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BEITRÄGE DER HOCHSCHULE PFORZHEIM

Tsjalle van der Burg

Competitive Balance and Demand for Football: A Review of the Literature¹

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Abstract

In European men's club football, competitive balance is decreasing, and therefore uncertainty of outcome too. The empirical studies do not give a clear unanimous answer to the question whether this decrease leads to lower utility for the fans, and so to lower welfare, hence this critical review of the literature. Three types of uncertainty of outcome have been distinguished in the literature: short-term, seasonal, and long-term, with possible different dimensions within one type. The paper argues that it is justified to interpret the literature in the following way: a decrease in one or two types of uncertainty of outcome, or a certain more specific dimension, can lead to serious reductions in welfare, while the conclusion may be different for other types or dimensions. Several studies suggest that a decrease in competitive balance has no effect on welfare, or just a small effect, as long as the competitive balance remains above some minimum level (or range) whereas once the competitive balance is below the minimum level, any further decrease in it results in serious reductions in welfare. Taking these and other points into account, the conclusion of the review is that it is highly plausible that the present level of competitive balance is below the welfare-maximising level in most competitions at least, and any further decrease in competitive balance will seriously reduce welfare.

1 Introduction

In European men's club football, the differences on the playing fields have increased in many national and European competitions (Groot, 2008; Rohde & Breuer, 2016; Ramchandani et al., 2018; Plumley et al., 2018; Scelles et al., 2020). To give an illustration: in the 25 seasons from 1946 to 1971, 48 different clubs won a national title in one of the Big Five football countries (England, Italy, Spain, Germany and France). In the 25 seasons from 1997 to 2022, only 31 different clubs managed to do so.

The question for this paper is whether this decrease in competitive balance leads to less utility (or in other words pleasure) for the fans, and so to lower welfare. The empirical studies in this field do not all answer the question in the same way. This paper critically reviews the literature, hoping to improve the answer.

Some definitions first. Perfect competitive balance means that all teams have equal playing strengths. The larger the differences in playing strength, the lower the competitive balance. A related concept is uncertainty of outcome. There are three types of uncertainty of outcome: short-term or match-level uncertainty, which concerns the outcome of individual matches; medium-term or seasonal uncertainty, which concerns the season's results; and long-term uncertainty, which concerns the question whether one or a few teams dominate a competition over a substantial number of seasons. The larger the differences in playing strengths (and so the lower the competitive balance), the lower the uncertainty of outcome in each of the three time periods above. Note that the distinction between utility and demand is neglected below, as higher utility levels (normally) imply higher demand, and *vice versa*.

Section 2 discusses the studies based on the revealed preferences approach that were published before 2015. Section 3 deals with the more recent studies based on the same approach. Section 4 focuses on the stated preferences approach. Section 5 presents the conclusions.

2 The revealed preferences approach: studies before 2015

The hypothesis that a high degree of uncertainty of outcome makes team sports more attractive, thereby increasing demand, has been the starting point for many empirical studies. This hypothesis has been tested in, among other things, empirical studies in which the dependent variables are attendance or TV viewership figures from the past (which means we are dealing with revealed preferences). Van der Burg

(2014) discussed four overview studies concerning European football and other team sports: Szymanski (2003), Borland & MacDonald (2003), Downward et al. (2009) and Dobson & Goddard (2011). Szymanski (2003, p.1156) concluded his overview as follows: "Overall, of the 22 cases cited here, ten offer clear support for the uncertainty of outcome hypothesis, seven offer weak support, and five contradict it." Borland & Macdonald (2003, p. 486) discussed even more studies, and summarised the results as follows: "Evidence of an effect of match-level uncertainty of outcome on match attendance is relatively weak", while "There is much stronger evidence of an effect of season-level uncertainty on attendance." They also remarked that only a small group of studies have analysed long-term uncertainty of outcome, with two recent studies finding "considerable support for a positive relation between long-run uncertainty of outcome and attendance", while earlier studies found little support. Downward et al. (2009) and Dobson & Goddard (2011) also concluded that the empirical research results are mixed.

Van der Burg (2014) investigated why the results are so different. Regarding the studies that conclude that uncertainty of outcome has no positive effect, he argued that this conclusion is the result of imperfect research in some cases. The imperfections are often related to the fact that the demand for football is affected by several variables, with uncertainty of outcome possibly being one of them, while there is a correlation between uncertainty of outcome and some other explanatory variables. In this context, the demand for stadium tickets aspect will be explored more extensively below, until the point where TV viewers are mentioned again.

A first observation is that many stadium visitors want the home team to win (Szymanski, 2006). From this perspective, visitors prefer matches where the probability of a home win is high. At the same time, they may also like uncertainty of outcome. From that perspective, they may prefer both teams to have equal chances. Thus, there can be opposing forces. This could explain why Knowles et al. (1992) and Rascher (1999), who focused on Major League Baseball (where draws are absent), found that the demand for match tickets peaks when a home team's probability of winning is somewhere between 0.6 and 0.7. Rascher and Solmes (2007) had a similar result for the National Basketball Association. A plausible explanation is that the two opposing forces lead to a point in-between the point where the uncertainty of outcome is at its maximum and the point where the home win probability is at its maximum. In relation to this, the three studies above concluded that their results support the idea that uncertainty of outcome has a positive effect on demand. I have no objections here.

Let me give my own interpretation of the results of the three studies above. These studies may lend some credibility to the following hypothesis: the marginal utility of uncertainty of outcome decreases when uncertainty of outcome rises. For instance, an increase in the home win probability from 0.5 (where the uncertainty of outcome is at its maximum in sports without draws, and quite high in other sports) to 0.6 has a small effect on demand, while an increase from 0.7 to 0.8 has a larger effect. This could help explain why the maximum in the studies above is at a point where the home win probability is somewhere between 0.6 and 0.7; at higher probabilities, the wish for uncertainty of outcome may dominate the wish for a home team win because the marginal utility of uncertainty of outcome is high.

Given the studies above, we can first have a short look at the empirical studies that tested the hypothesis that league level attendance peaks at the point where the long-term uncertainty of outcome is at its maximum. Some of these studies did not come to any significant conclusion (Van der Burg, 2014). However, this does not imply that long-term uncertainty of outcome is not important. If stadium visitors prefer matches where the home win probability is between 0.6 and 0.7, as suggested by the studies above, league level ticket demands will peak at a point where teams with a large fan-base and a large stadium win more often than teams with fewer fans. This means that the empirical studies above on long-term uncertainty of outcome did not pay enough attention to the possibility that demand is affected by several factors, including the wish for a home team victory, and therefore their conclusion that long-term uncertainty of outcome does not stimulate demand may be wrong.

A second observation is that ticket demand is also stimulated when the home team plays teams with an excellent brand strength and/or superstars (Baimbridge et al. 1996; Czarnitzky and Stadtmann, 2002; Pawlowski and Anders, 2012). A third observation is that demand for certain matches can be stimulated by the possibility that the home team surprisingly defeats a much stronger opponent, like David beating Goliath (Szymanski, 2006). The brand and superstar effect and the David and Goliath effect both imply that, *ceteris paribus*, many fans of non-top clubs may like to see their team playing a much stronger team. Such a wish opposes the possible embracement of uncertainty of outcome and the wish for a high probability of a home team win.

Given the above, and assuming that the marginal utility of uncertainty of outcome decreases with increasing uncertainty, I can offer a (partly new) theory about the relationship between ticket demand

and the probability of a home win. After explaining the theory, I will use the possibility that it is plausible to criticise some of the other empirical studies.

The theory starts at the point where the home win probability is (roughly) zero. Assuming the club plays in a high-quality league, this means that the away team has an excellent reputation and one or more star players. In this case there will be a certain demand for tickets, possibly at a level close to that of a friendly against a top team. When the home win probability rises to a low level above zero, the demand will first rise because the uncertainty of outcome rises, with the chance of David beating Goliath rising from zero to a level where this chance is at least sufficiently high to be taken seriously. Demand then reaches a local maximum at a point where both the David and Goliath effect and the brand and superstar effect are substantial (still). When the home win probability increases further, the David and Goliath effect becomes less important. The same holds for the brand and superstar effect since (for any given home team) a higher home win probability implies a weaker away team. These two points cause a decrease in demand, which is not fully compensated by the positive effect of a higher uncertainty of outcome – also because the marginal utility of uncertainty of outcome decreases when the home win probability gets closer to the probability of the away team winning (which implies uncertainty of outcome is increasing).

At some point, the David and Goliath effect and the brand and superstar effect become negligible (or small), and the demand reaches a local minimum. This may be a point where the uncertainty of outcome is substantial, implying a low marginal utility from uncertainty of outcome. At this point, the preference of the fans for a home team victory begins to dominate the preference for uncertainty of outcome, and further increases of the home win probability will lead to higher demand.

This brings us to the range where the probability of the home team winning is larger than the probability of the away team winning, which implies that further increases in the home win probability reduce the uncertainty of outcome. At some point, another local demand maximum is reached. Here, the marginal utility of the uncertainty of outcome has become high (again), and therefore the preference for uncertainty of outcome starts to dominate the preference for a home team victory.

In my view, the theory outlined above is not fully implausible. It is also possible that it is only partly correct in the sense that only one of the two local maxima described above exists, meaning there is one minimum and one maximum.

With this in mind, it is possible to make some critical remarks regarding the fact that some empirical studies found a U-shaped function for the relationship between demand and home win probability, which means that ticket demand reaches a minimum value when the uncertainty of outcome is high. The Buraimo and Simmons (2008) study gives an example. These authors found that demand for stadium tickets in the Premier League reaches a minimum when the home win probability is 0.35; according to the authors, this is rather close to the 0.45 mean (recall that football matches, unlike baseball and basketball matches, can end in a draw). Buraimo and Simmons concluded that their evidence shows that high competitive balance is associated with reduced gate attendance, and interventionist measures to improve competitive balance are not needed as far as stadium visitors are concerned.

However, this conclusion may be wrong if the theory outlined above is (partly) correct. Buraimo and Simmons only tested the hypothesis that match demand reaches a maximum or a minimum with some home win probability; their estimated quadratic function makes it possible to find one minimum or one maximum

only. Therefore, their finding that demand reaches a minimum when the uncertainty of outcome is high, can (also) be consistent with the theory outlined above. In other words, the finding does not rule out the possibility that a decrease in uncertainty of outcome has serious negative effects on demand in cases where the uncertainty of outcome is in the lower ranges.

This example, and the earlier one about long-term uncertainty of outcome, illustrate the problem that the possible effect of uncertainty of outcome on demand is difficult to investigate because of the existence of other explanatory factors. This problem also appears in studies about TV viewers. In relation to this, the conclusion by some empirical studies that uncertainty of outcome has no positive effect on demand may be wrong.

After giving such arguments as the ones above, Van der Burg (2014) summarised his discussion of the revealed preference studies with three remarks. First, it is plausible that, if uncertainty of outcome has a positive effect on demand, such an effect will, in certain cases, become visible only if the uncertainty is below some minimum level. Second, the empirical studies concern matches and competitions in the past, and quite often in the previous century, while the competitive balance of European football has been decreasing over the years. This means that a lack of competitive balance may have been a more severe problem in 2014 than that encountered by empirical studies published before 2014. Third,

despite the difficulties encountered when doing empirical research, there are also many empirical studies that support the idea that increases in uncertainty of outcome have a positive effect on demand, which makes it plausible that this uncertainty had a positive effect in quite a few cases. Overall, Van der Burg (2014) concluded it is plausible that, in 2014 or in the years soon after that, the competitive-balance level was below the welfare-maximising level.

3 The revealed preferences approach: recent studies

The remainder of this paper deals only with studies concerning European football. In recent years, many new studies based on the revealed preferences approach have been conducted. Seasonal uncertainty of outcome has received relatively a lot of attention here, often using in this context the concept of competitive intensity. Competitive intensity is “the degree of competition within the league/tournament with regards to its prize structure” (Kringstad and Gerrard, 2004). Competitive intensity can be seen as one of the dimensions of seasonal uncertainty. (Another dimension is to finish as high as possible in the league table irrespective of the special prizes associated with some of the places).

Scelles et al. (2016) operationalised the concept for the French Football Ligue 1 in the period 2008-2011. They distinguished nine prizes: winning the league, not being relegated, and seven other prizes related to positions that give, or may give, access to the Champions League or the Europa League. Before a match, a club can be in contention for one or more prizes. If it entailed more than one prize, the study focused on the effect of being in contention for the highest prize only. Competitive intensity is a negative function of the point difference with the closest team (in the current league table) that is contending for the same prize. In principle, the smaller the point difference, the higher the measure of competitive intensity, but the measure also takes into account the possibility that the fans only perceive a club to be in contention for a prize if the point difference can be bridged by a small number of matches. The study concluded that competitive intensity has a positive effect on the attendance for all nine prizes. Scelles et al. (2013a, 2013b) came to similar conclusions based on the same observations but different model specifications.

Bond & Addesa (2020) analysed the Serie A in the period 2012-2015 and distinguished six prizes: the championship, direct entry to the Champions League, entry to its qualifying rounds, direct entry to the Europa League, entry to its qualifying rounds, and avoiding relegation. Competitive intensity has a

positive impact on match-day attendance for all of them except Europa League qualification. Bond & Addesa (2019) focused on TV demand in the same period. They found a positive impact of competitive intensity for all the six prizes above, but all the coefficients were small implying the impact is low.

Buraimo & Simmons (2015) investigated whether TV demand for a match in the Premier League over the 2000-2008 period was higher if either of the two teams was contending for one of the following three prizes: the championship, qualification for either the Champions League or the Europa Cup, and avoiding relegation. They found no significant result for any prize. Their results are based on the idea that a team is in contention for a prize if the point difference with one or more competitors is less than, or equal to, two times the number of matches still to be played. So, according to them, if a team is 20 points behind the leader(s) with 10 matches to go, it is still contending for the title. Scelles (2017) did not think this is realistic. I agree, partly from personal observations, but also because Scelles et al. (2013b) showed that being in contention for a prize positively affects demand especially if the point difference can be bridged within two or three matches. Using an improved measure and data from the 2013/14 Premier League season, Scelles (2017) found that both championship intensity and Champions League intensity positively affect TV demand, while there are no significant results for the Europa League, potential Europa League, and relegation intensity.

Pawlowski & Nalbantis (2015) investigated championship uncertainty in Austria and Switzerland during the 2008-2013 period. They found that if the home team is in contention for the national title, it has a positive effect on attendance. Besters et al. (2019) focused on stadium attendance in the highest Dutch league during the 2000-2016 period. They noted that uncertainty about the final ranking stimulates demand towards the end of the season.

We now turn to studies that mainly focused on short-term uncertainty of outcome instead of seasonal uncertainty of outcome, while possibly also paying some attention to seasonal uncertainty. Schreyer et al. (2018), who analysed all 571 Premier League games broadcast in Germany between 2011 and 2016, spotted that short-term uncertainty of outcome has a positive effect on German TV demand for English Premier League football.

Martins & Cró (2018) analysed match attendance in the highest Portuguese league in the five seasons from 2010 to 2015. They came up with a U-shaped demand curve. In other words, matches in which the win probabilities of both teams are about equal (implying high uncertainty of outcome) attract less

spectators. They also found that while fans prefer the home team to win, they also like to watch an away team with a good reputation. According to them, these factors, together with a wish for 'loss aversion' (a wish to avoid situations where the match result for one's favourite team is worse than the expected value of the result), help explain the U-shape. However, in my view, as argued in the previous section, a U-shaped demand curve can also correspond to a theory in which fans like uncertainty of outcome instead of having loss aversion. Martins & Cró also analysed seasonal uncertainty of outcome. Their hypothesis that attendance increases when the home team is in contention for the championship or Champions League qualification was confirmed for both prizes.

Cox (2018), who focused on the demand for Premier League football over the 2004-2012 period, also discovered a U-shaped demand curve which means, in his interpretation (but not mine), that stadium visitors prefer low uncertainty of outcome over high uncertainty. At the same time, he also saw that TV viewers prefer high uncertainty of outcome over low uncertainty. Cox also investigated seasonal uncertainty, finding that attendance is higher when the home team is contending for the championship. Reilly (2015) focused on the League of Ireland match attendance in the 2012-2015 period. He noted that a decrease in short-term uncertainty of outcome has a negative effect on attendance, but only if the home win probability is below 0.25 to start with. Humphreys & Pérez (2019) investigated the Spanish La Liga matches in the period 2008-2016 and found that the relationship between home win probability and TV demand is U-shaped.

My conclusions on these recent studies are as follows. Regarding the effect of short-term uncertainty of outcome, the results are mixed. Some studies found that demand is U-shaped. Unfortunately, they did not pay any attention to the fact that such a finding still leaves open the possibility that lower uncertainty of outcome reduces demand in the ranges where the uncertainty is (very) low. Given that all the studies published after 2014 used data from 2016 or earlier, while competitive imbalance has been increasing over the years (section 1), the U-shaped demand curves do not show that a lack of uncertainty of outcome is not a problem in 2022. Given the results of some recent studies that short-term uncertainty of outcome does stimulate demand, all the studies together do not fully contradict the proposition that, in 2022, the inequalities between the teams are above the welfare-maximising levels in quite a few competitions. Note that a similar conclusion was drawn from the studies before 2014 in section 2.

Regarding seasonal uncertainty of outcome, I will first repeat Borland & Macdonald's (2003) conclusion in their overview study: there is much stronger evidence of an effect of seasonal uncertainty on match attendance than evidence of an effect of short-term uncertainty of outcome. I can now add that the overview of the recent studies on seasonal uncertainty shows that, according to all studies but one, uncertainty about winning specific prizes at the end of the season has a positive effect on demand for either all the investigated prizes or a significant part of them. Finally, I have not come across any recent study that analysed the effect of long-term uncertainty of outcome.

4 Studies based on the stated preferences approach

Several scholars conducted surveys in which the consumers were asked about their perception of the attractiveness of football and the factors contributing to it. Koenigstorfer et al. (2010, p. 150) concluded from their survey that "perceived competitive balance is the most important factor influencing the attractiveness of football leagues" in both the German and the English top division. They also found that perceived competitive balance in the Champions League has a positive effect on the attractiveness of this league for English and German fans.

Pawlowski (2013) and Pawlowski & Budzinski (2013) interviewed German, Danish and Dutch fans. They noted that perceived uncertainty of outcome is important for these fans; a decrease in perceived competitive balance negatively affects consumption behaviour in all three countries. Many fans said they would be willing to pay money to preserve or improve the existing state of the competitive balance.

Pawlowski & Budzinski (2013) added that their data confirmed their hypothesis that the relationship between competitive balance and consumption includes a discontinuity: once the competitive balance falls below a certain tipping point, the consumption behaviour of a fan changes significantly whereas if the changes in competitive balance remain above the tipping point, it will result in little effect on consumption. Budzinski & Pawlowski (2017, p.114) further explored this idea using insights from behavioural economics, and suggested that fans will not spend scarce resources on improving their consumption pattern with the help of detailed information about competitive balance as long as the balance remains above a "satisficing" threshold.

In my view, a different interpretation of Pawlowski and Budzinski's data is also possible. In their estimated demand curves (which concern the demand of all fans in a country taken together), small decreases in competitive balance from the base-level cause small reductions in demand, while larger decreases in competitive balance cause disproportionately larger demand reductions. Put differently, the slope of the demand curve is steeper when the uncertainty of outcome is lower. Such a demand curve can either be the result of the existence of a tipping point (situated at different levels of competitive balance for different fans), as suggested by Pawlowski and Budzinski, or it can also be the result of decreasing marginal utility of uncertainty of outcome, which would be my preferred hypothesis. In any case, the main conclusion is the same: reductions in uncertainty of outcome have a serious negative effect on demand once the uncertainty is in the lower ranges.

Finally, Nalbantis et al. (2017) offered new evidence of the positive effect of perceived competitive balance on the willingness to pay for football by German football fans.

To summarise: all the stated preference studies confirm the idea that uncertainty of outcome has a positive and important effect on demand, possibly especially when the uncertainty is low.

5 Conclusions

This final section focuses on the question whether the uncertainty of outcome is currently so low as to harm utility and welfare. Starting with the empirical studies based on the revealed preferences approach: the results in the field of short-term uncertainty of outcome are mixed. However, it is possible to criticise some of the studies which conclude that short-term uncertainty has no positive effect on utility levels. The criticism can be as follows: a decrease in uncertainty may cause a (very) small reduction in utility as long as the uncertainty remains reasonably high. Due to the intrinsic difficulties of statistical research, some studies may not have observed this small effect even though it could exist. In addition, the studies that have been criticised leave open the possibility that, once the uncertainty of outcome is in the lower ranges, further decreases in it will reduce utility (much) more seriously. In this context, it is relevant that the uncertainty of outcome is presently lower than in the past, while all the empirical studies discussed in this paper are based on data from before 2017 and often far before that. This could help explain why some studies concluded that the uncertainty of outcome was not too low; they might have concluded differently if they had used data from around 2022. In addition, one should not forget that the existence

of mixed results also implies that many studies found evidence of a positive effect of short-term uncertainty of outcome on demand. Overall, it is not implausible that, either in 2022 or in years soon to come, low short-term uncertainty of outcome will harm welfare to a serious extent in several competitions.

There is much stronger evidence of an effect of season-level uncertainty on attendance, both in the older studies and the more recent ones. Focusing on the more recent studies, all but one conclude that uncertainty about the question whether a team will win one or more specific prizes at the end of the season has a positive effect on demand for either all the investigated prizes or for part of them – with the one exception possibly being the result of weak operationalisation. Apart from this exception, all the studies conclude that uncertainty in the race for the championship and the race for Champions League qualification stimulates demand. In addition, uncertainty in the race for Europa League qualification may have positive effects, although the results are a bit mixed here. For the race to avoid relegation the results are really mixed. The above implies it can be useful to take measures to improve competitive balance in the top half of the league. However, it is difficult to imagine measures which improve the balance there while not improving it in the lower half of the league too, which means it can be useful to enact measures that improve the balance everywhere in the league - also because it is not impossible that the race to avoid relegation does stimulate demand. Finally, I have not seen recent studies about the effects of long-term uncertainty of outcome, while the results of the older studies are mixed.

The stated preferences approach has been used in several relatively recent studies. From these studies it can be concluded that uncertainty of outcome stimulates demand. Quite a few studies also found that, at the time of the surveys (2017 or earlier), the uncertainty of outcome was below the optimum level, or at a critical level at least. In addition, some surveys investigated whether large decreases in uncertainty cause disproportionately larger reductions in utility than small decreases, and the answer was positive.

It is useful to note the following here: If there are no problems with one or two of the three types of uncertainty of outcome, while there is a serious problem with the other type(s), then the lack of uncertainty of outcome is a serious problem and policy measures could be useful. This considered, the overall conclusion is that it is highly plausible that the present level of uncertainty of outcome is below the welfare-maximising level in most competitions at least, and any further decreases in uncertainty will significantly reduce welfare.

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