The impacts of football point systems on the competitive balance: evidence from some European footbal leagues

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THE IMPACTS OF FOOTBALL POINT SYSTEMS ON THE COMPETITIVE BALANCE: EVIDENCE FROM SOME EUROPEAN FOOTBALL LEAGUES

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SOMMARIO: Introduction. – 1. Outcome of uncertainty and competitive balance in professional team sports. – 2. Measurement of competitive balance in professional team sports. – 3. Football point systems and competitive balance: empirical evidence . – 4. Some concluding remarks.

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Introduction

Football is the most popular professional team sport, world wide. According to the world's football governing body, FIFA (Federation International de Football Association), there are more than two hundred million active football players. In recent decades, it has also become a multi billion dollar global industry. It has been generating substantial revenues for private individuals and clubs, as well as national and international organisations. The football industry generates about 3% of world trade[1]. Given its industrial size and its popularity, research in the economics of football has been rather limited in comparison to other economic activities. Football economics has been researched as a sub-discipline of professional team sports. The first detailed insight of football economics treated football teams as competitive firms[2]. The existing literature in professional team sports is, by and large, based on issues related to the demand for sports, transfer market, market structure, broadcasting revenues, etc. [3] The political economy dimensions of football have also been researched, since football has been considered a vehicle in many countries for the expression of nationalism, and for the promotion of an individual nation's power and status internally[4]. Nevertheless, it is still a considerably under-researched field, especially in the case of impacts of the point system on the degree of football competition[5]. This paper seeks for a statistical rationale for the introduction of a new point system, in order to increase the level of competitive balance, which is related to the revenue maximization.

[1] S. SZYMANSKI, *Economics of Sport: Introduction, The Economic Journal*, vol.111, 2001, 1-3.

[2] P. J. SLOANE, *The Economics of Professional Football: The Football Club as Utility Maximiser, Scottish Journal of Political Economy*, vol. 17, 121-146.

[3] For comprehensive discussions of these issues, see for example, P. DOWNWARD and A. DAWSON, *The Economics of Professional Team Sports*, Cambridge University Press, Cambridge, 2000. R. SANDY, P. SLOANE, and M. S. ROSENTRAUB, *The Economics of Sports: an International Perspective*, Basingstoke, Palgrave, 2004.

[4] For a detailed review, see S. SZYMANSKI, *The Assessment: the Economics of Sport, Oxford Review of Economic Policy*, vol.19, 2004, 467-477.

[5] There exist only two studies. G.NEWSON, *Three Points for a Win: Has it Made any Difference?, The Mathematical Gazette*, Vol. 68, 1984, 87-91. F. HALICIOGLU, *Do We Need a New Point System in Professional Football Leagues?*, A Research Paper Presented at International Conference in Economics IV, Economic Research Centre, Middle East Technical University, Ankara, 2000.

1. Outcome of Uncertainty and Competitive Balance in Professional Team Sports

Outcome of uncertainty in professional team sports is one of the fundamental concepts in the economics of professional team sports but, at the same time, it is very elusive to measure it. Outcome of uncertainty is directly linked to the gate revenues as, when the probability of either team in professional contest approaches one, gate receipts fall substantially[6]. Outcome of uncertainty in football is initially defined in two broad terms: short-run uncertainty, which is based on the concept of competitive balance within a season and it increases the demand for football; and long-run uncertainty, which refers to the extent of domination over time of the number of league championship competitors by one or a few clubs and it reduces interest of spectators substantially[7].

One should also point out that outcome of uncertainty is a significant factor in certain football matches, but it is less important as determinant of aggregate attendances. Moreover, any attempt to produce closer competition to increase match uncertainty of outcome with the intention of increasing gate attendances may be undesirable from the perspective of individual clubs, as supporters, apparently, like to watch high placed teams, particularly when their team is likely to win[8]. It is argued that two teams engage in a joint production when they play a football match. Therefore, the public will be worse off when the outcome of a game is easily predicted than if the game is tight. To this end, the governing body of football leagues should facilitate the appropriate tools in order to increase the competitive balance in a football league[9]. The need for competitive balance has also been recognised by the European Court of Justice in the case *Bosman ruling*. This ruling recommends that a professional league can flourish only if there is not too glaring an imbalance between the clubs taking part and the clubs should share the income generated fairly. There are basically two main approaches in analysing the concept of competitive balance in professional team sports. The first approach is linked to the professional sports leagues in USA. North American professional sports leagues are less competitive since there is no relegation or promotion between the separate divisions. League governing bodies redistribute the income of club teams in order to maintain a competitive balance. The second approach is a more European approach and it is based on the seasonal promotion and relegation. There is no direct intervention of promoting the competitive balance or fair share of broadcasting revenues, except some general directive such as *Bosman ruling*[10]. There is a general misconception in the economics of professional team sports that "competitive balance" and "outcome of uncertainty" concepts are essentially the same phenomenon. In fact, they are rather different. The former concept refers to a league structure that has relatively equal playing strength between league members. The latter is related to a situation where a given contest within a league structure has a degree of unpredictability about the result and, by extension,

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[6] See, S. ROTTENBERG, *The Baseball Players' Labour market, Journal of Political Economy, June*, 1956, 243-258. M. EL-HODIRI and J. QUIRK, *An Economic Model of Professional Team Sports Leagues, Journal of Political Economy,* vol.33, 1971, 1302-1319.

[7] P. J. SLOANE, *The Economics of Professional Football: The Football Club as Utility Maximiser*, cit.

[8] See, N. JENNETH, *Attendances, Uncertainty of Outcome and Policy in Scottish Football League, Scottish Journal of Political Economy*, vol.33, 1984, 176-198. D. A. PEEL and D. THOMAS, *Outcome Uncertainty and the Demand for Football: an Analysis of Match Attendances in the English Football League, Scottish Journal of Political Economy*, vol. 35, 1998, 242-249.

[9] R. H. KONING, *Balance in Competition in Dutch Soccer, The Statistician*, vol.49, 2000, 419-431.

[10] See, T. HOEHN and S. SZYMANSKI*, The Americanization of European Football, Economic Policy*, vol. 28, 2000, 205-240.

that the competition, as a whole, does not have a predetermined winner at the outset of competition[11]. This work, therefore, will concentrate on the competitive balance with a view of measuring the impacts of alternative points systems on the competitive balance in professional football leagues.

2. Measurement of Competitive Balance in Professional Team Sports

There is no clear-cut approach or technique to measure the competitive balance in a football league due to its ambiguity. There is an analogy that there are as many ways to measure competitive balance as there are to quantify the money supply[12]. The existing literature suggests that one can measure indirectly the competitive balance in football leagues by employing some proxy variables, such as the standard deviation of win percentages, the range of win percentages, the Gini coefficient of win percentages, standard deviation of league points, difference in goals scored, difference in league ranking, etc[13]. Each of these measurement techniques has its own advantages or disadvantages; therefore it is not possible to assume that any selected technique for the competitive balance will fully measure the level of competitiveness in professional football leagues. However, the seasonal "coefficient variation" (CV) of end-of-season points approach to measure the competitive balance can be used as a reasonable proxy for the degree of competitiveness in a football league, providing all games are played and no points are deducted[14].

The usefulness of the CV values for the competitive balance in a football league is based on the simple idea that dispersion of the final standing points is a direct result of the competitiveness that takes place between the football teams in seasons. This approach assumes that each football team has statistically got an equal chance of winning the championship at the beginning of a season. Therefore, the dispersion of total points at any time will follow a normal distribution. The CV values provide better plausible comparisons of the seasonal competitive balance levels than the absolute standard deviations (*s*) of the end-of-season points in the case of possible changes in league structures over seasons, such as the number of teams in a contest or the points awarded for a win or draw. It is clear that this approach does not consider any other factor that may have an impact on the level of competitive balance for the sake of simplicity. The CV value for a season lies between 0 and 1. These values reflect the extreme competition points. If the CV value is 0, it implies perfect competition in a league. If there is N team in a league, then all teams will have exactly the same strength. Each team will have equal wins, draws and losses in a season. Therefore, all the teams will finish a season with the same points and the championship contest may be decided by a draw assuming that all else are equal. Outcome of uncertainty over the championship and any game will not be predicted in

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[11] See D. FORREST and R. SIMMONS, *Outcome Uncertainty and Attendance in Sport: the Case of English Soccer, The Statistician*, vol. 51, 2002, 229-241.

[12] A. ZIMBALIST, *Competitive Balance in Sports League, Journal of Sports Economics*, vol.3, 2002, 111-121.

[13] For detailed discussion of these issues see, J. A. CAIRNS, *The Demand for Professional Team Sports, British Review of Economic Issues*, vol. 12, 1990, 1-12. J. BORLAND and R. MACDONALD, Demand for Sport, Oxford Review of Economic Policy, vol.19, 2003, 479-501.

[14] See N. KARACAN, *Turkiye Futbol Liginde Rekabet Derecesi Artiyor mu, Azaliyor mu ? Istatistik bir Yaklasim, Iktisat Fakultesi Dergisi*, vol.26, 1967, 82-94.; J. A. CAIRNS, *Evaluating Changes in League Structure: the Organization of the Scottish Football League, Applied Economics*, vol. 19, 1987, 259-275. H. KONING, *Balance in Competition in Dutch Soccer, cit*. The measurement of CV is as follows: $CV = s / \overline{X}$, where s stands for standard deviation and $\overline{X}$ is average value.

any way. The spectators of this league will watch very exciting games over a season. In the second extreme case, N teams are ranked from each other on the basis of their absolute strength. As a result, there will be no competition at all between the teams. There will be no uncertainty of outcome in matches or the championship contest. Moreover, no game will end up with a draw. At the end of a season, the champion team would have won all the matches and would have finished the league with the maximum number of points possible. The runner up would have beaten all the other teams except the champion. This analysis can be extended to the other teams in the league in the same manner according to their absolute strength. Similarly the team at the bottom of a league would have lost all of its games. From an impartial fan's point of view, attending or watching a game may not bring about any excitement in the case of this extreme situation.

3. Football Point Systems and Competitive Balance: Empirical Evidence

FIFA sets the rules and regulations in football leagues for its members, with a view to maximising the total revenues of this industry. Football is one of oldest team sports in the world and its basic rules have not changed since the establishment of FIFA. Most of the basic rules of football, such as the duration of game, the number of players in teams, the size of football pitches, the height and width of goal posts, etc, which may have an impact on the outcome of uncertainty on football games, are essentially the same. To this end, the football rules and regulations are fairly stagnant. A major change in the point awarding system, however, took place in the 1980s. The old point system (OPS) in which two points for a win, one point for a draw, was replaced by the current point system (CPS), which awards three points for a win and one point for a draw. The new point system was introduced in the season of 1981-82 in the English football leagues and was gradually adopted by the rest of the world. The rationale for the new regulations was presumably that more reward for winning games would encourage more attacking games and hence would increase the demand for football[15]. The impacts of the new point system on the level of competitive balance in football leagues seemed to be inconclusive according to one empirical study[16].

Regarding the importance of outcome uncertainty and competitive balance concepts in the professional football leagues, this paper proposes a new point system that may stimulate higher level of competition amongst the football teams. The empirical evidence for the new point system proposal is based on the CV values and the other factors influencing the competitive balance assumed to be constant for the sake of simplicity.

Let's assume, initially, that there is a hypothetical football league consisting of 18 teams and all matches are played on a two-tier basis in a season. The level of competitive balance in this league can be measured by computing the maximum CV values alternative point systems. For example, if the OPS is in use, then the maximum CV value will be 0.610. Similarly, the CV value for the CPS is computed and that is also 0.610. According to these extreme values of the CV, one can conclude that there is no statistical difference at the level of the competitive balance in applying either the OPS or the CPS. To this end, one can argue that policy strategy of FIFA for increasing the degree of competition between the teams has failed statistically. Now, let's assume some alternative point systems and compute the CV values for the above

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[15] G. NEWSON, *Three Points for a Win: Has it Made any Difference?, cit.*
[16] See for example, F. HALICIOGLU, *The Degree of Football Competition in the European Football Leagues: a Statistical Approach, Sports in the City Conference Proceedings*, vol.1, 1998, 189-205.

hypothetical football league in a similar manner. Alternative point system one (APS1) is based on three points for a win, two points for a draw and one point for a loss. Alternative point system two (APS2) refers to three points for a win, two points for a draw and nil points for a loss. Alternative point system three (APS3) is based on four points for a win, two points for a draw and one point for a loss. The maximum CV values of the alternative points systems along with the CV values of the OPS and the CPS are presented in Table 1.

Table 1. Maximum CV values under different point systems

Point Systems	s	$\overline{X}$	CV	N
Old Point System	20.752	34	0.610	18
Current Point System	31.128	51	0.610	18
Alternative Point System 1	20.752	68	0.305	18
Alternative Point System 2	31.128	51	0.610	18
Alternative Point System 3	31.128	85	0.366	18

Table 1 indicates that the APS1 halves the value of the CV, in comparison to the OPS and the CPS. It is clear that these values are simply pure statistical computations and do not suggest that there will be the same proportional increase at the level of competitive balance in the case of adopting the APS1. As far as the CV value of the APS2 is concerned, it suggests the same level of competitive balance; therefore, there is no statistical improvement with this point system. Finally, on checking the CV value of the APS3, it indicates a substantial statistical improvement in the competitive balance level but it is not as much as in the case of APS1.

The impacts of the above mentioned points on the level of competitive balance are also tested by using real football data in some European countries. To this end, five leading European countries, namely England, France, Germany, Italy and Spain, are selected for the empirical analysis. The respective CV values[17] over five football seasons from 1999 to 2004 were computed for each country using the points systems that are discussed in this section. The summary results are presented in Table 2. According to Table 2, the APS1 provides the most competitive league for each country in terms of the five season's average CV values. This simple exercise suggests that there is a statistical rational to adopt a new point system as the suggested point system APS1, in comparison to the other point system, provides a higher level of competitive balance. The CV values may also be used to rank countries in terms of the competitive balance. To this end, on five year's average the French league seems to be the most competitive league and the Italian league is the least competitive, as far as the CPS is concerned. Comparing the leagues in terms of the APS1, the Spanish league becomes the most competitive which is closely followed by the French league. This is further statistical evidence that APS1 may stimulate higher degree of competition. On CV ranking of the countries under different point systems the Italian league is always at the bottom except for the APS3, which puts the Italian league into third place. It is possible to extend the list of alternative point systems with different combinations of awards points for a win, a draw or a loss and some of those new point systems may produce even lower CV values. For example, one may argue that away wins should be rewarded with more points than home wins or that the draws with goals should be given more points than the draws without goals. Even though goal is a

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[17] End-of-season points are obtained from *Rothmans Football Year Book Editions 30-35* Headline Book Publishing London.

joint product in football matches but it does not necessarily suggest that the games with goals are more exciting than the ones, which are goalless, as far as impartial fans are concerned.

However, on the whole, it is plausible to suggest that if a new point system was introduced into a football league with a view to raising the level of competitiveness, it should be the one that provides at least statistically higher level of competitive balance than the existing one. Clearly, strategy of the football teams against the implemented point system will vary significantly from one point system to another, on the basis of their league position and the importance of each single game. Therefore, it is not possible to predict the individual behaviour of the football teams.

Table 2. Computed CV values in different point systems in some European football leagues

Point systems and countries	Season 1999/00	Season 2000/01	Season 2001/02	Season 2002/03	Season 2003/04	5 season's average
Panel A						
England -*Premiership*						
Old Point System	0.261	0.270	0.286	0.238	0.281	0.267
Current Point System	0.294	0.291	0.321	0.264	0.306	**0.295**
Alternative Point System 1	0.130	0.135	0.143	0.119	0.140	0.133
Alternative Point System 2	0.237	0.252	0.259	0.214	0.261	0.245
Alternative Point System 3	0.170	0.169	0.185	0.155	0.178	0.171
Panel B						
France -*Ligue 1*						
Old Point System	0.242	0.212	0.208	0.203	0.155	0.204
Current Point System	0.268	0.231	0.226	0.220	0.173	**0.223**
Alternative Point System 1	0.121	0.106	0.104	0.101	0.077	0.101
Alternative Point System 2	0.222	0.197	0.196	0.192	0.146	0.190
Alternative Point System 3	0.155	0.134	0.130	0.127	0.100	0.129
Panel C						
Germany - *Bundesliga*						
Old Point System	0.283	0.220	0.271	0.200	0.252	0.245
Current Point System	0.303	0.226	0.319	0.217	0.284	**0.270**
Alternative Point System 1	0.141	0.111	0.137	0.100	0.126	0.123
Alternative Point System 2	0.271	0.205	0.246	0.190	0.231	0.228
Alternative Point System 3	0.173	0.140	0.174	0.126	0.162	0.155
Panel D						
Italy- *Serie A*						
Old Point System	0.328	0.275	0.302	0.282	0.290	0.295
Current Point System	0.375	0.309	0.323	0.309	0.326	**0.328**
Alternative Point System 1	0.164	0.137	0.151	0.141	0.145	0.147
Alternative Point System 2	0.291	0.250	0.286	0.262	0.263	0.270
Alternative Point System 3	0.216	0.177	0.186	0.178	0.187	0.145
Panel E						
Spain-*Primera*						
Old Point System	0.213	0.219	0.189	0.214	0.163	0.189
Current Point System	0.240	0.246	0.204	0.240	0.189	**0.224**
Alternative Point System 1	0.106	0.109	0.094	0.107	0.082	0.099
Alternative Point System 2	0.194	0.199	0.178	0.194	0.146	0.182
Alternative Point System 3	0.138	0.139	0.118	0.138	0.110	0.128

4. Concluding Remarks

This paper has attempted to measure the impacts of alternative points systems in professional football leagues on the level of competitive balance. Considering the fundamental importance of the competitive balance for the football demand, FIFA may recommend a new point system in football leagues with a view to increasing the competitive balance. In search of developing such a policy tool for FIFA, this paper argues that the existing point system in football leagues does not serve fully the purpose of maximising the competitive balance. Due to the nature of football, there is no clear-cut indicator for the level of the competitive balance in a football league. Therefore one may apply some plausible proxies for the level of competitive balance. To that end, this study has adopted the approach of the CV values of end-of-season points. On utilising the CV values to measure the competitive balance, alternative point systems, along with the old and current point systems, were computed for a hypothetical football league structure. Then similar measurement approach is applied for five leading European football leagues, namely English, French, German, Italian, and Spanish. The hypothetical and real data results indicate that there is at least a statistical rational for having a new point system in professional football leagues. Amongst those point systems analysed, the most competitive football league took place when the point system of three points for a win, two points for a draw and one point for a loss was in use. In regards the level of football competition, the Spanish league appears to be most competitive and the Italian league is the least competitive on average. However, the empirical results are based on only five season's CV values and they should be treated cautiously. It is crystal clear that the conclusions of this paper are reached under rather restrictive assumptions. It is also true that the competitive balance in a league may not be improved just by switching between the point systems. However, the proposed point system is a costless policy tool and it is a statistically proven system to increase the competitive balance in professional football leagues.