at 90%.

[5] Significant at the 5% level when censoring at 90%.

[6] Significant at the 1% level when censoring at 90% and 98%.

Table 5. Estimates of the attendance equation by distinguishing the next match, the next second match and the next third match for each sporting prize.

	Importance			Closeness		
	Coef.	St. err.	Sig.	Coef.	St. err.	Sig.
Winning the league / next match	0.229	0.035	***	0.239	0.035	***
Champions League / next match	0.096	0.049	*[1]	0.179	0.036	***
Champions League qualifying round / next match	0.104	0.053	*[2]	0.111	0.034	***
Europa League / next match	0.125	0.057	**[1]	0.078	0.041	*[2]
Europa League qualifying round / next match	0.202	0.060	***	0.138	0.054	***
Potential Europa League / next match	-0.006	0.038		0.171	0.077	**[1]
Potential Europa League qualifying round / next match	0.281	0.075	***	0.220	0.044	***
Double prize / next match	0.151	0.041	***	0.164	0.040	***
Relegation / next match	0.107	0.032	***	0.112	0.031	***
Winning the league / next second match	0.157	0.036	***	0.182	0.047	***
Champions League / next second match	0.115	0.038	***	0.152	0.051	***[6]
Champions League qualifying round / next second match	0.171	0.091	*[2]	0.090	0.068	
Europa League / next second match	0.085	0.044	*[1]	0.086	0.044	*[5]

Europa League qualifying round / next second match	0.191	0.032	***	0.170	0.041	***
Potential Europa League / next second match	0.182	0.076	**[1]	0.144	0.058	**[1]
Potential Europa League qualifying round / next second match	0.107	0.084		0.063	0.084	
Double prize / next second match	0.093	0.053	*[2]	0.100	0.052	*[5]
Relegation / next second match	0.069	0.036	*[3]	0.076	0.035	**[1]
Winning the league / next third match	0.132	0.038	***	0.173	0.142	
Champions League / next third match	0.147	0.048	***	0.090	0.040	**[7]
Champions League qualifying round / next third match	0.094	0.053	*[2]	0.036	0.070	
Europa League / next third match	0.136	0.094		0.166	0.085	*[5]
Europa League qualifying round / next third match	-0.007	0.051		-0.005	0.052	
Potential Europa League / next third match	-0.067	0.132		-0.205	0.077	***[8]
Potential Europa League qualifying round / next third match	0.030	0.065		0.029	0.065	
Double prize / next third match	0.065	0.056	[4]	0.068	0.056	[4]
Relegation / next third match	0.096	0.045	**	0.099	0.054	*[5]

Top prizes / next fourth match	0.033	0.056		0.035	0.056	
Relegation / next fourth match	0.096	0.055	*	0.097	0.054	*
Constant	-4.312	0.558	***	-4.415	0.555	***
Observations			1135			
Log pseudolikelihood		214.9			219.1	
Sigma	0.193	0.004		0.192	0.004	

Robust standard errors in parentheses. * means $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$.

[1] Significant at the 1% level when censoring at 90%.

[2] Significant at the 5% level when censoring at 90%.

[3] Significant at the 1% level when censoring at 90% and at the 5% level when censoring at 98%.

[4] Significant at the 10% level when censoring at 90%.

[5] Significant at the 5% level when censoring at 90% and 98%.

[6] Significant at the 5% level when censoring at 98%.

[7] Significant at the 10% level when censoring at 90% and at the 1% level when censoring at 98%.

[8] No significant when censoring at 90%.