Competitive Balance and Revenue Sharing when rich clubs have poor teams

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ABSTRACT

In this paper, a distinction is made between two types of competitive imbalances, the good and the bad one. Since it is mainly the bad type of competitive imbalance, which worries us most, i.e. the large market clubs dominating the small market clubs, it can be shown that the competitive balance in a win maximizing league is always worse than in a profit maximizing league. Also, revenue sharing which aims to cure the good type of imbalance, i.e. a small market club dominating the league, might not have the desirable effect if the criterion for sharing is the budget of the clubs.

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1. Introduction

It is generally accepted that an excessive imbalance in a sports competition can have a negative impact on fans' interest. One regulation, aiming at a more balanced competition in the league championship, is revenue sharing among clubs. However, whereas economists agree that revenue sharing has a decreasing effect on player salaries, there is less agreement how it affects the distribution of playing talent among clubs. Quirk and El Hodiri (1974) have shown that, in the standard model with profit maximizing teams, a constant supply of talent, and only the own win percent of the home team affecting club revenue, revenue sharing does not affect the competitive balance. More recent studies have relaxed these standard hypotheses by assuming that also the win percent of the visiting team affects club revenue (Atkinson et al, 1988), the occurrence of other club revenue that is not shared (Fort and Quirk, 1995), win maximization (Kesenne, 1996, 2000), absolute quality affecting club revenue (Marburger, 1997), another sharing arrangement (Kesenne, 2001), or a non-constant supply of talent (Szymanski and Kesenne, 2002). It turns out that under some of these assumptions revenue sharing can produce a more balanced competition while, under other assumptions, the result can be a more unbalanced competition.

An interesting question that is often overlooked in the discussion of revenue sharing and competitive balance, is what kind of an imbalance we talk about? One scenario, that worries most people, is that of a few large market clubs, with strong drawing teams and large budgets, hiring all the talented players and dominating the competition year after year. Another scenario, which is less common, is that of a small market club dominating the large market clubs. We would like to cure the first imbalance by revenue sharing or any other regulation, but not so much the second one. We will call these different scenarios the 'bad' and the 'good' competitive imbalance. The latter is good in the sense that sports is basically competition, and that it is the uncertainty of outcome of a game or a championship which makes sports attractive. This means that it is not good when a large market team, with all its advantages in terms of drawing potential for players and supporters, is dominating the small market teams. Sports will be much more attractive, at least for the neutral spectator, when a small market team succeeds in beating the large market teams and wins the championship. Although the latter scenario is an imbalance as well, it can be called a good imbalance.

In this paper, we compare both types of imbalances under the profit and the win maximization hypothesis in chapter 2, and look at a few implications for revenue sharing in chapter 3. Chapter 4 concludes.

2. Profit versus win maximization and the competitive balance.

Késenne (1999) has shown that, in a win maximizing league, the competitive balance is more unequal than in a profit maximizing league if the clubs' revenue functions have the same quadratic specification, apart from the parameter representing the size of the market. However, in a more recent paper Fort and Quirk (2000) have shown that nothing can be derived regarding the competitive balance in a win maximizing league compared with a profit maximizing league, if no simplifying assumptions about the revenue functions are made beyond concavity. Although this last proposition is correct, an important question, when comparing competitive balances, is also what kind of imbalance we are dealing with. If it is only the bad competitive imbalance we are

interested in, it can be shown that the competitive imbalance in a win maximizing league is worse than in a profit maximizing league.

Let's assume a simple 2-club model where the revenue function of the large and the small market club depends on the size of the market, representing the drawing potential of a club, the relative quality or the win percent of the team, and the uncertainty of outcome. We specify the clubs' revenue function again as a quadratic function, but different from the specification in Késenne (1999), i.e.:

$$R_i = m_i p_i - b_i p_i^2 \qquad \text{for } i = 1, 2 \quad \text{and} \quad m_1 > m_2 \qquad (1)$$

R_i is total season revenue of club i, m_i is the size of the market and p_i is the winning percentage of the team. This first term reflects the positive impact of the winning percentage, which is larger for clubs in a large market than for the clubs in a small market. The second term indicates that also the uncertainty of outcome matters because this term reduces the positive impact of the winning percentage. The difference with the specification in Késenne (1999) is that the parameter b_i , which reflects the spectators' preference for a more balanced competition, is now different for every club.

On the cost side, we assume that the total cost of a club consists of the cost of playing talents and a fixed capital cost. Szymanski and Smith (1997) indicate that capital costs and playing talents are highly correlated, so that the cost function can be written simply as:

$$C_i = cx_i \qquad (2)$$

where c includes the unit cost of talent and the proportionality factor of the capital cost. Under the hypothesis of a perfectly competitive labour market, clubs are wage takers so that the unit cost of talent is the same for every club.

A profit maximizing club will hire talent until marginal revenue equals marginal cost. A win maximizing club, under the breakeven condition, will hire talent until average

revenue equals average cost. From these conditions, it can be derived that the labour market clearing talent demand of the large market club is larger in a win maximizing league then in a profit maximizing league i.e.:

$$x_1^p = \frac{b_2}{b_1 + b_2} + \frac{m_1 - m_2}{2(b_1 + b_2)} < x_1^w = \frac{b_2}{b_1 + b_2} + \frac{m_1 - m_2}{b_1 + b_2} \tag{3}$$

so that the following proposition holds for this quadratic revenue function:

The large market club in a win maximizing league has always more playing talent than the large market club in a profit maximizing league.

A consequence of this proposition is that, in a win maximizing league, the distribution of playing talent is more unequal in the 'bad competitive imbalance' scenario. This does not mean that the distribution of playing talent in a win maximizing league is always more unequal then in a profit maximizing league, as correctly stated by Fort and Quirk (2000). A win maximizing league can indeed have a more equal talent distribution than a profit maximizing league, but this quadratic specification of the revenue function suggests that this is only the case in the 'good competitive imbalance' scenario.
As can be derived from (3) a good imbalance in a profit maximizing league occurs if:

$$b_1 - b_2 > m_1 - m_2 \tag{4}$$

which means that the difference in preference for a more balanced competition must be larger than the difference in market size. This situation will not occur as easily in a win maximizing league, for which the condition can be derived as:

$$b_1 - b_2 > 2(m_1 - m_2) \tag{5}$$

An implication of the conditions (4) and (5) is that the competitive imbalance is always of the bad type if $b_1 = b_2$. It follows that the large market club has always more talents than the small market club if there is not much difference between the fans' preference for a more balanced competition. So, in that special case, the distribution of playing talent is more unequal in a win maximizing league than in a profit maximizing league.

3. The need for revenue sharing in a win maximizing league.

The basic idea of revenue sharing is to take away money from the big clubs and redistribute it among the small clubs. But which one is the big club? Is it the large market club, located in a large city? Or is the club with the largest budget? Or the club with the best players and the best performance record? Which characteristic should we take into account if different combinations of these variables can occur in one club? In section 2, we saw that, under certain conditions, the small market club can have the strongest team. It can be derived that in this 'good competitive imbalance' scenario, the small market club has also the highest budget. Indeed, in a win maximizing league where all clubs break even, it holds that:

$$R_i = C_i = c\, x_i. \qquad (6)$$

However, in a profit maximizing league the situation is a more complex. The small market club will have the largest budget under the following condition:

$$R_2 > R_1 \qquad if \qquad x_2(m_2 + c) > x_1(m_1 + c) \qquad (7)$$

This implies that the most talented club, or the club with the largest market, is not necessarily the club with the highest budget. The club with the the highest talent and the largest market, however, must also have the highest budget.

The question now is: do we need revenue sharing, or any other regulation, to cure a 'good' competitive imbalance? It has been shown that revenue sharing does not affect the talent distribution in a profit maximizing league as described by the standard model in section 2 (see Quirk and Fort, 1974, 1992). One can argue that in this case there is also no need to share revenue, because total league revenue is maximized in the profit maximizing player market equilibrium. However, as shown in section 2, the competitive imbalance can be worse in the win maximizing case. Kesenne (1996, 2000) has shown that revenue sharing always improves the competitive balance if clubs are win maximizers. But one could argue here that revenue sharing is only needed if the large-market club hires the best players (the 'bad imbalance' scenario). In this case revenue sharing also increases total league revenue, because it moves the equilibrium in the direction of the profit maximizing equilibrium. In the 'good imbalance' scenario, revenue sharing improves the talent distribution by moving talent from the small-market club to the large-market club. But is that what sports fans want? Moreover, in this case, revenue sharing moves the market equilibrium further away from the point where total league revenue is maximized. Is this what league administrators want? The club with the highest budget can be a well-managed club in a small town that is in competition with an ill-managed and poorly performing club in a big city. Should good management in sports be punished and discouraged by revenue sharing?

Can we not think of a criterion for sharing, other than the size of the budget such as the size of the market? In that case, money is taken away from the large market club and given to the small market club. This sharing arrangement would have the advantage of establishing a more balanced competition in the 'bad imbalance' scenario, but avoids the disadvantage that the small market club is punished for performing better than the large market club. Moreover, this sharing arrangement would also increase total league revenue.

The following sharing arrangement can serve as an example:

$$R_i^* = R_i - \alpha(m_i - \overline{m}) \qquad \text{with} \quad \alpha > 0 \tag{8}$$

where the stars indicate the revenue values after sharing and $\overline{m}$ is the average market size. A higher value of the parameter α means more sharing. By taking the first derivative of the average revenue with respect to the share parameter α, we can investigate the shifts of the clubs' demand curves for talent.

$$\frac{\partial AR_i^*}{\partial \alpha} = \frac{\overline{m} - m_i}{x_i} < 0 \quad \text{if} \quad m_i > \overline{m} \tag{9}$$

It follows that the large market clubs reduce their demand and the small market clubs increase their demand for talent, so that the small-market clubs' situation improves in both cases, the 'good' and the 'bad' competitive imbalance. If clubs are profit maximizers, nothing changes as it should.

4. Conclusion

In this contribution we have tried to show that it is not unimportant, in talking about competitive imbalance in a sports league, and curing it by revenue sharing, to make a distinction between two types of imbalances, which we have called the 'good' and the 'bad' imbalance. It is shown that the 'bad' type of competitive imbalance is always worse in a win maximizing league than in a profit maximizing league. Moreover, almost everybody agrees that something should be done about a bad imbalance that goes out of hand, whereas there can be serious doubt that a good competitive imbalance should be 'cured' and possibly turned into a bad one. Revenue sharing, based on a club's market size instead of on its budget, might be possible way out. If this sounds good in theory, the practical feasibility is a different matter. Even if it is possible to identify large and small markets, in terms of population size and density, the drawing potential of a club also depends on other factors, such as the popularity of a particular sport, or the available substitutes in the region for practicing and attending sports contests. Nevertheless, we still think that it is worthwhile to consider this criterion for sharing, maybe not as the only one, but in combination with other criterions.

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