

## Measuring the competitiveness of sport: are the top teams getting too strong?

### 1. Introduction

In England and Scotland, there have been growing concerns that football's top tier (currently the Barclay's Premier League and the Clydesdale Bank Premier League respectively) has become too polarised. Recently in England, Manchester United, Chelsea and Arsenal have been the dominant sides, whereas Scotland's top spot has been the preserve of either Glasgow Rangers or Glasgow Celtic. Similar patterns can be found across Europe, for example in Germany, Italy and Spain.

At the start of the season, the fans of clubs such as Chelsea and Manchester United, can anticipate the possibility of winning the Premiership and even the Champions League. For supporters whose teams are likely to congregate around the bottom end of the Premiership table, the battle to avoid relegation can also be perversely exciting. However, there remains a significant group of teams whose respective squads have enough strength to make relegation unlikely, but simultaneously lack the talent to be a serious title contender. For supporters of these teams, the Premier League may not seem so competitive.

In this brief, we are going to consider how we might measure the degree of polarisation that exists within the English Premiership and the implications for top level football if it persists.

### 2. Sport has 'peculiar economics'

Those of us who follow professional team sports, such as football or cricket, are consuming a product that Walter Neale (1964)<sup>1</sup> once referred to as having 'peculiar economics'. Sport is not like any other industry. It is characterised by abnormally

high levels of brand loyalty, combined with a high degree of co-operation between rivals. Owners are often prepared to pour their own resources into loss-making teams, long beyond the point when a 'traditional' firm would have exited from its industry. Furthermore, sport generates the news and gossip which not only sells specialist media packages to enthusiasts, but also provides newspapers and magazines with a constant flow of copy from which they can earn revenue from people who are simply intrigued by the celebrity lifestyle that many sports stars enjoy.

Our support for a particular team can be unwavering. In contrast, a manufacturer of televisions or mobile phones knows that its customers' allegiance can be transitory, reflecting changes in its products' relative value for money, reliability, technical attributes and image. Nonetheless, fan interest in a particular season will reflect, to some degree, the amount of *uncertainty* that characterises the outcome of individual games and indeed, entire fixture lists. If too many matches are foregone conclusions, demand will start to decline, initially from the marginal supporter. Thus, although teams will do all they can to be more successful than their rivals, they will recognize also that they are economically dependent on the quality of their competitors.

In the economics of sport literature, researchers often refer to the term 'competitive balance' when referring to the comparative playing strengths of teams within a given competitive environment. Since it would not be desirable for matches to be determined entirely by random factors, the key issue revolves around the *degree* of competitiveness that should prevail.

Traditionally, some teams have had greater revenue-raising

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<sup>1</sup> Neale W (1964), The peculiar economics of professional sports, *Quarterly Journal of Economics*, Volume 78, pp 1-14.

opportunities than others. Those located large conurbations have always had the propensity to attract larger attendances than rivals situated in smaller population centres, thereby providing the former with more resources to attract better players than the latter. In today's sport, bigger clubs not only benefit from higher attendances, but also the corresponding opportunity to attract major sponsorship deals and to raise revenues derived from the club's brand name and corporate hospitality. Thus, taken as a whole, there is an inbuilt tendency for some teams to become stronger while others grow weaker. This process can mean that the outcome of games will become more predictable, potentially detracting from the attractiveness of the overall product.

### 3. Can We Measure Competitiveness?

There are a number of ways in which we can measure the degree of competition that exists between teams. One such measure is the *concentration ratio*. This is often used by industrial economists who are interested in the degree to which the largest n firms dominate a particular industry.

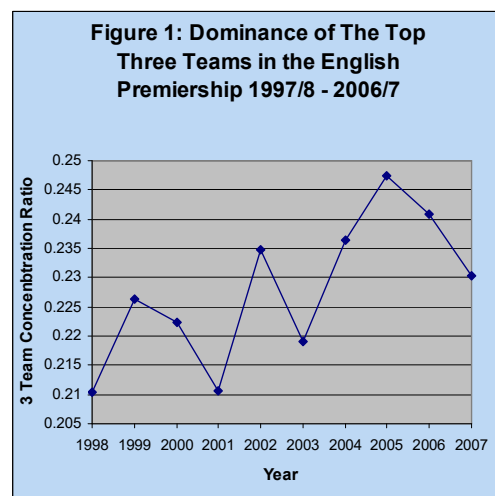
Applied to a sporting context, the concentration ratio can be used to measure the proportion of a season's points won by the top n sides within a k team league (where  $n < k$ ). Over time it can measure any changes in the degree to which the top n sides dominate a league. For example, if we were interested in the degree to which the top three teams dominate a league as a whole, the following equation would be used:

$$CR_3 = \frac{\sum_{i=1}^3 S_i}{\sum_{i=1}^k S_i} \quad [1]$$

where  $S_i$  denotes the share of points enjoyed by the  $i^{\text{th}}$  team. The  $\Sigma$  sign means 'the sum of'. In [1], the limits of the summation process are set out by  $i=1$  and 3 in the case of the

numerator in expression [1] (in other words, add together the total points accumulated of the top three teams) while  $i=1$  and  $k$  identify the limits for the summation for the denominator (add together all the points won by all of the teams, including the top three).

Figure 1 plots the three-team concentration ratio for ten seasons from 1997/98-2006/07. Two things emerge. First, the dominance of the top three sides varies from year to year as their strength changes relative to the rest of the league. Starting at a given peak, the top sides set a standard of play which strongly differentiates them from the rest of the division. In subsequent seasons, the chasing pack revise their own level of play (usually by recruiting better quality players and changes in tactics), enabling some degree of 'catch-up'. Eventually, the top sides raise the bar again and the process continues. Second, there is an underlying increase in the dominance of the top three sides, the implication being that the Premiership is showing signs of falling competitiveness. This may arise because the top sides are benefiting from playing in the Champions League and as a result are learning new tactics from outside the domestic league and in addition are acquiring the resources to hire even better quality players.



In the last three seasons, the top three teams accumulated almost a quarter of all the points accrued throughout the league, demonstrating their dominance over the remaining seventeen teams.

The concentration ratio is an example of what economists refer to as a 'summary statistic'. Summary statistics are convenient in that they condense a lot of information into a single indicator, but they inevitably sacrifice what can be interesting and relevant detail. For example, let us look more closely at the relative performance of specific teams.

In the 2003/04 season, the gap between Premiership winners Arsenal and runners-up Chelsea was eleven points. Fifteen points was the difference between Arsenal and third placed Manchester United while a massive thirty points separated Arsenal and fourth place Liverpool. Thus, although the top three were well ahead of their nearest rival, Arsenal, Chelsea and Manchester United were not themselves involved in a close finish to the season. In other words, the concentration ratio did not tell us that competition at the top of the Premiership during that season was not that intense. In fact, the last time that there was a genuinely close finish was in the 1997/98 and 1998/99 seasons. In both cases, one point separated the eventual winners (Arsenal and Manchester United respectively) from the runners up (Manchester United and Arsenal).

At this point, we might wish to take the analysis a stage further. One of the arguments often put forward as to why bigger teams seem to be getting stronger is that the reward system is biased in their favour. The emergence of the Premiership in the 1992/93 season was a major watershed in English football. Its evolution reflected the larger clubs' desire to get a larger share of a bigger cake.

Since 1888, the top professional teams had contested Division One of the Football League. However, by the 1980s, football was

suffering from a serious image problem as hooliganism worsened. As attendances declined, teams throughout all four divisions of the Football League experienced worsening financial problems.

By 1988, there were threats by 10 major teams to break away from the Football League to form a 'super-league', a vehicle through which the product could be re-branded and additional television monies attracted. Although this re-organization did not come to fruition, the emergence of a break-away league became inevitable. Eventually the top teams resigned from the Football League and in 1992/93, contested the first season for the newly formed FA Premiership.

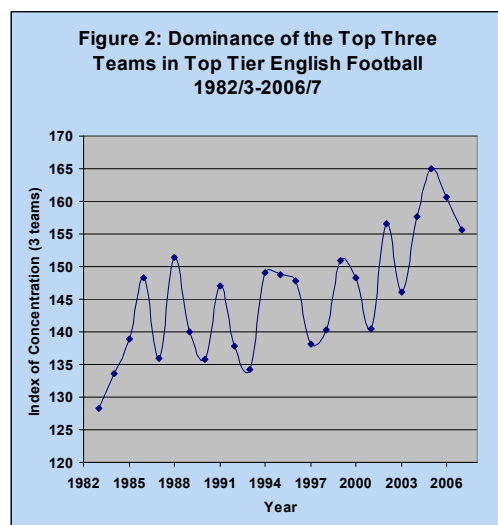
However, this was not the only major change to take place. The television rights for the newly created Premiership migrated from terrestrial television to BSkyB, a deal which generated a four-fold increase in television revenue for clubs. Inevitably, the financial gap between the top tier of football and the three tiers below it widened. Additional rewards from qualifying for European club competition (The Champions League and the UEFA Cup) generated further incentives for the very top teams to deepen the size and quality their playing squads.

In the light of these changes, we could take our analysis a stage further and consider whether the emergence of the Premiership has reduced competitiveness in football's top tier. One of the problems we face is that the number of teams contesting the First Division and the Premiership has not remained constant. When the Premiership was formed, it was made up of 22 teams. This figure was reduced to 20 from the start of the 1995/96 season, a figure that applies today. Furthermore, during its last three seasons the old First Division was a 20 team league, it having been a 21 team league in 1987/88 and a 22 team competition prior to that. However, if we were to use expression [1] to extend our

analysis, we face a problem. The basic concentration ratio is sensitive to the size of  $k$ . To take account of this, we can standardise the concentration ratio figure by dividing it through by  $(n/k)$ , thereby enabling us to make comparisons over longer periods of time. This produces a *concentration index* (CI). Sometimes this will be multiplied through by 100 meaning that any perfectly balanced league (irrespective of the size of  $k$ ) will produce a figure of 100. Increasing levels of competitive imbalance will produce outcomes in excess of 100. Thus, if  $n=3$  we get:

$$CI_3 = [CR_3 / (3/k)] \times 100 \quad [2]$$

Using equation [2], a range of  $CI_3$  estimates have been estimated, starting with the season 1982/83 and ending in 2006/07. These are shown in Figure 2.



The oscillations identified in Figure 1 can be seen to apply to seasons prior to 1997/98. However, taking the trend as a whole, the evidence suggests that the emergence of the Premiership enabled the top three teams to pull away further from the rest of the teams in the league.

This does not mean that teams did not dominate the old First Division. Between 1982/83 and 1991/92, Liverpool won the title five times and were runners-up on four other occasions. In other words, Manchester United's dominance of

the Premiership is not in itself a new phenomenon. However, the gap between the top three and the 'rest' has widened.

## 6. Some Policy Implications

By using some simple mathematics has enabled us to gain an insight into a trend that is affecting football. Although the emergence of the Premiership has brought a significant reversal in the decline in attendances that was characterising football in the 1980s, its strength may become its weakness if the top teams become too strong or start to feel that they are over-subsidising weaker rivals. We often hear talk about a breakaway European 'super-league'. Although this may provide a financially attractive and highly competitive environment for the very top teams, the outward migration of the major teams would affect the financial viability of the domestic game.

When a new season starts, our interest should perhaps focus on the teams are going to finish in fourth, fifth, sixth and seventh place rather than whether Manchester United or Chelsea are going to be overall champions. If this gap continues to grow, it must be asked whether the game of football is actually becoming better off.

## 7. Following up on this brief

If you have found the content of this paper interesting, you might wish to try and do some calculations of your own. Although the focus has been on football's Premiership, there is no reason why you shouldn't produce estimates for football's lower divisions. You could even consider football leagues elsewhere in the world or indeed, other sports. League tables from which these data can be obtained can be found readily on the internet. Consider also the policy implications of your findings. Remember that completing the calculations is not the end-point; you will have simply generated an evidence-base that can be used to inform and to prompt debate.