



HAL
open science

Are French Football Fans Sensitive to Outcome Uncertainty

Luc Arrondel, Richard Duhautois

► **To cite this version:**

Luc Arrondel, Richard Duhautois. Are French Football Fans Sensitive to Outcome Uncertainty. *Economie et Statistique / Economics and Statistics*, 2020, 513, pp.5-26. 10.24187/eostat.2019.513.2001 . hal-02870529

HAL Id: hal-02870529

<https://cnam.hal.science/hal-02870529>

Submitted on 17 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Are French Football Fans Sensitive to Outcome Uncertainty?

Luc Arrondel* and Richard Duhautois**

Abstract – The idea that competitive balance increases the utility of fans, and therefore their spending and the revenue of professional clubs, lies at the heart of sports economics in general and the economics of football in particular. This notion of competitive balance is often invoked to explain the decisions of professional leagues to change the rules of competitions or the distribution of TV rights. However, the empirical literature shows that the relationship between competitive balance and fan demand is far from obvious. In this paper, we examine the idea of competitive balance as perceived by football fans. In the case of *Ligue 1*, it is mainly explained by medium- and long-term uncertainty, while in the case of the Champions League it is more a matter of long-term suspense. But uncertainty over the outcome is far from being the only factor explaining the demand for football since around 30% of fans report that they would always be willing to attend or watch games even in the hypothetical case that there is no suspense left.

JEL Classification: D12, L83

Keywords: competitive balance, uncertainty of outcome hypothesis, demand for football

Reminder: The opinions and analyses in this article are those of the author(s) and do not necessarily reflect their institution's or Insee's views.

* CNRS, PSE (luc.arrondel@ens.fr) ; ** CNAM (richard.duhautois@lecnam.net)

The authors are particularly grateful to Jean Le Bail of the sports newspaper L'Équipe, without whom the survey used in this paper would not have been possible. The comments of two anonymous reviewers were particularly helpful.

Received on 22 July 2018, accepted after revisions on 12 July 2019.

Translated from: "Les supporters français de football sont-ils sensibles à l'incertitude du résultat ?"

Citation: Arrondel, L. & Duhautois, R. (2019). Are French Football Fans Sensitive to Outcome Uncertainty? *Economie et Statistique / Economics and Statistics*, 513, 5–26. <https://doi.org/10.24187/ecostat.2019.513.2001>

The uncertainty of outcome hypothesis (UOH) has been a central hypothesis in sport economics since the 1950s (Rottenberg, 1956) in attempts to explain sport spectator “consumption” behaviour. The idea is that championships with unbalanced competitions – for example, where one team is superior to all the other teams – have a negative effect on fan “demand”, leading to a drop in stadium attendance and television ratings and, consequently, to a drop in club revenue. The notion of balance in competitions is termed “competitive balance”. Neale (1964) distinguished between the uncertainty of the outcome at the match level (the Louis-Schmeling paradox¹) and the uncertainty of the outcome of a competition (e.g. the French *Ligue 1* football championship), which he terms the “League Standing effect”: if teams in a league are of equal strength, there will be regular changes in the standings, thereby increasing spectator interest and, therefore, revenues.

However, most empirical studies of professional football have found no relationship between

outcome uncertainty and fan demand (see in Appendix 1 an annotated list of relevant studies). Thus, for example, research shows that stadium attendance is high in England and Germany but relatively low in France and Italy, without there being any evidence of a relationship with the competitive balance of the championships since the French league was associated with the highest level of uncertainty until the takeover of Paris Saint-Germain Football Club (PSG) by Qatar (Andreff, 2014, 2018).

The first reason is that the attractiveness of competitions depends on how they are run (see Box 1). An important distinction is between open leagues based on a promotion and relegation system (such as European football leagues) and closed leagues with no such system (such as North American leagues). In closed leagues, the

1. The idea behind the paradox is based on the following events: when, after a series of crushing victories, boxer Joe Louis suffered the first defeat of his professional career against Max Schmeling in 1936 (after 23 consecutive victories), interest in the American boxer paradoxically increased rapidly, as did his earnings.

Box 1 – The Organisation of Football in France and Europe

France’s national football leagues – in common with all European leagues – are based on a pyramidal structure. One of their key characteristics is the system of promotions (with teams moving up to the league above) and relegations (teams moving down to the league below). Competitions based on this model are known as “open leagues”, in contrast to the North American “closed league” model, where the promotion and relegation system does not apply. Closed leagues are based instead on the salary cap and draft systems, which allow teams to be rebalanced from one season to the next. Although the salary cap and draft systems are associated with specific rules in different sports, their goal is invariably to ensure, first, that each franchise (i.e. team) has the same wage bill and, second, to ensure that the bottom-ranked team gets to select the best players.

The number of promoted and relegated teams in the various European leagues varies in each division and has changed many times over the years. In France’s two highest divisions (*Ligue 1* and *Ligue 2*), all clubs are required to be professional: most are *sociétés anonymes sportives professionnelles* (professional sports limited company, or SASP), a status introduced at the end of the 1990s allowing, among other things, for dividends to be distributed. In the major European championships, the first and second divisions are generally the professional divisions. In England, the top four leagues are professional, and most clubs have been companies since the first professional league was formed in 1888.

Next come the amateur football divisions, with clubs operating as associations with non-professional players. Since the 2017-2018 season, France’s national amateur divisions have been called the “*National 1*” league, the “*National 2*” league (formerly the French Amateur Championship, or CFA) and the “*National 3*” league (formerly CFA 2). Most of the teams that play in these leagues are amateur clubs. Clubs that move down from *Ligue 2* to *National 1* are entitled to remain professional for a period of two years. Clubs return to amateur status if they fail to make it back into *Ligue 2* after two seasons. Below the national level, competitions are held at the regional level, managed by the leagues of each region, and at the departmental level, managed by departmental “districts”. A reform of the existing system was completed during the 2018-2019 season.

International (i.e. European) competitions – the Champions League and the Europa League – are reserved for teams from the various national leagues that have met certain sporting criteria, either as winners of their league and national cups or as the top-ranked teams in the league (the number varies from country to country). Because of the large number of teams, there are preliminary rounds before the final stages. The final stages involve two phases: first, a mini championship involving groups of four teams (each team plays six matches, at home and away from home) and then, for the first two in each group, knockout matches (at home and away from home), from the round of sixteen or thirty-two.

geographical proximity of teams from the same city in competing leagues allows consumers to switch stadiums if outcome uncertainty decreases. In European football, there tends to be less competition between national leagues precisely because they are split into separate ranked divisions (*Ligue 1*, *Ligue 2*, National, etc.). Above all, the rivalry between European teams based in the same city has often emerged along class or religious lines, which “morally” prohibit fans from “switching” clubs (Kuper & Szymanski, 2018). The second reason is that fan demand in football is not simply a matter of consumer behaviour. Fans prefer to see their favourite club win (Buraimo & Simmons, 2008) and to watch a famous team play even if it is a far superior team (Pawlowski & Anders, 2012).

Generally speaking, aside from uncertainty, the literature has identified five potential factors influencing the demand for football (Caruso *et al.*, 2019):

- (1) Sporting performance: the better the team performs, the higher the level of attendance at the stadium.
- (2) The quality of matches: the greater the quality of the two teams, the greater the number of spectators. Thus, the lower the team’s ranking in the league table, the lower stadium attendance tends to be.
- (3) Comfort: the newer the stadium, the greater the likelihood of supporters travelling to watch games; supporters are also sensitive to weather conditions and match schedules.

(4) Price, although fans’ sensitivity to ticket prices depends on which teams are playing.

(5) Television broadcasting of matches: while broadcasting can compete with stadium attendance, overall demand has increased sharply since the massive increase in match broadcasting in the 1990s.

One of the key features of all studies devoted to the effect of uncertainty on football demand is that uncertainty is invariably measured by *a priori* match and team data rather than fan perceptions (see Box 2). Such an approach requires data, but surveys on the “consumption” of football are long and difficult to administer. For example, Pawlowski (2013) conducted around 1,000 interviews over a period of two months in six stadiums and several bars in Germany using a limited number of questions. Outcome uncertainty is thus measured subjectively, i.e. as perceived by fans. The results of Pawlowski’s study show that fans are sensitive to uncertainty and believe that Germany’s top-flight football league is sufficiently balanced to justify continuing to attend or watch games.

An original survey was conducted for the purposes of the present study at the end of the 2015-2016 season to better understand the behaviour of football fans in France. The questionnaire was published online at the end of May on the website of the sports newspaper *L’Équipe* (lequipe.fr), generating more than 22,000 responses. Drawing on the information collected as part of the survey, an analysis, based for the first time on French data, is conducted of the factors that account for competitive balance as perceived by fans.

Box 2 – The Different Measures of Uncertainty

Competitive balance (CB) and the uncertainty of outcome hypothesis (UOH) are closely related and are often treated as interchangeable, with a few differences. UOH is treated as a forward-looking *ex ante* concept, defined in terms of the probability distribution of possible outcomes. By contrast, measures of CB are generally retrospective. However, the main difference between the two notions lies in the short term, with a more pronounced dimension on the uncertainty of the matches as well as uncertainty during the season.

As noted above, different time dimensions are relevant to measuring outcome uncertainty: the short term, the medium term and the long term.

Short-term uncertainty is the most commonly studied dimension. ST uncertainty is measured using two main sources of information: statistics on the relative performance of the two teams before a match and sports betting odds (see Appendix 1).

Medium-term uncertainty is the degree of uncertainty within the championship, i.e. winning the championship, qualifying for European competitions and relegation. MT uncertainty is measured using indicators of concentration such as the Gini index.

Long-term uncertainty refers to the long-term dominance of one team or of a small number of teams. LT uncertainty is measured using indicators such as the Herfindahl-Hirschman index, the variation of Gini indices, etc.

Competitive balance may relate to the short term (e.g. the outcome of a match), the medium term (e.g. the outcome of a championship in a given season) or the long term (e.g. repeat winners).

The results show:

- That fans believe the suspense of championships varies depending on the competition;
- That without any uncertainty, approximately 30% of respondents would still continue to attend or watch games;
- That the perceived competitive balance of *Ligue 1* is explained as much by medium- and long-term uncertainty as that of the Champions League is explained primarily by long-term uncertainty, i.e. about who wins the competition each year.

1. The Relationship between Uncertainty and the Demand for Football: A Literature Review

To estimate the relationship between fan demand and UOH, many studies have related stadium attendance to measures of competitive balance based on inequality indicators applied to league rankings. The earliest studies in this area were conducted on the English, Scottish and German leagues, while the most recent research has focused on other leagues (Brazilian, Portuguese, etc.). Falter & Pérignon (2000) and Falter *et al.* (2008) examined the French first division, although their core focus was not the effect of uncertainty but rather the determinants of football demand. For example, the regional economic environment is a key factor: the lower the wages and the higher the unemployment rate, the more likely people are to go to the stadium, reflecting the popularity of football.

Studies in this area initially focused on stadium attendance, while later studies have tended to concentrate on television audience demand following the increase in football broadcasting.² Meanwhile, other studies have sought to assess the possible substitution between stadium attendance and television broadcasting.

1.1. The Effects of Uncertainty on Stadium Attendance

Hart *et al.* (1975) examined the effect of the difference in rankings on stadium attendance among four teams in the English league between

1969 and 1972. The authors found no significant effect, a conclusion often reached in subsequent studies. Two studies of the Scottish Football League (Jennett, 1984; Cairns, 1987) found that outcome uncertainty positively influences stadium attendance, in line with the results of Rottenberg (1956) and American sports. The measures of uncertainty used include the difference in team rankings and the number of points needed to win the championship, i.e. short- and medium-term uncertainty. Jennett (1984) in particular showed that if a team still has a chance of winning the league, it will attract more people. Wilson & Sim (1995) reached the same conclusion using data from the Malaysia Premier League. Baimbridge *et al.* (1996) found no relationship between uncertainty variables and stadium attendance in examining the case of England. Simply put, they show that attendance gradually falls until the middle of the season before subsequently rising.

Peel & Thomas (1988, 1992) examined the effect of uncertainty on stadium attendance in England's four professional divisions using the *a priori* probability of home team success based on sports bets. Their results show a positive relationship between the probability of winning and stadium attendance, meaning that what drives fans is not uncertainty but the fact of seeing their team win. What fans want to see above all else are goals. Peel & Thomas (1996) further examined the effect of uncertainty by focusing on the top three Scottish divisions. One of the interesting points about these championships is that teams play against each other several times at home (in repeat fixtures) during the same season. This provides a degree of control over match characteristics. Their results support the findings of Peel & Thomas (1992): the relationship between stadium attendance and home team probability of success is a U-shaped curve, with fans being driven primarily by an easy win or a feat. Buraimo & Simmons (2008, 2009) examined the top divisions in England and Spain respectively and found the same U-shaped relationship.

Finally, establishing the actual demand for football is no easy task because of stadium capacity constraints. Czarnitzki & Stadtmann (2002) and Benz *et al.* (2009) examined the German premier league by seeking to take this constraint into account, but arrived at the same result, finding

2. Until 1983 in England and 1984 in France, league matches were not broadcast live on television. Football stakeholders feared that the competition generated by broadcasting might adversely impact stadium attendance. Some cup matches (European Cups, World Cups, Euros, National Cups, etc.) have been broadcast live since 1937, the year the first match was broadcast live (English Cup Final).

no effect of uncertainty on stadium attendance. The most recent studies in this area (Anders & Pavlowski, 2012; Cox, 2015; Bedina & Pershakov, 2017) also point in this direction. However, the study by Jang and Lee (2015) is worth noting, with the authors concluding that uncertainty has an effect in the South Korean league.

1.2. Does Broadcasting Games on Television Have an Effect on Stadium Attendance?

Today, the demand for football can no longer be reduced to stadium attendance. Since the late 1980s, the number of football matches – and indeed many other competitions – broadcast on television has sky-rocketed. For this reason, broadcasting rights have become the main source of funding for professional football, enabling the major European clubs in particular to buy the best players at a premium price and to fill stadiums.

The fact that all league games are broadcast on television can have a negative effect on stadium attendance but has a positive effect on overall demand. Garcia & Rodriguez (2002) examined the variables accounting for stadium attendance in the Spanish league between 1993 and 1996. Their results show that matches broadcast on television and midweek games attract the smallest audiences. The evidence shows that the effect of broadcasting is greater when matches are broadcast on a free channel. Buraimo & Simmons (2009) reached the same conclusion using data from Spain's top division. Forrest *et al.* (2004) found a similar relationship in their study of England's top division between 1992 and 2001 and showed that weekend matches are not necessarily associated with a drop in stadium attendance. Rather, attendance was again found to be dependent on the type of channel broadcasting the match (i.e. free or paid). Buraimo & Simmons (2008) found the opposite effect: in the same championship between 2001 and 2006, matches broadcast at weekends led to a slight drop in stadium attendance, while those broadcast midweek had no effect. Buraimo *et al.* (2006) examined the determinants of stadium attendance in the English second division between 1998 and 2004. The authors showed that broadcasting a match on a free channel reduces stadium attendance by more than 20% (5% on a pay channel). They also found that when “higher-end” matches – i.e. either matches involving the best top-flight teams or international matches – are held at the same time, spectators tend to travel less. Allan & Roy (2008) drew a distinction between three categories of

spectators: season ticket holders, occasional (“pay-at-the-gate”) home team supporters and pay-at-the gate visiting team supporters (who may of course be season ticket holders at the visiting team's stadium). Unsurprisingly, the evidence showed that season ticket holders do not change their habits and continue to go to the stadium even if the match is broadcast on television, as do visiting team supporters, who are highly motivated, while stadium attendance by pay-at-the gate spectators falls by around 30%.

1.3. Uncertainty Has a Greater Effect on Television Audience Demand

While the effect of uncertainty on stadium attendance is rarely significant, its effect on television audience demand appears to be slightly greater. Forrest *et al.* (2005) showed that outcome uncertainty has a positive effect on TV audiences in the case of top-flight English matches. Buraimo (2008) found no significant effect of uncertainty but a positive effect of star quality and the number of spectators in the stadium. Buraimo & Simmons (2015) studied the English league seasons over the 2000s decade and showed that uncertainty only had a positive effect in the first two seasons, confirming the idea that the biggest draw for TV viewers is watching the best players in the world. By contrast, Buraimo & Simmons (2009) found a significant relationship between television viewers and outcome uncertainty in their study of the Spanish league. Alavy *et al.* (2010) examined the minute-by-minute television behaviour of viewers of English league matches and found that viewers tend to switch channels when a draw looks likely. Schreyer *et al.* (2016, 2017) showed that uncertainty has a positive effect on TV viewers during high-stakes games in major international competitions and during league matches but has no significant effect during national cup matches. Lastly, Caruso *et al.* (2019) examined the Italian league and concluded that what attracts fans are stars and winning teams. Thus, a 1% increase in the wage bill of teams that play each other increases the number of TV viewers by around 0.75%, while a 1% increase in average points increases the number of viewers by around 0.7%.

2. Surveying and Measuring the “Suspense” of Competitions

An original questionnaire containing approximately 100 questions (including on the socio-

demographic characteristics of the respondents) was used to study the effects of uncertainty on football consumption in France. The survey '*Quel supporter êtes-vous?*' (What kind of fan are you?) was made available online in late May, at the end of the 2015-2016 season, for a period of three days on the website of the French sports newspaper *L'Équipe* (lequipe.fr). The final database contains 21,716 observations, some with missing values. The questionnaire took approximately twenty minutes to complete.

Since this is the first fan survey of this kind, it is difficult to determine how representative it is. According to *Nielsen Sport* (2018), 50% of the French over the age of sixteen claim to be "interested" or "very interested" in football. Of the 50% with an interest in football, approximately 85% appear to be "fans" of at least one *Ligue 1* team. According to *Statista* (2018), the fan population is predominantly male (63%) and significantly younger than the total population (with the over 65s being half as represented, i.e. 8% compared to 16%). The definition of "supporter" can be narrowed even further by distinguishing between "ardent fans", "enthusiasts" and "fans", i.e. those who "systematically or almost systematically" follow football competitions and news.

In all likelihood, the "football enthusiast" sub-group was the key population that responded to the survey on the *L'Équipe* website (see Table 2): members of the sub-group are clearly younger than the general population of supporters (less than 2% are aged over 60) and women appear to be largely underrepresented (less than 5%). In relation to usual visitors to the website of the sports newspaper, the representativeness biases tend in the same direction. To take into account the specificities of the sample used, the study involved specific processing operations based on age (18-26 age group as compared to those aged over 26) to confirm the main findings (see Appendix 2).

Table 1 summarises the distribution of variables reflecting interest in and consumption of football and the socio-demographic characteristics of the respondents. Unsurprisingly, almost all the respondents were found to be very interested in the various European competitions – except for *Ligue 2*, in which only a minority of ardent fans have an interest – and to be avid consumers of football, both on television and at the stadium. Most were men (96.5%), young (almost 85% were aged under 40) and living alone (55.2%) relatively far from stadiums (the

median distance between the place of residence and the stadium was 75 kilometres). Most of the respondents were in the labour market (63.1%) and almost 20% earned more than 30,000 euros per year. Lastly, 25% lived in the Paris region, 97% were French and two-thirds had no children.

The initial focus was on the level of uncertainty as perceived by fans in the main professional football leagues in both France (*Ligue 1* and *Ligue 2*) and Europe (Champions League and Europa League). The following question was asked about each league: "*Over the last few seasons, how would you rate the 'suspense' of [the competition in question] (on a scale of 0: no suspense at all to 10: a lot of suspense)?*" Figures I and II show the distribution of responses to these questions. In the case of *Ligue 2*, the Champions League and the Europa League, the results were roughly identical: the mode was 8 (relatively high suspense), the median 7 and the mean 6.64, 7.02 and 6.96 respectively. Pawlawski (2013) found similar results for the German league, with a mode of 8 but a slightly higher mean (slightly above 8) and a distribution highly concentrated around high values. This result may seem surprising for a league that has been dominated since the 1970s by Bayern Munich. On the other hand, in the case of *Ligue 1*, fans have incorporated the dominance of Paris Saint-Germain since 2011 and its takeover by Qatar into their perception of suspense, with a mode of 0 (no suspense at all), a median of 3 and a mean of 3.36.

The appendix includes additional processing operations according to age and the teams supported. Although there are small percentage differences between "young" and "old", the distributions have similar characteristics (see Figure A2-I in Appendix). At most, there is a slight positive effect of young people on the perceived competitive balance of the Champions League.

Figure A2-II shows the level of perceived suspense depending on the team supported. Four categories were selected (see Table A2-1 in Appendix 2 on the season's standings): the league champion (PSG, who finished 31 points ahead of the runner-up), the teams qualified for European competitions (those ranked 2nd to 6th), those in the middle of the table (ranked 7th to 16th) and, lastly, those fighting to avoid relegation right up until the last match of the season (ranked 17th to 20th). The results show that those who support teams vying for

European qualification or fighting to avoid relegation perceive the highest level of suspense, unlike teams in the middle of the table, i.e. unchallenged clubs. PSG fans rate the level of suspense as neither high nor low. In other words, the competitive balance of *Ligue 1* as perceived by fans is a highly subjective notion that appears to depend heavily on the ranking of the team supported. However, the individual perception of competitive intensity is a factor that must be taken into account when seeking to explain the “demand” for football.

3. Suspense and Fan Interest in Football Competitions

To measure the effect of suspense on football consumption intentions, the following questions were asked about *Ligue 1* and the Champions League, the two flagship competitions followed by fans living in France:

(1) “At what minimum level of suspense (on a scale of 0: no suspense at all to 10: a lot of suspense) would you be likely to lose interest in [the competition in question]?”

Table 1 – Respondent characteristics (N = 21,716) and variables of interest (%)

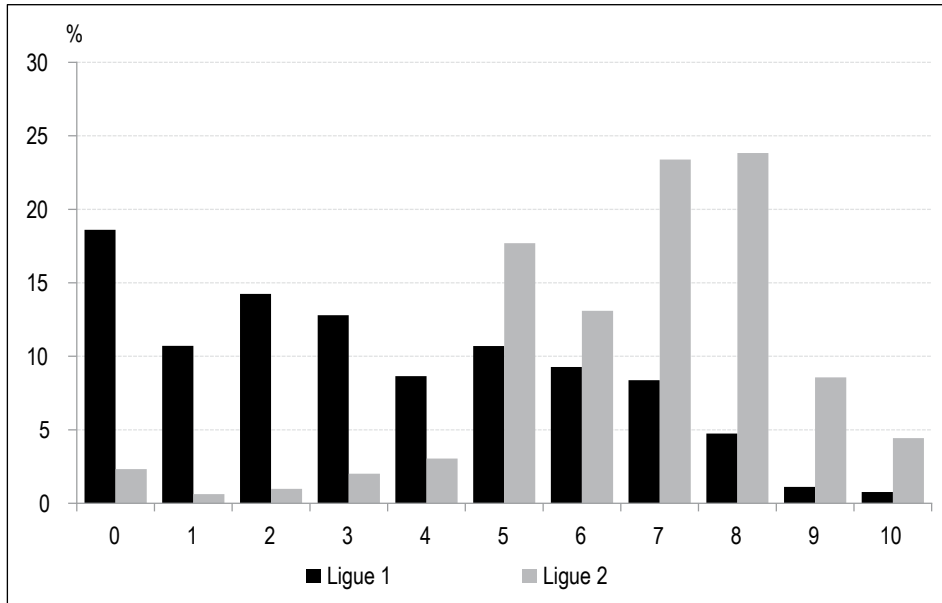
Interest in football (7-10; 4-6; 0-3)	(93.1; 5.8; 1.1)
Interest in <i>Ligue 1</i> (interested; not interested)	(95.2; 4.8)
Interest in <i>Ligue 2</i> (interested; not interested)	(44.7; 55.3)
Interest in the <i>Coupe de France</i> (interested; not interested)	(74.8; 25.2)
Interest in the Champions League (interested; not interested)	(96.3; 3.7)
Interest in the Europa League (interested; not interested)	(81.8; 18.2)
Interest in the English Premier League (interested; not interested)	(84.0; 16.0)
Interest in the Spanish <i>Liga</i> (interested; not interested)	(79.3; 20.7)
Interest in the German <i>Bundesliga</i> (interested; not interested)	(59.0; 41.0)
Interest in the Italian <i>Serie A</i> (interested; not interested)	(51.8; 48.2)
Interest in other leagues (interested; not interested)	(19.8; 80.2)
Supporters club (no; yes)	(82.5; 17.5)
Season ticket (no; yes)	(83.8; 16.2)
Number of teams supported (none or one team; several teams)	(79.4; 20.6)
Degree of attachment to a team (7-10; 4-6; 0-3)	(93; 6; 1)
Distance (in km) from your favourite team's stadium (Q1; median; Q3)	(19; 75; 450)
Visiting sports websites online (no; yes)	(12.9; 87.1)
Reading written sports press (never; once a week; more than once a week)	(16.7; 42.9; 40.4)
Sports channel subscription (no; in the past; yes)	(26.1; 12.1; 61.8)
Plays or has played football (no; in the past; yes)	(15.8; 51.8; 32.5)
Football culture (non-existent; low; medium; high; very high)	(0.5; 0.9; 16.3; 54.8; 27.5)
Having a father and/or mother who play(s)/used to play football (don't know; no; yes)	(2.5; 58.3; 39.2)
Gender (male, female)	(96.5; 3.5)
Age (<26; 26-40; 41-60; >60)	(44.8; 38.7; 14.6; 1.9)
Nationality (French; other)	(97.1; 2.9)
Education (higher; secondary)	(58.8; 41.2)
Relationship status (single; in a relationship)	(55.2; 44.8)
Annual net wage (no income; <€30,000; >€30,000)	(31.7; 48.6; 19.8)
Labour market (employed; student or unemployed)	(63.1; 36.9)
Number of children (0; 1; 2; >2)	(64.5; 11.6; 16.4; 7.5)
Region (Paris region; province)	(25.0; 75.0)

Reading note: 95,2% of respondents reported being interested in *Ligue 1*.
Sources: PSE-*L'Équipe*, survey *Quel supporter êtes-vous ?* - 2016.

(2) “At what minimum level of suspense (on a scale of 0: no suspense at all to 10: a lot of suspense) would you be likely to stop going to the stadium to watch [the competition in question]?”

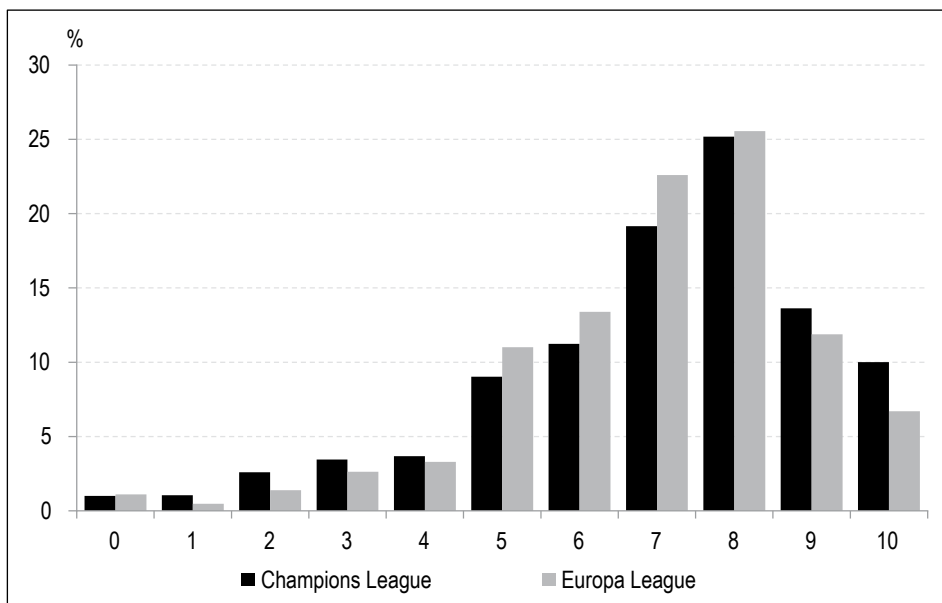
(3) “At what minimum level of suspense (on a scale of 0: no suspense at all to 10: a lot of suspense) would you be likely to stop watching [the competition in question] on TV?”

Figure I – Perceived competitive balance in *Ligue 1* and *Ligue 2*



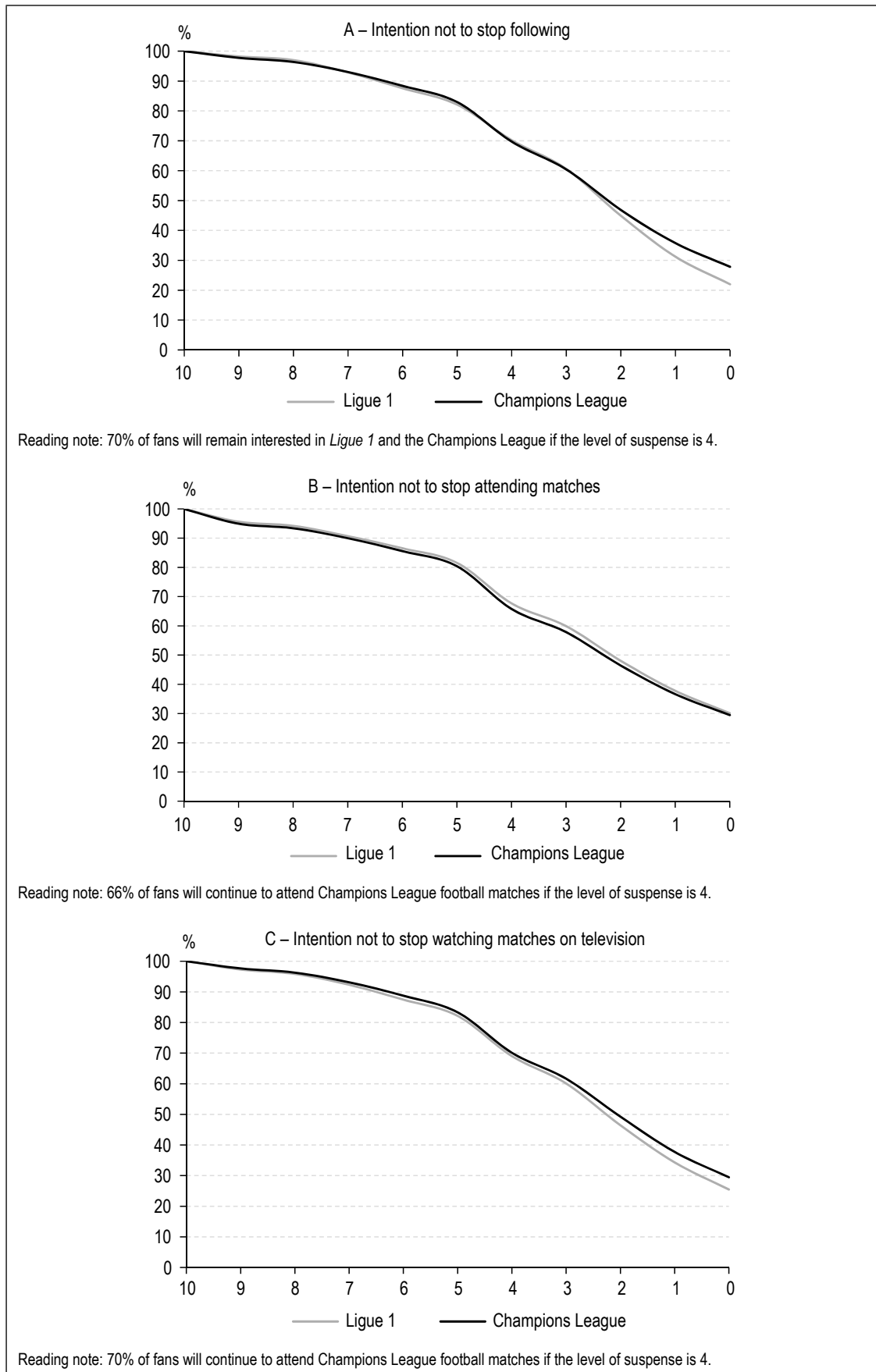
Notes: 0 = “no suspense” / 10 = “a lot of suspense”. *Ligue 1*: 21,283 responses, 433 missing values; *Ligue 2*: 21,045 responses, 671 missing values.
 Reading note: 18% of fans feel there is no suspense in *Ligue 1*.
 Sources: PSE-*L'Équipe*, survey *Quel supporter êtes-vous ?* - 2016.

Figure II – Perceived competitive balance in the Champions League and the Europa League



Notes: 0 = “no suspense” / 10 = “a lot of suspense”. Champions League: 21,604 responses, 112 missing values; Europa League: 21,513 responses, 203 missing values.
 Reading note: 25% of fans feel there is a lot of suspense (8 out of 10) in the Champions League.
 Sources: PSE-*L'Équipe*, survey *Quel supporter êtes-vous ?* - 2016.

Figure III – Football consumption intentions



Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

The first question relates to “total demand”, the second question to “stadium” demand and the third question to “television” demand. Figures III-A to III-C summarise the responses to these three questions. The curves were plotted as a survival function using the Kaplan-Meier estimator. The results obtained from the questions are ranked from highest to lowest (10 to 0) and the number of responses is added together. The proportion of individuals who “survive” after each level of “suspense” is then calculated. Thus, if the uncertainty was at its highest level (value 10), none of the respondents would give up going to the stadium or watching the game on television (Figures III-B and III-C). In other words, for 100% of the respondents, the minimum level of suspense that would make them give up is less than 10. On the contrary, if there was no uncertainty (value 0 of the level of suspense), only about 30% of the fans would still go to the stadium (figure III-B).

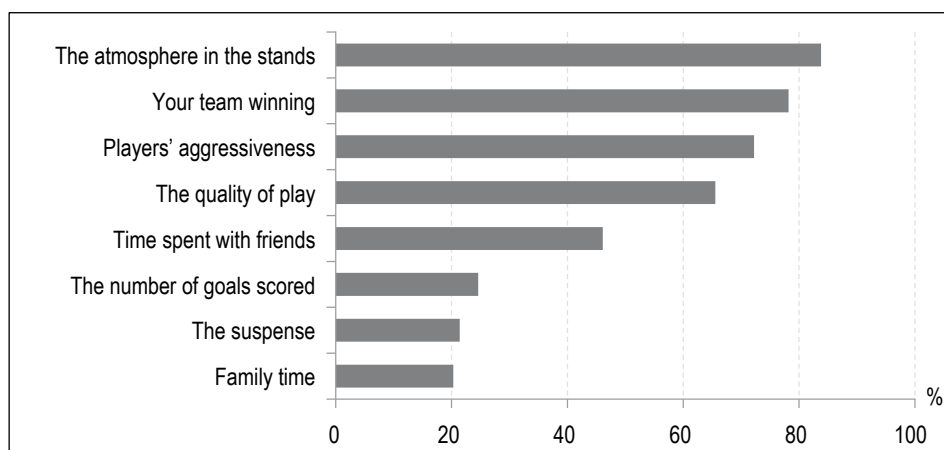
The appendix provides the same curves (see Figures A2-III to A2-V), with a distinction made between “young” and “old” supporters. In relation to the comments made above, younger supporters appear to be less sensitive to outcome uncertainty than their older counterparts: in general, 30 to 40% of those aged 26 and under would continue to take an interest in competitions even if there were no suspense, compared to just 20% of those aged over 26.

Two important results emerge from these figures. The first is, of course, the similarity of the curves for the different types of demand and competitions. Finally, intentions to stop following

football do not depend on the competition or the method of consumption. The second interesting finding relates to the absence of any relationship between perceived uncertainty and intention to consume. While the reported level of uncertainty varies widely between *Ligue 1* and the Champions League (Figures I and II), the intention to stop following each competition shows almost the same profile. This effect is consistent with the literature cited above on professional football, which is inconclusive on the relationship between outcome uncertainty and fan demand. In football, fan demand cannot be reduced to a simple matter of consumer behaviour: fans prefer to see their favourite team win (Buraimo & Simmons, 2008), as is the case in *Ligue 1*, and to see a top club play even if it is a far superior team (Pawlowski & Anders, 2012), as is the case in the Champions League. This tends to be the spontaneous response of fans who attend games when asked about what they are most sensitive to (Figure IV): the atmosphere (84%), winning (78%) and players’ aggressiveness and fighting spirit (72%) are the factors cited most often, with suspense lagging a long way behind (21%).

Respondents were also asked to comment on seventeen items relating to several types of uncertainty in *Ligue 1* and the Champions League: short-term uncertainty (ST), medium-term uncertainty (MT) and long-term uncertainty (LT), with four possible answers for each item: “*strongly disagree*”, “*somewhat disagree*”, “*somewhat agree*” and “*strongly agree*”. Table 2 shows the distribution of responses. Most focus on the two median responses, except for the

Figure IV – At football matches, what are you most sensitive to... (multiple answers possible)



Reading note: 21,4% of fans who attend football matches are sensitive to the “suspense” of the match.
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

following items. In the case of *Ligue 1*, 45% of respondents “strongly agree” that the fight to stay in *Ligue 1* is interesting, while nearly three-quarters of respondents (72.1%) “strongly disagree” that many different teams win the French *Ligue 1*. The context here is both PSG’s dominance since 2011 and the fact that three teams were relegated from the French league at the end of every season until the 2015-2016 campaign.

At the end of the 2016-2017 season, instead of three *Ligue 1* teams being relegated to *Ligue 2*, the team ranked 18th competed in a play-off game against the team that finished 3rd in *Ligue 2*, providing a further opportunity to remain at the highest level and thereby limiting the uncertainty over which teams would remain in the top league. That is why the French Professional Football League (*Ligue de football professionnel*, or LFP) introduced a system of pre-play-off ties in the

Table 2 – Distribution of responses to questions on uncertainty as perceived by fans

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Missing values	Disagree	Agree
Short Term (ST)							
<i>Before a game, there is no way of knowing which team is going to win</i>							
<i>Ligue 1</i>	9.8	42.0	39.8	4.9	3.4	51.8	44.7
Champions League	9.8	39.2	38.1	8.9	4.1	49.0	47.0
<i>Teams playing at home have just as much chance of winning as teams playing away from home</i>							
<i>Ligue 1</i>	9.7	39.8	40.7	6.2	3.6	49.5	46.9
Champions League	13.8	46.3	29.8	5.6	4.5	60.1	35.4
<i>There are no real favourites in any match</i>							
<i>Ligue 1</i>	19.6	49.3	24.9	2.5	3.8	68.9	27.4
Champions League	17.7	51.9	22.0	3.9	4.5	69.6	25.9
Medium Term (MT)							
<i>Ligue 1</i>							
<i>The battle for Champions League qualifying spots remains thrilling until the end of the season</i>	5.8	12.1	46.0	32.7	3.4	17.9	78.7
<i>The battle for Europa League qualifying spots remains thrilling until the end of the season</i>	5.0	13.2	51	27.3	3.5	18.2	78.3
<i>The battle to avoid relegation remains thrilling until the end of the season</i>	3.7	5.9	41.9	45	3.5	9.6	86.9
<i>Champions League</i>							
<i>The race to win the league remains thrilling until the end of the season</i>	3.7	7.3	38	46.5	4.6	11.0	84.5
<i>The Champions League group stage remains thrilling</i>	6.8	19.7	49.6	19.7	4.6	26.5	69.3
<i>The Champions League knockout stage remains thrilling</i>	2.6	4.2	36.5	52.2	4.5	6.8	88.7
Long Term (LT)							
<i>Ligue 1</i>							
<i>Many different teams win the league</i>	72.1	17.9	3.7	1.7	4.6	90.0	5.4
<i>Many different teams qualify for the Champions League</i>	33.7	47.3	12.3	2.2	4.5	81.0	14.5
<i>Many different teams qualify for the Europa League</i>	12.0	35.4	42.5	5.9	4.3	47.4	48.4
<i>Many different teams were relegated</i>	7.3	23.1	49.3	16.3	4.0	30.4	65.6
<i>Champions League</i>							
<i>Many different teams win the Champions League</i>	16.3	43.3	25.8	10.0	4.7	59.6	35.8

Note: 21,716 observations. ST=short term; MT=medium term; LT=long term.

Reading note: 5.0% of fans strongly disagree with the following statement: “The battle for Europa League qualifying spots remains thrilling until the end of the season”.

Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

2017-2018 season for clubs finishing 3rd, 4th and 5th in *Ligue 2*. According to the chosen format, the fifth-placed team first plays away against the team ranked fourth. The winner of that match then plays away against the third-placed team. Finally, the winner of that match plays against the team ranked 18th in *Ligue 1* in a promotion/relegation play-off.³

In the case of the Champions League, around half of the respondents “strongly agree” that the race for the title (46.5%) and the knockout stages (52.2%) remain thrilling. The uncertainty of the Champions League is relatively high since, in the event’s current version, no team between 1992 and 2016 has won the competition two years in a row.⁴ In the group stage, big-budget teams end up playing against “small” budget teams and have no difficulty qualifying because of the huge difference in wealth. In the subsequent knockout stage when teams go head to head, the effect of differences in wealth tends to decrease, with sporting performance and team qualities regaining the upper hand, as does uncertainty.

4. The Determinants of Perceived Competitive Balance in *Ligue 1* and the Champions League

To test the effect of different uncertainties on perceived competitive balance, a “score” grouping items in their respective uncertainty category was constructed using the responses provided by the respondents: the scores are 1 for “strongly disagree”, 2 for “somewhat disagree”, 3 for “somewhat agree” and 4 for “strongly agree”. The score for no response is 0. In the case of *Ligue 1*, ST uncertainty consists of the following three items: “Before a match, there is no way of knowing which team is going to win”, “Home teams have as much chance of winning as teams playing away from home” and “There are no real favourites in any match”. The score for ST uncertainty ranges from 0 to 12. A similar approach was used for MT uncertainty, which consists of the following three items: “The fight for Champions League qualifying spots remains thrilling until the end of the season”, “The fight for Europa League qualifying places remains thrilling until the end of the season” and “The fight to stay up remains thrilling until the end of the season”. LT uncertainty consists of the following four items: “Many different teams win the championship”, “Many different teams qualify for the Champions League”, “Many

different teams qualify for the Europa League” and “Many different teams were relegated”. In this case, the LT uncertainty score ranges from 0 to 16. In the case of the Champions League, ST uncertainty is composed of the same three items as *Ligue 1*. MT uncertainty consists of the following three items: “The race to win the league remains thrilling until the end of the season”, “The group stages of the Champions League remain thrilling” and “The knockout stages of the Champions League remain thrilling”. LT uncertainty consists of just one item: “Many different teams win the Champions League”. The score ranges from 0 to 4. The traditional Cronbach’s alpha was used to measure the overall consistency of the aggregated items. The calculated values range from 0.69 in the case of ST uncertainty in *Ligue 1* to 0.86 in the case of MT uncertainty in the Champions League. Apart from the first all values are above 0.7. The indicators constructed can therefore be considered to be representative of the different notions of uncertainty.

Competitive balance as perceived by fans in *Ligue 1* and the Champions League was estimated based on the ST, MT and LT uncertainty indicators constructed for the purposes of the study, after controlling for individual characteristics. The estimates (Table 3) were obtained using OLS (first two columns) and ordered logit (last two columns). Given the high number of modalities of the dependent variable (between 0 and 10), the results are very close. Before analysing what kind of uncertainty reflects competitive balance as perceived by fans, it is important to examine the individual characteristics influencing perceived suspense (socio-demographic variables were used for control purposes).

Regardless of the specification, one of the factors determining the value placed on suspense is a significant interest in football in general and in *Ligue 1* and the Champions League in particular. All other things being equal, the variables reflecting significant interest are positive and significant (“Interested in football”, “Interested in *Ligue 1*”, “Interested in the Champions League”, “Fan of several teams”). This means that those interested in competitions are aware that, even if there is a strong imbalance between teams, football is still the most uncertain team sport and the outcome of a match is never certain. In other words, interest in football offsets the

3. The reason for the extra games is so that fans do not lose interest.

4. The only time this has ever happened was in 2017-2018, the season in which Real Madrid won their third consecutive Champions League.

Table 3 – Variables influencing the perception of competitive balance (CB)

Dependent variable: perceived level of suspense 0 to 10	OLS		Ordered Logit	
	Ligue 1	Champions League	Ligue 1	Champions League
ST uncertainty	0.018 (0.011)	0.027*** (0.008)	0.018** (0.008)	0.037*** (0.007)
MT uncertainty	0.112*** (0.010)	0.064*** (0.007)	0.086*** (0.007)	0.051*** (0.007)
LT uncertainty	0.110*** (0.009)	0.555*** (0.017)	0.083*** (0.006)	0.531*** (0.016)
<i>Interested in football</i> (0 to 10)	0.146*** (0.016)	0.221*** (0.011)	0.109*** (0.011)	0.200*** (0.011)
<i>Degree of attachment to a football team</i> (0 to 10)	0.097*** (0.015)	0.011 (0.011)	0.055*** (0.010)	0.025** (0.010)
<i>Fan of several teams</i> (Ref. None or 1 team)	0.241*** (0.048)	0.117*** (0.036)	0.163*** (0.034)	0.123*** (0.034)
<i>Season ticket holder</i> (Ref. No season ticket)	0.142*** (0.055)	-0.205*** (0.041)	0.091** (0.038)	-0.217*** (0.038)
<i>Supporters club</i> (Ref. No supporters club)	-0.286*** (0.054)	-0.219*** (0.040)	-0.228*** (0.037)	-0.192*** (0.037)
<i>Reads the written press</i> (Ref. Never)				
Once a week	0.177*** (0.053)	0.060 (0.040)	0.162*** (0.037)	0.006 (0.037)
Magazine subscription or every day	0.167*** (0.054)	0.218*** (0.041)	0.148*** (0.038)	0.166*** (0.038)
<i>Reads online articles</i> (Ref. No reading)	0.088 (0.056)	0.044 (0.042)	0.074* (0.039)	0.046 (0.039)
<i>Subscription to a pay-TV channel</i> (Ref. Never)				
In the past	-0.242*** (0.063)	0.061 (0.047)	-0.171*** (0.044)	0.051 (0.044)
Yes	0.016 (0.044)	0.377*** (0.033)	0.010 (0.031)	0.332*** (0.031)
<i>Plays or has played football</i> (Ref. Never)				
In the past	0.046 (0.055)	-0.053 (0.041)	0.035 (0.038)	-0.055 (0.038)
Yes	0.077 (0.061)	0.158*** (0.046)	0.046 (0.042)	0.149*** (0.042)
<i>Football culture</i> (Ref. Non-existent or limited)				
Mean	-0.103 (0.168)	-0.238* (0.126)	-0.069 (0.118)	-0.294** (0.117)
High	-0.274 (0.167)	-0.269** (0.125)	-0.186 (0.117)	-0.321*** (0.116)
Very High	-0.486*** (0.171)	-0.255** (0.128)	-0.359*** (0.120)	-0.224* (0.119)
<i>At least one parent plays or has played football</i> (Ref. No or does not know)				
Yes	0.002 (0.038)	0.001 (0.029)	0.007 (0.027)	0.012 (0.027)
<i>Male</i> (Ref. Female)	-0.447*** (0.102)	-0.050 (0.077)	-0.306*** (0.071)	-0.025 (0.071)
<i>Age</i> (Ref. 25 years or younger)				
26 to 40 years	-0.110* (0.057)	-0.354*** (0.043)	-0.083** (0.040)	-0.338*** (0.040)
41 to 60 years	-0.072 (0.078)	-0.711*** (0.058)	-0.065 (0.054)	-0.664*** (0.054)
61 years and over	-0.392*** (0.145)	-0.526*** (0.108)	-0.322*** (0.101)	-0.548*** (0.100)
<i>Lives in Ile-de-France</i> (Ref. No)	-0.146*** (0.053)	-0.067* (0.040)	-0.087** (0.037)	-0.064* (0.037)
<i>Higher education</i> (Ref. No higher education)	0.035 (0.040)	-0.243*** (0.030)	0.038 (0.028)	-0.242*** (0.028)
<i>Number of children</i> (Ref. None)				
A single child	0.016 (0.072)	-0.051 (0.054)	0.003 (0.050)	-0.068 (0.050)
Two or more children	0.219*** (0.063)	0.010 (0.047)	0.148*** (0.044)	0.001 (0.043)
<i>In employment</i> (Ref. Inactive)	0.116* (0.065)	0.020 (0.049)	0.085* (0.045)	0.029 (0.045)
<i>Income</i> (Ref. No income)				
Less than €30,000	-0.147** (0.062)	-0.131*** (0.047)	-0.102** (0.043)	-0.141*** (0.043)
€30,000 or more	-0.185** (0.078)	-0.108* (0.059)	-0.131** (0.054)	-0.109** (0.054)
<i>Person living alone</i> (Ref. Household of at least two persons)	0.117*** (0.047)	-0.069* (0.035)	0.077** (0.033)	-0.072** (0.033)
N	19 386	19 609	19 386	19 609
R ²	0.06	0.21		

Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

perceived drop in uncertainty, even in the event of the strong dominance of one team, as has been the case in *Ligue 1* since 2011.

Let us now consider two variables: “Season ticket holder” and “Belonging to a supporters club”. Season ticket holders are people who book a seat at the start of the season for the nineteen home league games – and are often given priority for other games – and who therefore have a strong bond with their club. The coefficients associated with the estimates are positive and significant for *Ligue 1* and negative and significant for the Champions League. The season ticket holders who participated in the survey were season ticket holders at French clubs. Being a season ticket holder means having a significant interest in a club and its history and is associated with an effect that offsets perceived uncertainty when estimating the effects on *Ligue 1*. On the other hand, season ticket holders are more critical of the “big” European teams – and especially the amounts of money involved – and believe that uncertainty is low because the same teams always win. This is both true and false (see above). The variable “Belonging to a supporters club” is negative and significant for both competitions, suggesting that fans know their team has little or no chance of winning.

Supporters who use the media tend to view perceived uncertainty differently. While visiting or not visiting football websites has no effect on the perception of uncertainty, fans who read the press every day or subscribe to a specialist magazine also tend to think that there is a great deal of uncertainty in both *Ligue 1* and the Champions League. The results for the variable “Sports Pay-TV Subscription” reveal two distinct behaviours. In the case of *Ligue 1*, some fans feel that there is little uncertainty and have cancelled their subscription (highlighting the negative and significant effect with the “in the past” option) while in the case of the Champions League, some supporters think that uncertainty is high and subscribe to a pay-TV channel (the positive and significant effect with the “yes” option).

The fact of playing football, whether in the past or at present, and of having a parent who plays or has played football was found to have no influence on the perception of uncertainty in *Ligue 1* and the Champions League. By contrast, individuals who claim to have a significant or very significant football culture feel there is less suspense in competitions (*Ligue 1* and Champions League).

What kind of uncertainty are fans most sensitive to when asked to gauge the suspense of the two “flagship” competitions, i.e. *Ligue 1* and the Champions League? In the case of *Ligue 1*, their views appear to be determined by MT and LT uncertainty, i.e. uncertainty over the eventual winner and repeat titles: it is therefore not surprising that they view the level of suspense as being relatively low since *PSG* has dominated the league since 2011. The perceived level of suspense in the Champions League is determined primarily by LT uncertainty over repeat winners: it is true that after the group stages, the uncertainty of matches involving major European sides remains high.

* *
*

The idea that competitive balance increases the utility of fans, and therefore their spending and the revenue of professional clubs, lies at the heart of sports economics in general and of the economics of football in particular. Budzinski & Pawlowski (2017) noted that the notion of competitive balance is often invoked to explain why professional leagues decide to change the rules of competitions or the distribution of broadcasting rights. As the literature shows, the relationship between competitive balance and fan demand is far from obvious. Fans’ perception of the balance of competitions is well determined and relatively consistent, but other factors appear to be more important in terms of football “consumption”, such as attachment to the club, likelihood of winning, playing against a big team, the presence of “stars” on the teamsheet, etc.

This paper examined competitive balance as perceived by football fans who responded to the “What kind of fan are you?” survey on the *L’Équipe.fr* website. However, there are several dimensions of perceived competitive balance that depend on the specific competitions considered: in the case of France’s top-flight league, perceived competitive balance is mainly explained by medium- and long-term uncertainty (the name of the champion and repeat titles), while in the case of the Champions League it is more a matter of long-term suspense (successive winners). As a result, *Ligue 1* tends to be perceived as less uncertain than the Champions League. Lastly, outcome uncertainty is far from being the only factor explaining the demand for football since around 30% of fans report that

they would always be willing to attend or watch games even in the hypothetical case that there is no suspense left.

Despite its strong growth, mainly due to that of TV rights over the last twenty years (about 10% per year in France) and contrary to popular belief due to its very high popularity, football is still a

rather small business compared to other sectors of activity (Arrondel & Duhautois, 2018): about 0.2% of French GDP. The evolution of the structure of the clubs' budgets (more audiovisual rights, less ticketing) shows that research on football demand must now focus on explaining its determinants for both media subscriptions and stadium attendance. □

BIBLIOGRAPHY

Alavy, K., Gaskell, A., Leach, S. & Szymanski, S. (2010). On the Edge of Your Seat: Demand for Football on Television and the Uncertainty of Outcome Hypothesis. *International Journal of Sport Finance*, 5(2), 75–95. <https://econpapers.repec.org/RePEc:jsf:intjfs:v:5:y:2010:i:2:p:75-95>

Andreff, W. (2014). French professional football: how much different? In: Goddard, J. & Sloane, P., *Handbook on the Economics of Professional Football*, pp. 298–321. Cheltenham, UK: Edward Elgar.

Andreff, W. (2018). Financial and Sporting Performance in French Football Ligue 1: Influence on the Player Market. *International Journal of Financial Studies*, 6(4), 1–17. <https://doi.org/10.3390/ijfs6040091>

Arrondel, L. & Duhautois, R. (2018). *L'argent du football*. Paris: Cepremap.

Baidina, K. & Parshakov, P. (2017). Uncertainty of Outcome and Attendance: Evidence from Russian Football. Mimeo.

Benz, M.-A., Brandes, L. & Franck, E. (2009). Do Soccer Associations Really Spend on a Good Thing? Empirical Evidence on Heterogeneity in the Consumer Response to Match Uncertainty of Outcome. *Contemporary Economic Policy*, 27(2), 216–235. <https://dx.doi.org/10.1111/j.1465-7287.2008.00127.x>

Budzinski, O. & Pawlowski, T. (2017). The Behavioral Economics of Competitive Balance: Theories, Findings, and Implications. *International Journal of Sport Finance*, 12(2), 109–122.

Buraimo, B. (2008). Stadium attendance and television audience demand in English league football. *Managerial and Decision Economics*, 29(6), 513–523. <https://doi.org/10.1002/mde.1421>

Buraimo, B. & Simmons, R. (2008). Do sports fans really value uncertainty of outcome? Evidence from the English Premier League. *International Journal of Sport Finance*, 3(3), 146–155.

Buraimo, B. & Simmons, R. (2009). A tale of two audiences: Spectators, television viewers and outcome uncertainty in Spanish football. *Journal of Economics and Business*, 61(4), 326–338. <https://doi.org/10.1016/j.jeconbus.2008.10.002>

Buraimo, B. & Simmons, R. (2015). Uncertainty of outcome or star quality? Television audience demand for English Premier League football. *International Journal of the Economics of Business*, 22(3), 449–469. <https://doi.org/10.1080/13571516.2015.1010282>

Cairns, J. A. (1987). Evaluating changes in league structure: The reorganization of the Scottish Football League. *Applied Economics*, 19(2), 259–275. <https://doi.org/10.1080/00036848700000101>

Caruso, R., Addesa, F. & Di Domizio, M. (2019). The Determinants of the TV Demand of Soccer: Empirical Evidence On Italian Serie A for The Period 2008-2015. *Journal of Sports Economics*, 20(1), 25–49. <https://doi.org/10.1177%2F1527002517717298>

Czarnitzki, D. & Stadtmann, G. (2002). Uncertainty of outcome versus reputation: Empirical evidence for the first German football division. *Empirical Economics*, 27(1), 101–112. <https://doi.org/10.1007/s181-002-8361-7>

- Falter, J.-M. & Pérignon, C. (2000).** Demand for Football and intramatch winning probability: An essay on the glorious uncertainty of sports. *Applied Economics*, 32(13), 1757–1765. <https://doi.org/10.1080/000368400421101>
- Falter, J.-M., Pérignon, C. & Vercruyse, O. (2008).** Impact of Overwhelming Joy on Consumer Demand: The Case of a Soccer World Cup Victory. *Journal of Sports Economics*, 9(1), 20–42. <https://doi.org/10.1177%2F1527002506296548>
- Forrest, D. & Simmons, R. (2002).** Outcome uncertainty and attendance demand: The case of English soccer. *Journal of the Royal Statistical Society, Series D (The Statistician)*, 51(2), 229–241. <https://doi.org/10.1111/1467-9884.00314>
- Forrest, D. & Simmons, R. (2006).** New Issues in Attendance demand: The Case of the English Football League. *Journal of Sports Economics*, 7(3), 247–266. <https://doi.org/10.1177%2F1527002504273392>
- Forrest, D., Beaumont, J., Goddard, J. & Simmons, R. (2005).** Home advantage and the debate about competitive balance in professional sports leagues. *Journal of Sports Sciences*, 23(4), 439–445. <https://doi.org/10.1080/02640410400021641>
- Forrest, D., Simmons, R. & Buraimo, B. (2005).** Outcome Uncertainty and the Couch Potato Audience. *Scottish Journal of Political Economy*, 52(4), 641–661. <https://dx.doi.org/10.1111/j.1467-9485.2005.00360.x>
- Garcia, J. & Rodriguez, P. (2002).** The determinants of football match attendance revisited: Empirical evidence from the Spanish Football League. *Journal of Sports Economics*, 3(1), 18–38. <https://doi.org/10.1177%2F152700250200300103>
- Hart, R. A., Hutton, J. & Sharot, T. (1975).** A Statistical Analysis of Association Football Attendances. *Journal of the Royal Statistical Society, Series C Applied Statistics*, 24(1), 17–27. <https://doi.org/10.2307/2346700>
- Jang, H. & Lee, Y. H. (2015).** Outcome uncertainty, governance structure, and attendance: A study of the Korean professional football league. In: Lee, Y. H. & Fort, R. (Eds.), *The sports business in the Pacific rim*, pp. 59–81. New York: Springer.
- Jennett, N. (1984).** Attendances, Uncertainty of Outcome and Policy in Scottish League Football. *Scottish Journal of Political Economy*, 31(2), 176–198. <https://doi.org/10.1111/j.1467-9485.1984.tb00472.x>
- Kuper, S. & Szymanski, S. (2018).** *Soccernomics: Why England lose: and other curious phenomena explained*. London: HarperSport.
- Neale, W. C. (1964).** The Peculiar Economics of Professional Sports: A Contribution to the Theory of the Firm in Sporting Competition and in Market Competition. *Quarterly Journal of Economics*, 78(1), 1–14. <https://doi.org/10.2307/1880543>
- Nielsen Sports (2018).** *World Football Report*. <https://niensports.com/reports/world-football-2018/>
- Pawlowski, T. & Anders, C. (2012).** Stadium attendance in German professional football – The (un)importance of uncertainty of outcome reconsidered. *Applied Economics Letters*, 19(16), 1553–1556. <https://doi.org/10.1080/13504851.2011.639725>
- Peel, D. A. & Thomas, D. A. (1988).** Outcome uncertainty and the demand for football: An analysis of match attendances in the English Football League. *Scottish Journal of Political Economy*, 35(3), 242–249. <https://doi.org/10.1111/j.1467-9485.1988.tb01049.x>
- Peel, D. A. & Thomas, D. A. (1992).** The demand for football: Some evidence on outcome uncertainty. *Empirical Economics*, 17(2), 323–331. <https://econpapers.repec.org/RePEc:spr:empeco:v:17:y:1992:i:2:p:323-31>
- Peel, D. A. & Thomas, D. A. (1996).** Attendance demand: An investigation of repeat fixtures. *Applied Economics Letters*, 3(6), 391–394. <https://doi.org/10.1080/135048596356294>
- Rottenberg, S. (1956).** The baseball players' labor market. *Journal of Political Economy*, 64(3), 242–258. <https://doi.org/10.1086/257790>
- Scelles, N. (2017).** Star quality and competitive balance? Television audience demand for English Premier League football reconsidered. *Applied Economics Letters*, 24(19), 1399–1402. <https://doi.org/10.1080/13504851.2017.1282125>

Schreyer, D., Schmidt, S. L. & Torgler, B. (2017). Game outcome uncertainty and the demand for international football games: Evidence from the German TV market. *Journal of Media Economics*, 30(1), 31–45. <https://econpapers.repec.org/RePEc:taf:jmedec:v:30:y:2017:i:1:p:31-45>

Schreyer, D., Schmidt, S. L. & Torgler, B. (2018). Game Outcome Uncertainty and Television Audience Demand: New Evidence from German Football. *German Economic Review*, 19(2), 140–161. <https://doi.org/10.1111/geer.12120>

Schreyer, D., Schmidt, S. L., Sascha, L. & Torgler, B. (2016). Against all odds? Exploring the role of game outcome uncertainty in season ticket holders' stadium attendance demand. *Journal of Economic Psychology*, 56, 192–217. <https://doi.org/10.1016/j.joep.2016.07.006>

Simmons, R. (1996). The demand for English league football: A club-level analysis. *Applied Economics*, 28(2), 139–155. <https://doi.org/10.1080/000368496328777>

Statista (2018). *European Football Benchmark: France*.

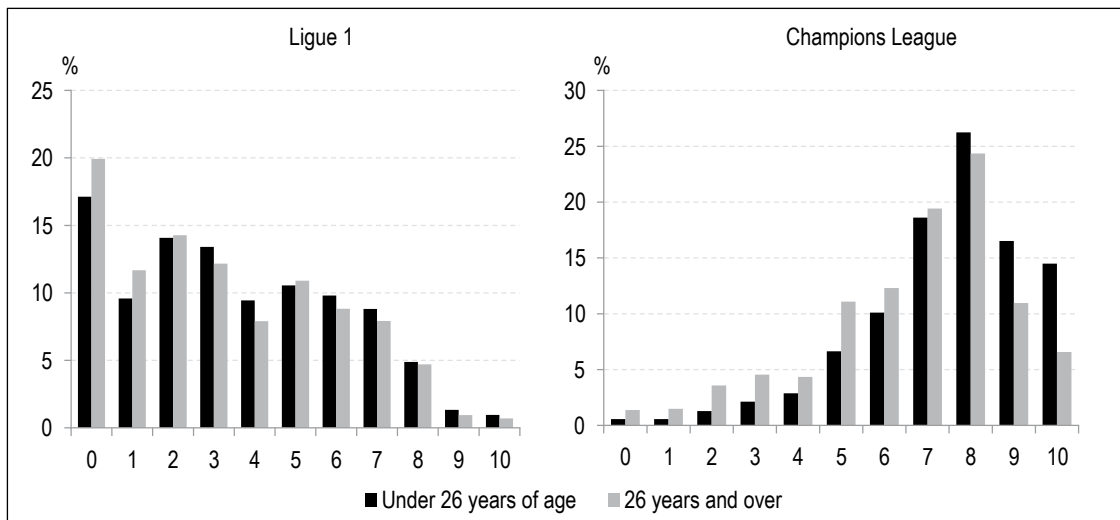
Wilson, P. & Sim, B. (1995). The demand for semi-pro league football in Malaysia 1989–91: A panel data approach. *Applied Economics*, 27(1), 131–138. <https://doi.org/10.1080/00036849500000015>

STUDIES ON THE EFFECT OF UNCERTAINTY IN FOOTBALL

Authors (chronological order)	Championship	Seasons studied	Dependent variable	Measure of uncertainty	Effect of uncertainty (main outcome)
Hart, Hutton and Sharot (1975) Jennett (1984)	4 English teams Scotland Division 1	1969-1972 1975-1981	Stadium Attendance Stadium Attendance	Difference in team rankings Number of points needed to win the championship	No Yes
Cairns (1987) Peel & Thomas (1988) Peel & Thomas (1992) Wilson & Sim (1995)	Scotland Division 1 England Divisions 1-4 England Divisions 1-4 Malaysia (League with two divisions)	1979-1980 1981-1982 1986-1987 1989-1992	Stadium Attendance Stadium Attendance Stadium Attendance Stadium Attendance	Ranking of the two teams in the table Sports bets (Home team probability of success) Sports bets Point difference between teams	Yes No No No
Bairbridge, Cameron & Dawson (1996) Peel & Thomas (1996) Falter & Pérignon (2000) Czarnitzki & Stadtmann (2002) Forrest & Simmons (2002) Garcia & Rodriguez (2002)	England Division 1 Scotland Divisions 1-3 France Division 1 Germany Division 1 England Divisions 1-4 Spain Division 1	1993-1994 1991-1992 1997-1998 1996-1998 1997-1998 1992-1996	Stadium Attendance Stadium Attendance Stadium Attendance Stadium Attendance Stadium Attendance Stadium Attendance	Difference in team rankings Sports bets Difference in team rankings Sports bets Sports bets Difference in team rankings	No No Yes No No Yes (the authors do not trust their results)
Forrest, Buraimo & Simmons (2005) Forrest, Beaumont, Goddard & Simmons (2005) Forrest & Simmons (2006) Johnsen & Solvoll (2007) Buraimo & Simmons (2008) Buraimo (2008)	England Division 1 England Division 1 England Divisions 2-4 Norway and Denmark England Division 1 England Division 1	1993-2002 1997-1998 1999-2002 1998-2007 2000-2006 1997-2004	Television audience Stadium Attendance Stadium Attendance Television audience Stadium Attendance/ Television audience	Point difference between teams Sports bets Point difference between teams Point difference between teams Sports bets Point difference between teams	Yes Yes No No No No
Falter, Pérignon & Vercyusse (2008) Benz, Brandes & Franck (2009) Buraimo & Simmons (2009)	France Division 1 Germany Division 1 Spain Division 1	1996-2000 1999-2004 2003-2007	Stadium Attendance Stadium Attendance Stadium Attendance/ Television audience	Point difference between teams Difference in team rankings / Point difference between teams / Sports bets Sports bets	No No (only for teams with high attendance figures) No (attendance) / Yes (Audience).

Authors (chronological order)	Championship	Seasons studied	Dependent variable	Measure of uncertainty	Effect of uncertainty (main outcome)
Madalozzo & Berber Villar (2009)	Brazil Division 1	2003-2006	Stadium Attendance	Difference in team rankings	No
Alavy, Gaskell, Leach & Szymanski (2010)	England	2002-2006	Television audience	Sports bets	Yes
Pawlowski & Anders (2012)	Germany Division 1	2005-2006	Stadium Attendance	Sports bets	No
Pawlowski (2013)	Germany Division 1 (6 matches)	Sept-Oct 2011	Intention to consume (stadium and bar surveys)	Questions on different measures of uncertainty	Yes
Jang & Lee (2015)	South Korea K-League (closed league)	1987-2011	Stadium Attendance	Win rate and average points before the game	Yes
Cox (2015)	England Division 1	2004-2012	Stadium Attendance/ Television audience	Sports bets	No (attendance) / Yes (Audience).
Buraimo & Simmons (2015)	England Division 1	2001-2008	Television audience	Sports bets	No
Schreyer, Schmidt & Torgler (2018)	Germany Division 1	2012-2013	Season ticket holders attendance	Sports bets	Yes (season ticket holders arrive earlier at the stadium when uncertainty increases)
Schreyer, Schmidt & Torgler (2018)	Germany Division 1 and Cup	2011-2015	Television audience	Sports bets	Yes (Championship) / No effect (Cup)
Schreyer, Schmidt & Torgler (2017)	World Cups and European championships (Euro), German National Team	6 World Cups, 5 European championships and exhibition matches	Television audience	Difference in FIFA Ranking	Yes on high-stakes matches
Scelles (2017)	England Division 1	2013-2014	Television audience	Sports bets	No
Caruso, Addesa & Di Domizio (2019)	Italy Division 1	2008-2015	Television audience	Difference in League Table Ranking / Difference in points between teams / Sports bets	No
Baidina & Parshakov (2017)	Russia Division 1	2012-2014	Stadium Attendance	Sports bets	No

Figure A2-I – Perceived competitive balance in Ligue 1 and the Champions League



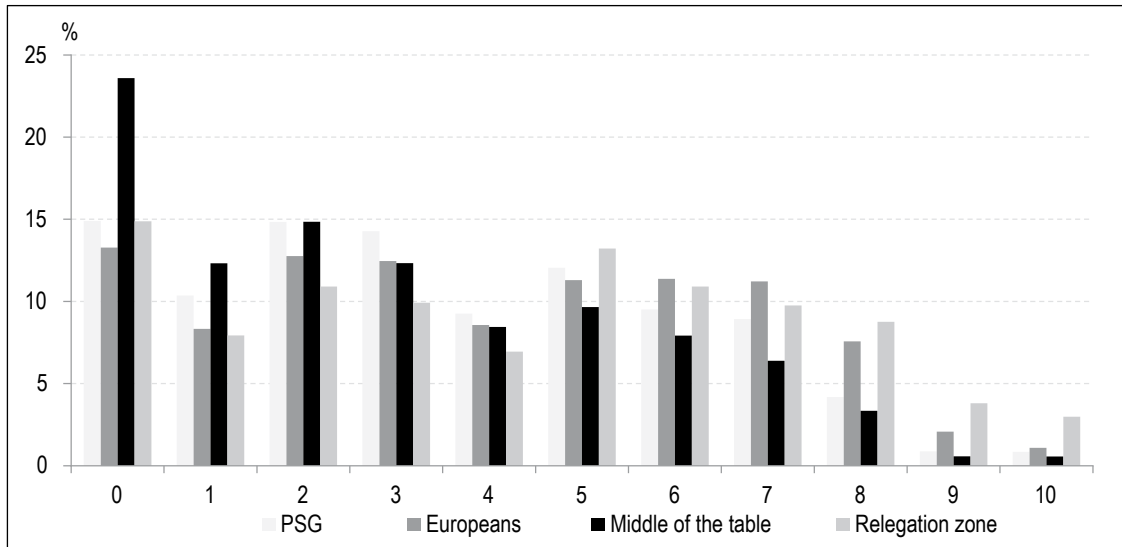
Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

Table A2-1– Ligue 1 2015-2016 season

	Club	Points
1	Paris Saint-Germain	96
2	Olympique lyonnais	65
3	AS Monaco	65
4	OGC Nice	63
5	Lille OSC	60
6	AS Saint-Etienne	58
7	SM Caen	54
8	Stade rennais FC	52
9	Angers SCO	50
10	SC Bastia	50
11	Girondins de Bordeaux	50
12	Montpellier HSC	49
13	Olympique de Marseille	48
14	FC Nantes	48
15	FC Lorient	46
16	EA Guingamp	44
17	Toulouse FC	40
18	Stade de Reims	39
19	GFC Ajaccio	37
20	ES Troyes AC	18

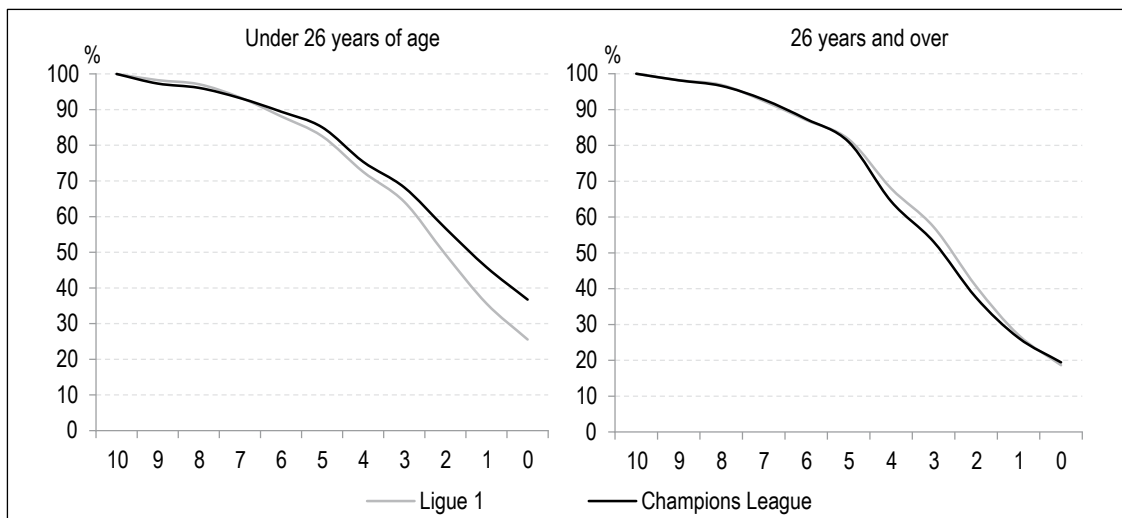
Sources: LFP.

Figure A2-II – Perceived competitive balance in *Ligue 1* according to the team supported



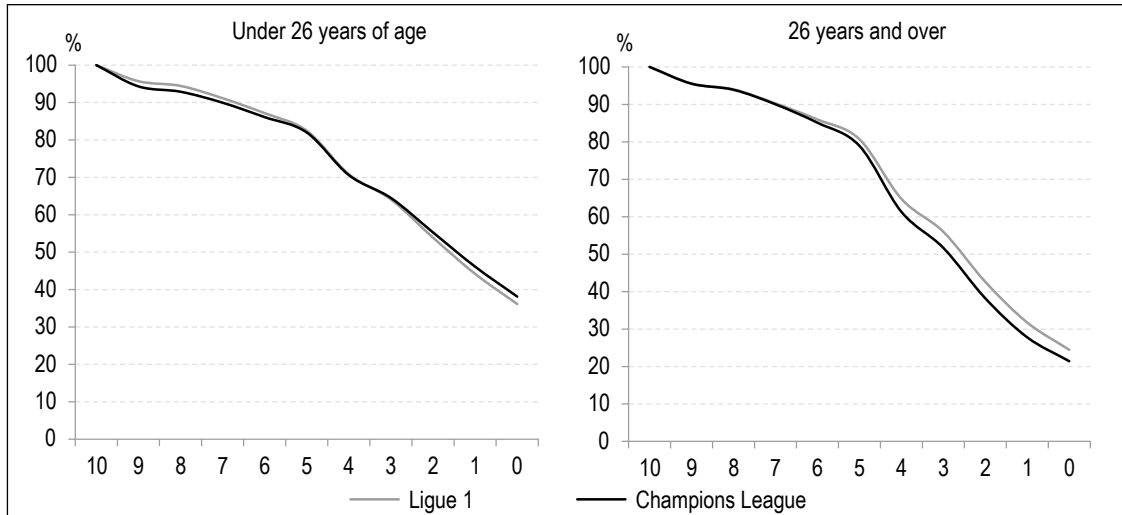
Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

Figure A2-III – Intention not to stop following *Ligue 1* or the Champions League altogether



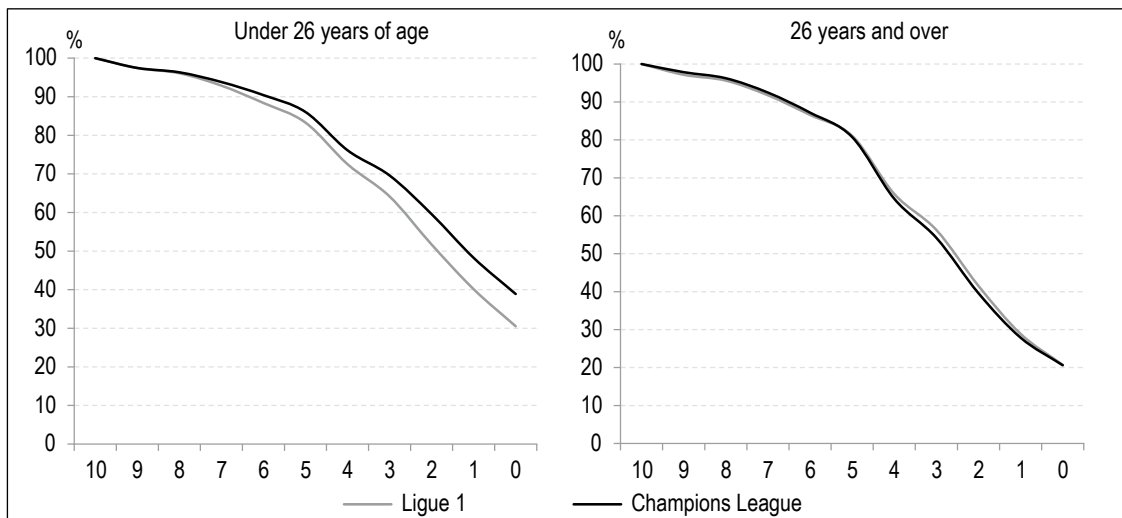
Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

Figure A2-IV – Intention not to stop attending matches in *Ligue 1* or the Champions League



Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.

Figure A2-V – Intention not to stop watching a *Ligue 1* or Champions League match on television



Notes: 0 = "no suspense" / 10 = "a lot of suspense".
Sources: PSE-L'Équipe, survey *Quel supporter êtes-vous ?* - 2016.