Walter C. Neale fifty years after: Beyond competitive balance, the league standing effect tested with French football data

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We are grateful to the participants of the IXth Gijon Conference on Sports Economics (May 9th-10th, 2014) for their comments. Errors are our own.

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Abstract

In 1964, Neale suggested, in addition to competitive balance, a league standing effect that was never tested per se with empirical data. A model that explains fan attendance in the French football *Ligue 1* over 2008-2011 is presented. It takes on-board point difference with the closest competitor chasing a different sporting stake, and positive and negative changes regarding the different sporting stakes. Econometric testing exhibits a negative impact of point difference (i.e., a positive impact of the possibilities of changes), a positive impact of positive changes, and no significant impact of negative changes.

Keywords: Neale, competitive balance, league standing effect, sporting stakes, French football

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Introduction

Walter Castle (Terry) Neale, more usually known as Terry, was born in 1925 and died in 2004. He was an institutional economist who often referred to Thorstein Veblen, John Roger Commons, Karl Polanyi, Douglas North, and John Sydenham Furnivall as well as to economic history and economic anthropology. He also worked on economic theory in general but was primarily involved in applied economics with studying South Asian economies, in particular industrialisation in India. Nevertheless he happened to publish an article (Neale, 1964) on the 'peculiar economics of professional sports' which became famous as the second paper ever published in the area of sports economics. Apparently Neale did not come back to this issue between 1964 and 2004 in his further work and publications. To the best of our knowledge, he did never quote the front-running article by Rottenberg (1956). In his 1964 article, Neale mentioned the uncertainty of outcome only in passing at footnote 7: "the appeal of the seat depends mostly on the uncertainty of outcome and on the weather" without referring to Rottenberg.

The two coauthors do not know whether Neale had ever read Rottenberg, but it is not surprising that he did not elaborate on outcome uncertainty as determining fan attendance since he promoted an alternative analytical concept: the so-called league standing effect. In a way, Neale's article is at the roots of a split between two methodological trains of thought in the economics of team sports leagues. On the one hand, a mainstream standard approach has focused on competitive balance while, on the other hand, a less widespread analysis has geared toward assessing sports contests in terms of contention, sporting stakes, and the

impact on fan attendance of reversing spreads in points or scored goals. This alternative approach recently came up with a new concept of competitive intensity at match and league levels. This concept eventually is a current empirically testable translation of the league standing effect.

The article reads as follows. A first section compares Neale's league standing effect to the more classical outcome uncertainty concept introduced by Rottenberg, and checks its value added to understanding why fans are attracted to stadiums. A literature review (second section) shows that the league standing effect and its changes have evolved in such a way as to encapsulate more testable variables, though not appealing to many sports economists, until the point when a notion of competitive intensity was defined to clearly cope with this effect. Then changes in standings are tested with a log-linear model in the case of French football *Ligue 1* (third section). The fourth section concludes.

Differentiating the league standing effect from competitive balance

Competitive balance

In a sense, Neale's league standing effect was breaking through Rottenberg's initial approach of outcome uncertainty materialised in an even distribution of talent among teams. Indeed, when talking about the reserve rule, Rottenberg implicitly referred to a potential concept of competitive balance as a necessity "to assure an equal distribution of playing talent among opposing teams; that a more or less equal distribution of talent is necessary if there is to be uncertainty of outcome; and that uncertainty of outcome is necessary if the consumer is to be willing to pay admission to the game" (Rottenberg, 1956, p. 246). A direct relationship between outcome uncertainty and fan attendance was clearly assumed. Moreover, the reserve

rule was justified by its purpose "to achieve balance of playing strength among teams" (p. 247).

However, Rottenberg also contended that "attendance at the games of any given team is a positive function of (…) the average standing of the team during the season in the competition of its league" (p. 246). And "it is a negative function of (…) the dispersion of percentages of games won by the teams in the league" (p. 246). The last sentence lays the ground for future competitive balance indexes based on a dispersion of win percentages among teams whereas the previous sentence refers to a team's average standing over the season. In footnote 24, Rottenberg defined "a perfect equality of distribution of players among teams may be made manifest in the following ways: every game ends in a tie; every team wins exactly half of the games it plays; every team, in an eight-team league, wins the pennant every eighth year". Then he suggested measuring the equality of distribution with "a simple test (the) one which counts the number of times each team has won its league pennant" (p. 247). This paves the way for concentration indexes of competitive balance. Since Rottenberg pointed at wealthy teams that "will prefer winning by close margins to winning by wide ones" (p. 255), the future concept of competitive balance was at the corner.

Metrics of a league's competitive balance were developed later on. Scully (1989, 1995) checked outcome uncertainty and assessed the relative playing quality of teams by measuring the dispersion of team standings and, at the end of the day, the variance in team standing of an actual league. The latter was compared to a perfectly balanced league where each team would have an equal chance of beating another (a 50% win percentage), suggesting an optimal degree of outcome uncertainty that maximizes fan interest, league revenues and clubs' profits. No attention was paid to changes in league standings, contention or sporting stakes of different games.

Noll (1974) produced a statistical study of North American leagues' attendance. In view of capturing the effect of team quality, Noll used the percentage of games won, playing success in past seasons as indicated by winning percentages and championships won, and the number of games behind the league leader at various times during the season. The latter of these three variables might have led to an assessment of game contention and sporting stakes, not only competitive balance, but Noll did not embark on to this path. All the first efforts aimed at defining a metrics of competitive balance ended up with a variety of dispersion indexes to measure a league's competitive balance, the most famous of which being the typical Noll-Scully index, and some concentration indicators like the Hirschman-Herfindahl index (most competitive balance indexes are surveyed in Andreff, 2009). More sophisticated measurements of how much balanced is a contest within a league have recently emerged (Eckard, 1998; Humphreys, 2002; Groot, 2008).

The league standing effect as a concept different from competitive balance

In contrast with Rottenberg initiating the future mainstream concept of competitive balance, Neale's article opened up a new avenue for assessing which variables attract fan attendance with his league standing effect though the specificity of the latter often remained unheeded because most Neale's readers simply assimilated this effect to a peculiar version of competitive balance, which is wrong or at least confusing. According to Neale (1964, p. 3): "There is the pennant race enjoyed by all and paid for by none. This we call the *League Standing Effect*. Of itself there is excitement in the *daily changes in the standing* or the *daily changes in possibilities of changes in standings*. The closer the standings, and within any range of standings the *more frequently* the standings change, the larger will be the gate receipts. Thus the free provision of the *race utility* has a favorable feed-back effect upon gate

receipts, and we may treat this effect as a kind of advertising" (stress is ours). Thus the race among teams is what the league standing effect is all about and not primarily the respective strengths of opponents - the competitive balance - and not even the latter's changes.

The changes which are relevant with Neale are those affecting a team standing or ranking. More precisely are relevant those changes affecting a team standing or ranking in relation with the pennant race. Daily changes in the standing and daily changes in possibilities of changes in standings are understood by Neale as *related to the pennant race*. The daily race among teams has a utility due to its positive effect on fan attendance and gate receipts. Neale's conclusion was therefore "that the product of a professional sporting activity is not merely the match, but also the 'league standings' (or championship), the progress towards a championship or changes in the standings, topics of conversation, and press reports" (p. 4).

The concept of a league standing effect is from the very beginning more dynamic than the one of competitive balance because it focuses on changes and possibilities of changes in standings: the league standing effect may evolve at any fixture, but also at any moment of a game when one team scores or, even if none of the two teams score while one of their direct rivals for the standing scores elsewhere during the same fixture. All these daily changes and possibilities of changes in standings are not tackled by any measurement of competitive balance which concept does not aim at. Furthermore a change in possibilities of change in standings matters in the assessment of the league standing effect whereas there is no such a thing as 'a daily change in possibilities of changes in competitive balance'. In other words, the competitive balance of a game or a league can be assessed ex ante (before a fixture) and ex post (after a fixture), but it is not affected by in-play events such as one team scoring or a reversal in the point spread between two teams or another direct rival team scoring in another game of a same fixture. Competitive balance is no more affected by the *possibility* or probability that one team will score or that the spread will reverse.

The difference between Neale's article and the standard competitive balance approach is even more striking because "the league standing effect is not limited to the consumer utility stream and the advertising feedback because it is also a marketable commodity, but not for producers. This quirk we may call the Fourth Estate Benefit. Newspapers report the play, the outcomes, and the resulting 'league standings' of games, and these reports are a major cause of sales and therefore of direct and advertising revenues to newspapers (and of course to sports magazines): in fact, a case of economies external to the industry" (Neale, 1964, p. 3). Nowadays, just replace newspapers by TV broadcasts (or sport bets) and you understand why the economic value (and sales) of English Premier League football (EPL) is much higher than the one of French *Ligue 1*, without any reference to competitive balance – since the latter is much more balanced than the former (Andreff, 2009). EPL simply attracts more fans due to a more significant fourth estate benefit, its games, outcomes, and league standings being broadcast (reported) worldwide while fan interest in *Ligue 1* games, outcomes and standings is more confined to French and some neighbour markets; thence the resulting EPL higher attractiveness to fans, sponsors and broadcasters, and thus ensuing higher revenues.

Synthesis

To sum up, if competitive balance is important for a league because it makes game outcome more uncertain, the league standing effect might well be even more significant since it links the evolving (even at any minute of a match) game outcome to its immediate consequences on ranking and thus its possible effect on team promotion, relegation or qualification for a European sport contest such as the soccer Champions League and Europa League. A game opposing two mid-ranked teams, one of the most balanced game in a championship, usually does not attract big crowds because it has a low league standing effect, and nearly no

contention and sporting stake, in particular in the second half of the season. A game between two of the last-ranked teams by the end of season, also rather balanced between two of the weakest teams in the league, does attract fan attendance due to its strong league standing effect and sporting stake – the loser will be on the brink of relegation. Symmetrically a game between one of the top ranked teams and one in the bottom, though extremely unbalanced, drags crowds to the stadium not due to competitive balance but to the league standing effect since the outcome at stake is relegation for one team and qualification to a European competition for the other. All the more so with a game opposing two teams in contention for a European qualification which is exactly what Neale's pointed out: the closer the standing the larger the gate receipts in this case. Any goal scored or spread reversal can save or jeopardise the whole season's outcome for the two teams and their prospects for the next season.

Literature review: from the league standing effect to competitive intensity

The league standing effect as a 'championship model'

A literature review does not find any publication, after Neale's, directly rooted in the league standing effect, and can even less find attempts at empirically verifying whether this effect impacts fan attendance or not. A major reason is that Rottenberg's outcome uncertainty became the mainstream concept used to assess the relationship between the balance of sporting strengths and fan attendance, then sports league revenues. From the very beginning of their survey article, Fort and Quirk (1995) were aware of the basic difference between the league standing effect and competitive balance when they distinguished the team's win-percent approach traced back to El Hodiri and Quirk (1971) from: "Another approach

(which) emphasizes the championship potential of a team as the relevant measure of a team's success (Jennett, 1984; Whitney, 1988, 1993). In the 'championship model', it is finishing in first place, rather than (or in addition to) a high win-percent, that is critical to the financial success of teams" (Fort and Quirk, 1995, p. 1267). In first place is to mean more generally reaching a given ranking that is considered by a team as its expected achievement or sporting objective, at best the first rank. In the championship model, *changes in the standing fuel contention* within the league not only among the few teams which are contending to reach the first place. Contention also pertains to some intermediary rankings connected to prizes such as for instance those qualifying directly or indirectly to European competitions. There is even a higher contention to avoid the last ranks of the championship that translate into demotion in an open league system. Although Fort and Quirk (1995, p. 1268) recognised that "the championship model adds aspects of the economics of sports leagues beyond those captured by the win-percent model", they ventured (p. 1267) as far as to say that "both measures (win-percent and finishing in first place) are significant predictors in estimates of short run demand functions for tickets, and clearly the two measures are correlated" (p. 1267). This correlation should have been tested carefully since the two measures do not refer to the same dimension of a sport contest, competitive balance between sporting strengths on the one hand and, on the other hand, contention between closely-ranked teams.

The championship model is absolutely the one Neale had in mind when he was talking about the league standings or championship, or the progress towards a championship or changes in the standings. Thus the league standing effect is definitely different from competitive balance in essence. It is more a complementary than substitutive explanatory variable of how much a sport contest, whether balanced or not, is capable to attract fan attendance. However, this 'Neale effect' and the following-up notions of game contention, sporting stakes and

competitive intensity have remained rather neglected or missing in the great bulk of the literature about the economics of team sports leagues (Andreff, 2009, 2011).

Nevertheless, a few papers had attempted in the 1980s and the early 1990s to tackle the effects of daily changes in the standing, in point spreads, and how they evolve from one match fixture to the next one. The idea was to define indexes for delineating a group of teams still in contention such as, for instance, the following: can a team still win the pennant in winning 80% of its remaining games up to the end of season while it is assumed that the current championship leader will win 50% of its remaining games (Cairns, 1987)? The closer the end of season, the narrower group of such teams. Cairns referred the outcome uncertainty of a championship not to its competitive balance but: "It is suggested that demand will be higher the closer is the contest; the more teams that might win and the longer such close competition lasts" (p. 260). Borland (1987) used as the group of teams in contention those which are ranked at the first five places of a championship as well as another index: those teams whose rank is below two wins from the current championship leader.

In the same vein, Jennett (1984) elaborated on a calculation, fixture after fixture, of how many wins a team will still need to win the pennant (the number of required wins) then compared to the number of remaining matches, in a model of 'championship significance'. For a team, as long as the number of wins required is lower that the number of remaining matches, *i.e.* as long as a team is left with an arithmetical possibility of winning the pennant, it is still in contention. A model of relegation significance similarly compares the number of required losses to be relegated with the number of remaining matches. Such a model was significant in explaining fan attendance in Scottish football league as well as in English football league (Dobson and Goddard, 1992). Eventually, this technique based on ex ante championship and relegation significances of each game initiated by Jennet was rejected by Baimbridge, Cameron and Dawson (1996, p. 323). The excuses for rejecting it were

unavailable information about the eventual point total of the winning and relegated teams, that if a team is assumed to be constantly within a mathematical possibility of the championship or relegation the mathematical certainty is greater than zero, and that no account is taken for a team's anticipated performance. Then the threads tying the assessment of the league standing effect to game contention were cut for a while.

Competitive intensity as a concept capturing the league standing effect

A revival of the train of thought initiated by Neale sprang up with Kringstad and Gerrard (2004, 2005) defining a new notion of *competitive intensity*. After mentioning the so-called 'Louis-Schmelling paradox' pointed at by Neale (1964) as a first sign of the league standing effect, they suggested to treat competitiveness according to a league's prize structure separately from the competitive balance concept. When there is a multi-prize system which brings teams into a number of sub-tournaments, like in a European football league or in those leagues organising play-offs, this dimension should be captured with a concept coined competitive intensity. The definition is as follows: competitive intensity is the *degree of competition within the league or tournament with regards to its prize structure*. For instance, competitive balance will show the differences in sporting quality among all teams in EPL while competitive intensity will give a picture of how intense is the competitiveness according to the different sub-competitions (and prizes) in a league. In EPL, the prize is not only winning the championship; other prizes consist in being qualified to UEFA Champions League, receiving the right for UEFA Champions League qualification, being qualified to Europa League, and avoiding relegation (a negative prize). With the statement that "the basic idea behind competitive intensity is related to the match significance introduced by Jennett (1984)", Kringstad and Gerrard (2004, p. 120) revived a tradition running from Neale down

to competitive intensity through Jennett's contention and other aforementioned sport economists of the so-called championship model. However in a more recent publication (Kringstad and Gerrard, 2007) they returned to a more classical concept of competitive balance and metrics in an article where one cannot find any trace back to competitive intensity.

Though of utmost interest, Kringstad and Gerrard breakthrough in 2004 aborted, probably because they did not see that, beyond the contention for a team to be promoted, not relegated or qualified to a European football contest, each match and even any minute or any second in a match may affect the intensity of competition and renew contention for one (or the two) opponents. This is so in particular when a scored goal reverses overall match scoring (the result) and instantaneously changes the ongoing standing of a team in a league. Score and spread reversals together with outcome uncertainty correspond to the league standing effect.

Scelles, Desbordes and Durand (2011) have defined and used a metrics for measuring *intra-league* competitive intensity while Scelles, Durand, Bah and Rioult (2011) have conceived a metrics for *intra-match* competitive intensity. Intra-championship competitive intensity measures both the outcome uncertainty linked to the different sporting stakes (and thus the percentage of teams in situation of uncertainty) and changes in ranking with regards to these sporting stakes. The inclusion of the different sporting stakes is in tune with the league standing effect expressed by Neale once adapted to the European championship context. Neale was limiting such stakes to the pennant race which is the main sporting stake from which other stakes are derived in North American leagues that is qualification to the playoffs whereas each team is trying to achieve the best standing during the regular season so as to optimise home advantage or potential home advantage in the playoffs. Scelles, Desbordes and Durand (2011) applied the concept of intra-league competitive intensity to both French basketball Pro A and football *Ligue 1*. In the latter, intra-championship competitive intensity

is impacted by the 'struggle for the champion's title', the qualification to the Champions League and Europa League, and to avoid relegation.

Scelles, Durand, Bonnal, Goyeau and Andreff (2013a, 2013b) have tested the impact of intra-league outcome uncertainty linked to sporting stakes on attendance in French football *Ligue 1* over 2008-2011. Scelles et al. (2013a) were interested in the effect of point difference between a team and its closest competitor in contention for a sporting stake. They found a significantly negative impact of point difference which means a significantly positive impact of outcome uncertainty linked to sporting stakes. Scelles et al. (2013b) looked at determining the most relevant temporal horizon over which outcome uncertainty linked to sporting stakes is to be considered: are fans more sensitive to a possibility of change in standings at the end of the next match? Or after the following two matches? Or after more matches? It was found that the next match and the following two matches are the most relevant temporal horizons from a sporting-stake-related outcome uncertainty.

Together with outcome uncertainty, intense contention or competitive intensity is the most recent translation, accompanied with econometric testing, of Neale's league standing effect; though not yet widespread in the literature. The below study of competitive intensity in French football *Ligue 1* relies on a methodology experimented in the last two aforementioned references.

Changes in standings: A test with French football *Ligue 1* data over 2008-2011

Testing changes in standings: French football Ligue 1 in 2008-2011

Starting from the model developed by Scelles et al. (2013a, 2013b), changes in standings are now added in view of capturing a factor presented by Neale (1964) as important when

explaining gate receipts, and thus implicitly fan attendance. The significance of changes in standings was never tested so far. More precisely, changes in standings are included in the testing only for ranks with definite or potential sporting stakes. Two types of changes in the standing are distinguished, positive and negative, that is a team has reached (positive) or lost (negative) a better standing. The time horizon for considering changes in standings is the last two matches. Why two and not one? In European national championships, a team successively plays home and away, never twice home matches in a row or twice away matches in a row. It is assumed that a positive or negative change in the standing during the last home match could impact fan attendance as much as a change in the standing during the last away match. However, this assumption is to be confirmed by the last away match outcome. If the latter nullifies a positive (or negative) change in the standing which occurred during the previous home match, the positive (or negative) change is not taken into account; only a negative (or positive) change in the standing that occurred during the last away match is taken on board. A positive effect of positive changes in the standing is expected but not necessarily a negative effect of negative changes. It may be assumed that if a team reaches the second instead of the first rank but can still win the pennant, or if it becomes the first relegated instead of the first non-relegated team but can still avoid relegation, fans will continue to attend its matches.

Model specification

We have chosen a log-linear specification of football demand that is given by:

$$ATT_{ijt} = \beta_0 + \beta_X X_i + \beta_Z Z_{ij} + \beta_W W_{it} + \beta_K K_{jt} + \beta_L L_{ijt} + \varepsilon_{ijt} \quad (1)$$

where ATT_{ijt} stands for log-attendance to a match of home team i with an away team j during season t, β_0 is an intercept term, β_X are the coefficients of explanatory variables X_i which are

variables that only depend on home team *i*, β_Z is the coefficient of the explanatory variable Z_{ij} which refers to both home team *i* and away team *j*, β_W are the coefficients of explanatory variables W_{it} related to home team *i* and season *t*, β_K are the coefficients of explanatory variables K_{jt} related to away team *j* and season *t*, β_L are the coefficients of explanatory variables L_{ijt} referring to a match between home team *i* and away team *j* during season *t*, and ε a stochastic error term.

Among X_i variables, *POP* is home team log-*POP*ulation, *INC* stands for home team log-per capita *INC*ome per hour, *YOU* for home team *YOU*ng people percentage, *RUG* is a dummy equal to 1 if there is a *RUG*by club in the home team area and *WNS* is a dummy equal to 1 if the home team *W*aits for a *N*ew *S*tadium. Z_{ij} corresponds to a dummy *DER* equal to 1 if the match is a geographical *DER*by.

Regarding W_{it} variables, *BUH* is *H*ome team log-*BU*dget, *HOO* is a dummy equal to 1 if home team meets *HOO*liganism troubles (a concern to *Paris-Saint-Germain* for instance) and *PEH* is a dummy equal to 1 if home team was in *Ligue 2* in the past season (*P*romotion *E*ffect *H*ome). Among K_{jt} variables, *BUA* is *A*way team log-*BU*dget and *PEA* is a dummy equal to 1 if away team was in *Ligue 2* in the past season (*P*romotion *E*ffect *A*way).

With regards to L_{ijt} variables, *UNE* stands for home team current-month *UNE*mployment rate, *STH* is the *H*ome team *ST*anding, *STA* the *A*way team *ST*anding, *GHH* the average number of *H*ome team *G*oals scored at *H*ome; *GW* stands for the game week, GW^2 for its square, *WEE* is a dummy equal to 1 for matches played during the *WEE*k, *SA7* is a dummy equal to 1 for matches played on *SA*turday at *7* pm, *SA9* a dummy equal to 1 for matches played on *SA*turday at *9* pm, *SU5* a dummy equal to 1 for matches played on *SU*nday at *5* pm, *SU9* – matches played on *SU*nday at *9* pm – as the reference is not integrated in equation (1), *2009-2010* is a dummy equal to 1 if the match took place during the *2009-2010* season, *2010-2011*

a dummy equal to 1 if the match took place during the *2010-2011* season - the *2008-2009* the reference is not integrated in equation (1).

CB *C*ompetitive *B*alance is measured with betting odds using the Theil measure: $\sum[p_i*log(\sum p_i/p_i)]/\sum p_i$, where p_i reports the home team's winning probability, the away team's winning probability as well as the probability of a draw in a given match. The index is increasing with increasing (*a priori*) match outcome uncertainty (Pawlowski and Anders, 2012).

CI *C*ompetitive *I*ntensity is measured by PDS the Point Difference with the closest competitor having a different Situation or sporting Stake, *PCS* stands for a *P*ositive *C*hange in *S*tanding and *NCS* for a *N*egative *C*hange in *S*tanding during the home team's last two last matches.

The dataset has been collected from the French football league (LFP, http://lfp.fr/). Summary statistics pertaining to all variables are presented in Table 1. Some variables were not available on the French football league website and obtained from other sources: SPLAF (http://splaf.free.fr/) for population and derby, INSEE (http://insee.fr/fr/default.asp) for income and young people percentage, the French government website (http://www.travail-emploi-sante.gouv.fr/) for unemployment, France Football (http://www.francefootball.fr/) for budgets and Wikipedia (http://www.wikipedia.org/) for rugby club(s), hooliganism and waiting for a new stadium.

Empirical results

Equation (1) is estimated with 1,135 observations regarding 1,135 matches played in French football *Ligue 1* over the 2008-2011 period of time. OLS estimation is used with White standard errors robust to heteroscedasticity. The results are reported in Table 2. Point

difference linked to sporting stakes is significantly negative at a 1% threshold, which is consistent with Scelles et al. (2013a). Positive and negative changes in the standing exhibit the expected signs but are not significant. A same non significant result shows up for competitive balance, which is not consistent with Pawlowski and Anders (2012) and previous authors using betting odds who usually found a significantly negative impact. However, betting odds include home advantage which is generally stronger with a home team good standing.

Then the model has been tested once again without the home team standing. The results are reported in Table 3. Point difference linked to sporting stakes is still significantly negative at a 1% threshold and competitive balance is still not significant though its significance is close to a 10% threshold. Positive changes in the standing become significantly positive at a 5% threshold whereas negative changes in the standing remain non significant. Such results confirm the positive impact of changes in the standing in tune with Neale's league standing effect. Note that negative changes in the standing have no impact and in particular no negative impact. If a negative impact were to exist, negative changes in the standing would have counterbalanced the positive impact of positive changes in the standing and total changes would not have an overall net positive impact, contrary to the league standing effect.

Conclusion

The impact of changes in standings in French football *Ligue 1* over 2008-2011 has been tested in view of exhibiting empirical results that relate to a component of Neale's league standing effect, which had never been empirically verified so far. Changes in the standing have been checked as really having a positive impact on fan attendance. More specifically, positive changes have a positive impact whereas negative changes have no impact on the

standing. Thus this paper confirms the very existence of a league standing effect in the context of French football *Ligue 1* in 2008-2011 since the possibilities of changes exhibit also a positive impact while point difference with the closest competitor having a different sporting stake shows a negative impact.

Some questions remain to be addressed with regards to the league standing effect. Would it be also validated for the same French football league whatever the period under study? Or for other European football leagues as well? Or would it be confirmed for team sports leagues beyond football? It would be interesting to refine the research about which specific sporting stakes are the most significant for fans and whether changes and possibilities of changes in the standing during the first half of a season would have a significant impact similarly to those occurring in the second half of a season. Besides, it would be worth going beyond a positive impact of the league standing effect on fan attendance and gate receipts. Neale suggested a fourth estate benefit as being likely to trigger a positive impact of the league standing effect on newspapers sales. An essential avenue for further research would consist in testing the impact of the league standing effect on TV-viewers' audience. TV rights were not as much important when Neale wrote his article as they are nowadays. Fifty years after his seminal contribution, and taking into account European leagues that are not limited to the pennant race due to the possibilities of qualification to continental competitions and relegation, Neale probably would have written in his article, page 3: "The closer the standings *and the more sporting stakes*, and within any range of standings *with sporting stakes* the more frequently the standings change, the larger will be the gate receipts *and TV audiences*."

Notes

[1] All the more so that Fort and Quirk argue right after the above-quoted sentence that the win-percent model performs quite better than the championship model. Thus are they that much correlated? The authors do not see

that if the win-percent model measures competitive balance (which is correct) the championship model does not measure it (assuming that it does is not correct) since it is a metrics for something else, *i.e.* the league standing effect or contention as it is sometimes coined nowadays.

[2] Definite sporting stakes refer to ranks for which the consequence is definite (champion's title, qualification to a European competition or to playoffs, relegation). By contrast, potential sporting stakes refer to ranks which the consequence is unknown during a major part of the season because it depends on the final outcome of the national cup(s); the latter is only known by the end of season. Thus, in the *Ligue 1* championship, the fifth and sixth ranks have potential sporting stakes because they could be qualifying to Europa League if the winner(s) of the French Cup and/or the League Cup belong(s) to the first four ranks.

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Tables

Table 1 Summary statistics

	Mean	SD	Minimum	Maximum
ATT[1]	20,290.2846	11,402.1026	4,921	56,953
POP[1]	1,184,588.3286	2,473,448.2674	70,554	11,836,995
INC[1]	12.7517	1.3428	10.9	16.4832
UNE	0.0639	0.0109	4.2021%	8.8664%
YOU	0.3106	0.0282	23%	34.8%
BUH[1]	51.9172	34.7162	18,000,000	200,000,000
BUA[1]	51.7700	34.5222	18,000,000	200,000,000
STH	10.7269	5.6920	1	20
STA	10.3181	5.6667	1	20
GHH	1.3324	0.5388	0	4
GW	19.6123	10.9652	1	38
GW²	504.8789	441.7352	1	1444
WEE	0.0952	0.2934	0	1
SA7	0.5392	0.4985	0	1
SA9	0.0775	0.2674	0	1
SU5	0.1947	0.3960	0	1
SU9	0.0934	0.2910	0	1
DER	0.0722	0.2589	0	1
RUG	0.1322	0.3387	0	1
HOO	0.0167	0.1283	0	1
WNS	0.2996	0.4581	0	1
PEH	0.1498	0.3569	0	1
PEA	0.1498	0.3569	0	1
2008-2009	0.3339	0.4716	0	1
2009-2010	0.3313	0.4707	0	1
2010-2011	0.3348	0.4719	0	1
CB	8.2576	8.0700	0.7559	1.0984
PDS	3.2449	3.8749	0	26
PCS	0.1463	0.3534	0	1
NCS	0.1912	0.3932	0	1

[1] These variables are expressed in real terms and not in log terms.

Table 2 Estimation of the attendance equation

	Coefficient	se
Home team log-population	0.2248***	0.0094
Home team log-per capita income per hour	-2.0426***	0.0956
Home team current-month unemployment rate	0.0209**	0.0100
Home team young people percentage	0.0103***	0.0029
Log-budget for the home team	0.7237***	0.0221
Log-budget for the away team	0.1705***	0.0147
Standing for the home team	-0.0057***	0.0015
Standing for the away team	-0.0026**	0.0012
Average number of goals for the home team at home	-0.0049	0.0136
Game week	-0.0103***	0.0022
(Game week)²	0.0003***	0.0001

The match played during the week	-0.0368	0.0283
The match played on Saturday at 7 pm	-0.0025	0.0237
The match played on Saturday at 9 pm	-0.0002	0.0289
The match played Sunday at 5 pm	-0.0343	0.0252
The match played Sunday at 9 pm	ref.	
The match is a geographical derby	0.1213***	0.0227
There is a rugby club in the home team area	-0.0132	0.0315
The home team has hooliganism problems	-0.2051***	0.0522
The home team waits a new stadium	-0.4440***	0.0164
The home team was in Ligue 2 during the previous season	0.2235***	0.0197
The away team was in Ligue 2 during the previous season	0.0615***	0.0184
2008-2009	ref.	
2009-2010	-0.1607***	0.0178
2010-2011	-0.2077***	0.0198
Competitive balance	-0.0628	0.1327
Points difference linked to sporting stakes	-0.0081***	0.0021
Positive change in the standing	0.0209	0.0186
Negative change in the standing	-0.0132	0.0164
Constant	-3.7570	0.5171
Observations	1135	
Adjusted R^2	0.865	

Note: * significance at 10%, ** significance at 5%, *** significance at 1%.

Table 3 Estimation of the attendance equation without the home team standing

	Coefficient	se
Home team log-population	0.2253***	0.0094
Home team log-per capita income per hour	-2.0351***	0.0955
Home team current-month unemployment rate	0.0161*	0.0089
Home team young people percentage	0.0103***	0.0029
Log-budget for the home team	0.7251***	0.0221
Log-budget for the away team	0.1725***	0.0147
Standing for the away team	-0.0030**	0.0012
Average number of goals for the home team at home	0.0169	0.0124
Game week	-0.0092***	0.0022
(Game week)²	0.0003***	0.0001
The match played during the week	-0.0449*	0.0282
The match played on Saturday at 7 pm	-0.0104	0.0236
The match played on Saturday at 9 pm	-0.0033	0.0289
The match played Sunday at 5 pm	-0.0425*	0.0251
The match played Sunday at 9 pm	ref.	
The match is a geographical derby	0.1204***	0.0227
There is a rugby club in the home team area	0.0077	0.0311
The home team has hooliganism problems	-0.2127***	0.0521
The home team waits a new stadium	-0.4410***	0.0164
The home team was in Ligue 2 during the previous season	0.2230***	0.0197
The away team was in Ligue 2 during the previous season	0.0583***	0.0184
2008-2009	ref.	
2009-2010	-0.1576***	0.0177
2010-2011	-0.2019***	0.0198
Competitive balance	-0.2046	0.1274
Points difference linked to stakes	-0.0097***	0.0020
Positive change in the standing	0.0395**	0.0180
Negative change in the standing	-0.0093	0.0163
Constant	-3.7607***	0.5169
Observations	1135	

Adjusted R^2	0.864

Note: * significance at 10%, ** significance at 5%, *** significance at 1%.