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Win maximization and the distribution of playing talent in professional team sports

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ABSTRACT

In this paper we try to analyse the implications of win maximization as compared with profit maximization for ticket pricing and for the demand and distribution of playing talent in professional team sports. Special attention is payed to the impact of revenue sharing on the competitive (im)balance of the competition. One of the important conclusions is that under the win maximizing hypothesis there is a connection between revenue sharing and the distribution of playing talent. Also players' salaries are higher than under the profit maximizing hypothesis; players are not underpayed even if owners have monopsony power on the players' market.

WIN MAXIMIZATION AND THE DISTRIBUTION OF PLAYING TALENT IN PROFESSIONAL TEAM SPORTS

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1. Introduction

Since Rottenberg's seminal article on the baseball players' labor market in 1956, economists have shown a growing interest in the economics of professional team sports. One of the driving forces behind this literature has been the disagreement between owners and players on the restrictions on the players' labor market. Club owners and sports leagues argue that some player reservation system is necessary to keep big-city teams from monopolizing all playing talent. This would indeed diminish the quality of the games and kill spectators' interest. Players' organisations however claim that it is a fundamental right for all employees, including professional sporters, to choose their own employer at the end of their contract.

There seems to be less disagreement between economists (for some discord, see Markham and Teplitz, 1981) on the assertion that a player reservation system, which reduces the players' freedom to move to the better paying team but which allows team owners to

[1] I wish to thank my colleagues prof. W. Pauwels and prof. B De Borger for their helpful comments on an earlier draft of this paper. I am responsible for all remaining errors.

trade players as well as players' contracts on a transfer market, is ineffective in balancing the distribution of playing talent between teams. Rottenberg (1956) believes that the profit maximizing behaviour of professional sportclubs is a sufficiënt condition for a balanced competition and that no regulation of the players' market is needed. El Hodiri and Quirk (1971) and Quirk and El Hodiri (1974) have shown that regardless of any transfer system the playing talent will be concentrated in big city teams. There is also plenty of empirical evidence that little correlation exists between the distribution of playing talent and the restrictions on the players' labor market (see Noll, 1974, and Cairns, Jennett and Sloane, 1986). Scully (1989) has shown these labor market restrictions, which render some monopsony power to the clubs, cause a considerable degree of monopsonistic exploitati-on. Players' salaries turn out to be below marginal productivity.

Rottenberg (1956) believes that also revenue sharing arangements between clubs in a league fail in balancing the distribution of playing talent, a result that has been proven formally by El Hodiri and Quirk (1974). However, some economists like Noll (1974) and Sloane (1980) argue that a revenue sharing arrangement can improve the sportive competition through a less unequal distribution of playing talent. Also from an economic point of view it makes perfectly sense that teams should, to a certain extent, share their gate or TV revenues for a game. The peculiarity of professional team sports, compared with any other sector in the economy, is that it takes two competing firms (clubs) to supply the product (the game) and that the quality of the product depends on the competi-tive equilibrium of the two firms (Neale, 1964). The mere existance of home and away games does not weaken this argument because of the difference in population density and recruting potential of players and attendances in different area's. Moreover teams are usually not allowed by league regulations to choose their optimal location.

One might conclude from the economic literature on professional team sports that free agency in an unrestricted competitive labor market is as good as any other system in guaranteeing a competitive balance. One does not need a player transfer system or any revenue sharing arrangement since economic theory shows that these regulations do not affect the distribution of playing talent. However, these results are based on models that start from two important assumptions that are questionable at least for professional sports leagues in Europa: 1. clubs are profit maximizers and 2. clubs in their decisionmaking internalize the externality that an unbalanced competition diminishes their own and other teams' revenues. In this paper we discuss these assumptions and analyse how a transfer and a revenue sharing system affect the distribution of playing talent if clubs are win (or utility-) maximizers and if these external effects do occur.

In section 2 we compare the win maximizing assumption with the profit maximizing assumption and look at the effects on ticket pricing and talent hunting. Section 3 investigates the effects of a transfer and a revenue sharing system using a simple two-club model. Section 4 introduces the externality and discusses its implications. Conclusions are given in section 5.

2. Win Maximization versus Profit Maximization

One of the important questions in the literature on professional team sports is whether teams are profit maximizers. The American and Canadian literature presents some evidence that confirms the hypothesis that the owners' objective is indeed to maximize profits (Noll, 1974; Quirk and El Hodiri, 1974; Jones, 1969). Demmert (1973) and Noll (1974) both estimated price elasticities based on the idea that, if marginal costs exceed zero, a profit maximizer sets prices such that the price elasticity exceeds one. Ferguson, Stewart, Jones and Le Dressay (1991) developed and tested a model of price setting behavior based on profit maximization. In both studies the profit maximization hypothesis could not be rejected.

European and Australian economists like Sloane (1971, 1980) and Dabscheck (1975) are more in favour of a utility maximizing approach. One argument that supports the utility maximizing hypothesis is that professional soccer teams in countries like Great Britain, France, Holland or Belgium are making losses in the long run. This is sometimes countered by the assertion that not all the club owners' revenues are taken into account such as advertising or goodwill effects and the so-called psychic income.

A major problem is that it is not easy to distinguish profit and utilty maximization empirically. The general conclusion often is that the clubs' objectives and the financial situation of professional sports in North America and Europe are a totally different story.

In this section we develop a model based on win maximization and compare the club's pricing rule and hiring behaviour with profit maximization. Also the effects of player transfer and revenue sharing systems on the distribution of playing talent are investigated. Maximizing the win percentage of a team is a rather specific but not at all unrealistic objective for most professional sportsclubs in Europe. It is also a more operational objective than Sloane's maximization of a club's utility function which includes besides winning not only variables like attendances and the league's financial health but also more social objectives like the image of a town or the education of local youngsters. If we assume a club to be mainly interested in winning as many games as possible the only thing a club can do to reach this goal is to attract or buy as many playing talents as possible within its financial limits.

We start from a few important assumptions that are generally made in the literature on professional team sports (see Salant, 1992).

1. Clubs are local monopolists and price-makers on the product market, although some price regulation does occur like imposing maximum ticket prices.

2. There are no stadium capacity restrictions, which is a reasonable assumption for nearly all professional plays in Europe.

3. The marginal cost of spectators, being very small, is assumed to be zero.

4. Clubs are wage-takers on the player labor market, the unit cost of a playing talent is determined by demand and supply; this does not necessarily include "free agency", it can also mean that club owners are free to trade players on the transfer market in a player reservation system.

Under these hypotheses we start from the following demand function for tickets:

$$A = A(P,M,L/L^\circ) \quad (1)$$

where A is the number of season attendances, P is the average ticket price, M is the size of the market, L is the team's playing talent and L° is the average playing talent of the other teams in the league.

- The demand for stadium tickets is obviously a downward-sloping function of price, with a decreasing marginal effect on attendances.

- The size of the market M has a positive effect on ticket sales. The size of the market depends on the population density of the area and the local popularity of the sport. This variable can not be controlled by the club if the owner is not free to move his team to another location. It follows that the market size is the most important variable discriminating the different clubs in a league.
- Empirical evidence has shown that people like to see a good game but also that people prefer to see a winning team. The win percentage, i.e. the percentages of games won, seems to be one of the most important variables explaining the difference in total season attendances between clubs (see Noll, 1974; Cairns, Jennett and Sloane, 1986; Scully, 1989). A team cannot control the win percentage directly but it can do something about the quality of the players on the team. As a proxi for the win percentage we use the ratio between the playing talent of a team and the average playing talent in the league ($L/L°$). Because the player's labor market is clearly not homogeneous we call L the total number of playing talents; each player indeed has a different number of playing talents. We assume these talents to have a positive but decreasing marginal effect on a club's attendances given the average playing talent in the league.

Total revenues in a modern professional sportsclub not only consist of gate receipts but increasingly depend on TV-rights and sponsoring. But it is obvious that there exists a high correlation between a club's gate receipts and all other revenues. TV-stations and sponsors are more interested in a club or a game if the club is successful and the game is watched by many people. If we assume all other revenues to be proportional to the gate receipts with proportionality factor Q total revenue R can be written as: $R = (P+Q)\ A$
A club's total costs consist of labor and non-labor costs. The unit cost of playing talent $W°$ not only includes the wage cost of one playing talent but also the transfer fees for buying and selling the playing talent and the number of seasons the playing talent stays on the team. Data on the cost structure of professional soccer clubs in Britain have shown that a club's non-labor costs are highly correlated with the number of playing talents in the club (see Szymanski and Smith, 1993). If we assume these non-labor costs to be proportional to the playing talents with proportionality factor &, we can call w the total season cost of one playing talent, including all the non-labour costs, i.e.: $W = W° + \&$.

If clubs are profit maximizers we can write the profit function Z as:

$$Z = (P+Q)\ A(M,P,L/L^{\circ}) - W.L \qquad (2)$$

The first-order conditions for a maximum are:

$$Z_P = (P+Q)\ A_P + A = 0 \qquad (3)$$

$$Z_L = (P+Q)\ A_L - W = 0 \qquad (4)$$

It follows from equation (3) that a club sets the product price where the price-elasticity of demand equals P/(P+Q) which is smaller than unity. From equation (4) it comes as no surprise that a team will hire playing talent until marginal revenue equals marginal cost, i.e.: until the talent-elasticity of demand equals the cost-revenue share [W.L/(P+Q).A] which yields a ratio of both elasticities: $e_L/e_P = W.L/P.A$

The second-order condition of a negative definite Hessian matrix requires that both Z_{PP} and Z_{LL} are negative; these conditions are met by the properties of the demand function. We assume the sign of Z_{PL} to be positive:

$$Z_{PL} = A_L + (P+Q)\ A_{PL} > 0 \qquad (5)$$

It is clear that Z_{PL} is positive if the demand function is strongly separable in price and playing talent. Because we do not know of any empirical evidence concerning the sign of A_{PL} and since there is little reason to believe that this effect will be significantly negative and strong enough to outweigh the positive sign of A_L expression (5) will be positive. It follows that the slopes of equations (3) and (4) in the quadrant of price and playing talent are also both positive, i.e.:

$$dl/dp_{Z_P=o} > dl/dp_{Z_L=o} > 0 \qquad (6)$$

This is shown graphically in figure 1. The point of intersection of both curves E1 is the locus where the first-order conditions are met and marks the price level P1 and the number of playing talents L1 that maximize profits.

Let's turn now to the win maximizing hypothesis. If clubs are win maximizers rather than profit maximizers a club's objective is to maximize L under the restriction to break even, i.e. to maximize the Lagrange function F with multiplier g (>0):

$$F(P,L,g;Q,M,W,L°) = L + g\,[(P+Q)\ A(P,M,L/L°)\text{-}W.L] \qquad (7)$$

The first-order conditions now are:

$$(P+Q)\ A_P + A = 0 \qquad (8)$$

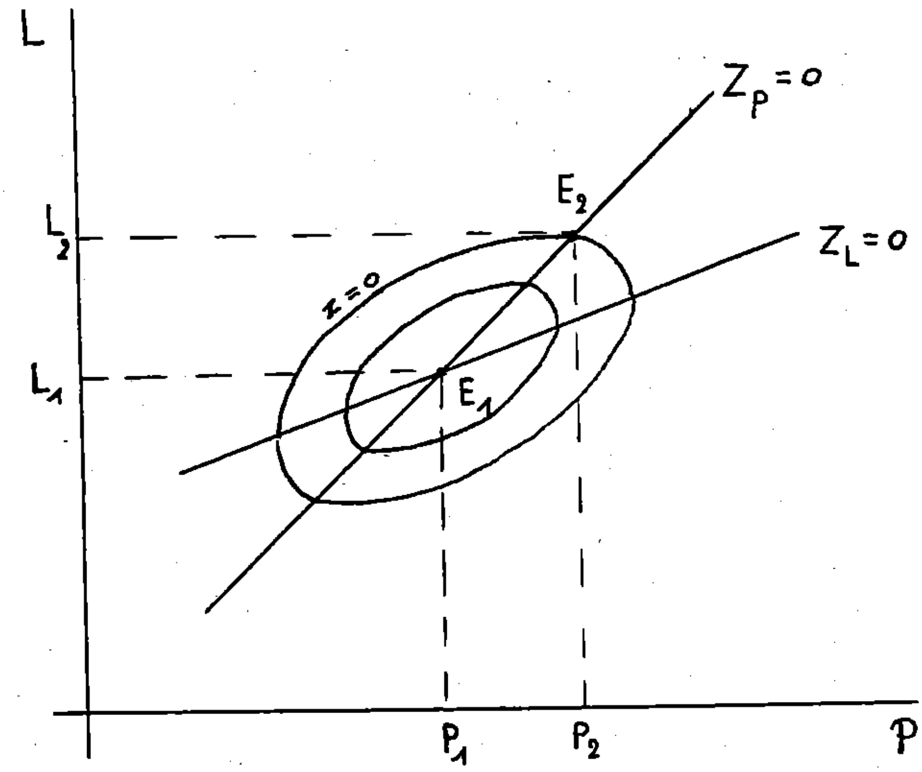
$$(P+Q)\ A_L = W - g^{-1} \qquad (9)$$

$$(P+Q)\ A - W.L = 0 \qquad (10)$$

The pricing rule of a win maximizing club turns out to be the same as the pricing rule under profit maximization. This result shows that it is impossible to distinguish the profit maximizing hypothesis from the win maximizing hypothesis using only the derived pricing rules as in Ferguson, Stewart, Jones, Le Dressay (1991).

From first-order conditions (9) and (10) it can be derived that also a win maximizing club will hire playing talent until the talent-elasticity of demand is smaller than unity; $e_L = 1\text{-}1/g.W$. A win maximizing club will hire playing until marginal cost exceeds marginal revenue, i.e. until average revenue equals the unit cost of playing talent.

Figure 1.



In order to compare the optimal price level and playing talent under the profit and win maximizing hypothesis we can look at figure 1 again. If the iso-profit contours (i.e. where dZ = 0) enter the picture, on one of these contours profits are zero. If a club maximizes L under the restriction of zero profits the equilibrium point is E2 with price P2 and playing talent L2. It turns out that both playing talent and price are higher for a win maximizing club.[2]

[2] Note that the win maximizing price will be lower than the profit maximizing price if Z_{PL} in expression (5) is negative.

Based on the Envelope theorem and the maximum value function L* we can also derive a few important implications of the win maximizing model:

$$L^*_M = F_M = g.P.A_M > 0 \tag{11}$$

$$L^*_W = F_W = -\, g.L < 0 \tag{12}$$

$$L^*_{L^\circ} = F_{L^\circ} = g.P.A_{L^\circ} < 0 \tag{13}$$

$$L^*_Q = F_Q = g.A > 0 \tag{14}$$

The impact on a club's optimal playing talent of the market size M is positive. It turns out that big-city clubs have the better teams because a higher value for M results in higher total revenues.

A higher cost W of a playing talent has obviously a negative effect on the number of playing talents on the team.

The stronger the opponents in the league the smaller a club's financial budget to buy and pay playing talent, because of the negative effects on attendances of the resulting decline in win percentage.

An increase in other revenues results in buying more playing talent, although one has to be careful here if these additional revenues come from TV-rights. More TV-rights from broadcasting more plays might have a negative effect on the demand for stadium tickets.

An important remark to the above analysis concerns the assumption of a perfectly competitive labor market for professional players. This assumption does not imply that players are free to move between clubs at the end of their contract, the so-called 'free agency system'. It can as well mean that the owners of a club also own the players and that they are free to buy and sell players on the transfer market. Although league's regulations and restrictions on players' mobility have been relaxed recently, clubowners still have some monopsony power on the players' labor market (see Jones, Nadeau and

Walsh, 1994). In the case of profit maximization it has been shown empirically by Scully (1989) and others that baseball players are generally underpayed receiving less than their marginal productivity. This result supports the textbook economic theory of non-discriminating monopsony on the labor market under profit maximization. However, if clubs are win maximizers the picture changes dramatically.

The first order conditions for a win maximizing non-discriminating monopsonist can be rewritten as:

$$(P+Q)\,A_P + A = 0 \tag{8'}$$

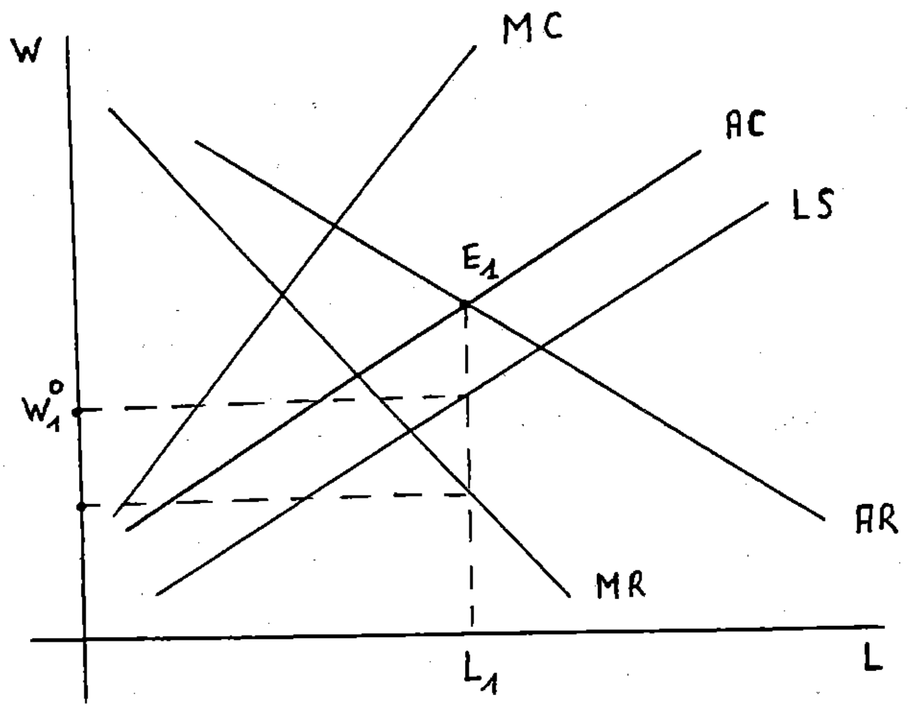
$$(P+Q)\,A_L = W + L.W_L - g^{-1} \tag{9'}$$

The pricing rule is unchanged but from (9') it can be seen that wages are not necessarily below marginal productivity as they are under the profit maximizing hypothesis. So we will not observe the same rate of monopsonistic exploitation as estimated by Scully (1989) if clubs are win maximizers under a player reservation system. Depending one the size of a club's non-labor cost players can also be overpayed. This can be seen from figure 2.

The labor supply curve is represented by LS which is a positive function of the unit cost of one playing talent W°. Also the upward sloping average cost curve AC is drawn according to the relationship W = W° + &, because we assumed a club's non-labor cost to be proportional to the number of playing talents (cfr. supra). The corresponding marginal cost curve MC lies above the AC because a non-discriminating monopsonist has to pay the same compensation for every playing talent. A win maximizing club's optimal number of playing talents is found in point E1 where the average revenue curve AR and the AC-curve intersect. The corresponding monopsonist's unit labor cost is $W°_1$ which is now clearly above the marginal revenue MR.

However, this does not exclude the possibility that there are individual cases of underpayment because a club can be a discriminating monopsonist. Bourg (1989) provides some evidence that the players' labor market in professional team sports is segmented between the well-payed starplayers and the average teamplayers. Because a player can only leave

Figure 2.



leave his old club if there is a bargaining agreement on the transfer fee with the new club the club owner still has the monopsony power to keep a player on the team paying a wage below marginal productivity.

3. The Distribution of Playing Talent in a Two-club model

In this section we investigate the distribution of playing talent if clubs are win miximizers and try to find out how it is affected by a revenue sharing arrangement. In order to do so we start from a simple two-club model where club x is representative for the richer big-city clubs with high drawing potentials, club y for the small-town clubs. Both clubs' demand functions and revenue functions only differ in one parameter which is the size of the market; i.e. $Mx > My$. For simplicity reasons we further assume a fixed supply of playing talent i.e. a perfectly inelastic supply curve with respect to the wage.

From equations (9) and (10) we can derive that the average revenue curve is a decreasing function of playing talent, because for every price level marginal revenue is smaller than average revenue. If both clubs are win maximizers and the player labor market is perfectly competitive the market will clear where the average revenues (AR) of both teams are the same and equal to the unit labor cost i.e.:

$$ARx(Lx,Mx) = ARy(Ly,My) = W \quad (15)$$

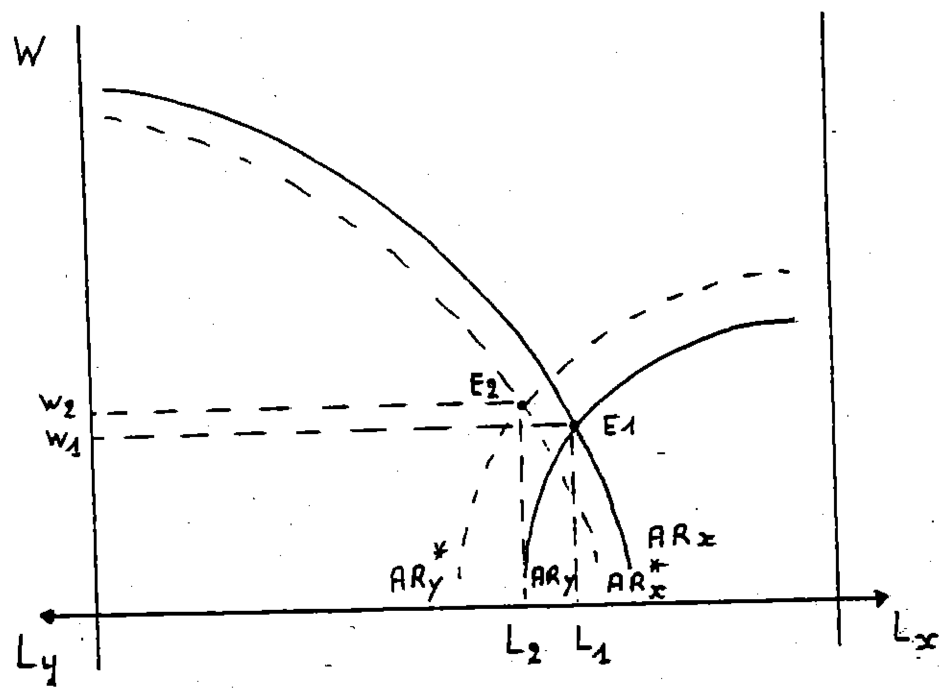
Because Mx > My it follows from this equilibrium condition that Lx > Ly. The expected result is that the big-city club will hire more playing talent than the small-town club.
This can be shown graphically in figure 3. The horizontal axis measures the market supply of playing talent which we consider to be constant. The average revenue curves ARx and ARy are both downward sloping but ARx takes a higher position than ARy. The equilibrium point is E1 where both average revenue curves intersect, which clearly results in a unbalanced distribution of playing talent L1.

Quirk and El Hodiri (1974) in an explicit modeling and analysis of team sport leagues have formally shown that also profit maximization causes an unbalanced distribution of playing strength if clubs with different drawing potential are profit maximizers operating in a competitive players labor market. In this case the equilibrium point is found where the marginal revenue curves intersect and are equal to the marginal cost being the cost of one playing talent (see Quirk and Fort, 1992).
A first important implication of win maximization compared with profit maximization is that it will cause an even more unbalanced distribution of playing talent, because the slopes of the marginal revenue curves are steeper than the average revenue curves and also because the prices set by profit maximizing clubs are lower than the prices set by win maximizing clubs (cfr. supra).
A second implication of win maximization is that the cost of one playing talent turns out to be higher than under the profit maximizing hypothesis because the point of intersection of the average revenue curves lies above the point of intersection of the marginal revenue

curves. This wage effect follows from a higher demand for playing talent given a fixed supply.

Quirk and El Hodiri (1974) have also convincingly shown that the player reservation system does not affect the distribution of playing talent if clubs are free to trade players on the transfer market. It is obvious that this conclusion, which also enjoys much empirical support, holds for both the profit and the win maximizing model. If one starts from the initial situation of a more balanced distribution of playing talent, as initiated by the player draft in a player reservation system, win maximizing clubs will trade players until both reach their break-even point; i.e. the smaller team that loses money will sell players to the bigger team that has extra profits to spend until the same distribution of playing strength is established. Empirical evidence points out that small teams are indeed net sellers of playing talent on the labor market, which provides some compensation for the loss of revenue for small teams.

Figure 3.



An interesting question is how the distribution of playing talent is affected by revenue sharing. As already mentioned by Rothenberg (1956) and formally proven by El Hodiri and Quirk (1974) sharing gate receipts has no impact on the distribution of playing talent if clubs are profit maximizers and take into account in their decisionmaking that the marginal return of one more playing talent not only depends on their home gate receipts but also on their revenues as a visiting team. Since adding one more playing talent to one team implies the loss of one more playing talent to another team revenue sharing has no effect on the distribution of playing talent.

However, as Quirk and Fort (1992) mention, a very important implication of revenue sharing under profit maximization is that the market clearing cost of one playing talent w will be lower than before. This is due to the lower demand for playing talent because under revenue sharing winning becomes less rewarding for profit maximizing clubs. So revenue sharing helps smaller clubs to survive because money is shifted from rich teams to poor teams and from players to owners.

What is the impact of revenue sharing on the distribution of playing strengths under the win maximizing hypothesis ? It can be shown that revenue sharing between teams in a league does have an impact on the competitive balance as distinct from the profit maximizing hypothesis.

To see this let ARx and ARy be the average return of respectively the big club and the small club without revenue sharing. Suppose that the revenue sharing arrangement consists of a share μ of the gate receipts going to the home team and a share $(1-\mu)$ going to the visiting team $(.5 < \mu < 1)$. The average returns after revenue sharing then are:

$$ARx^* = \mu\ ARx + (1-\mu)\ ARy\ Ly/Lx < ARx \qquad (16)$$

$$ARx^* = \mu\ ARy + (1-\mu)\ ARx\ Lx/Ly > ARy \qquad (17)$$

From these expressions we can derive that the sum of ARx* and ARy* is greater than the sum of ARx and ARy because ARx > ARy and Lx > Ly. It follows that the upward shift of the average revenue curve of club y is greater than the downward shift of the average revenue curve of club x. These curves are also shown in figure 3 and the point of intersection is now E2. The result of these shifts is that a more balanced distribution of playing talent between both teams emerges. If clubs are win maximizers rather than profit maximizers economic theory suggests that there exists a relationship between gate sharing arrangements and the distribution of playing talent. This is one of the most important implications of the win maximizing hypothesis. It supports the idea that revenue sharing in professional team sports can be justified.

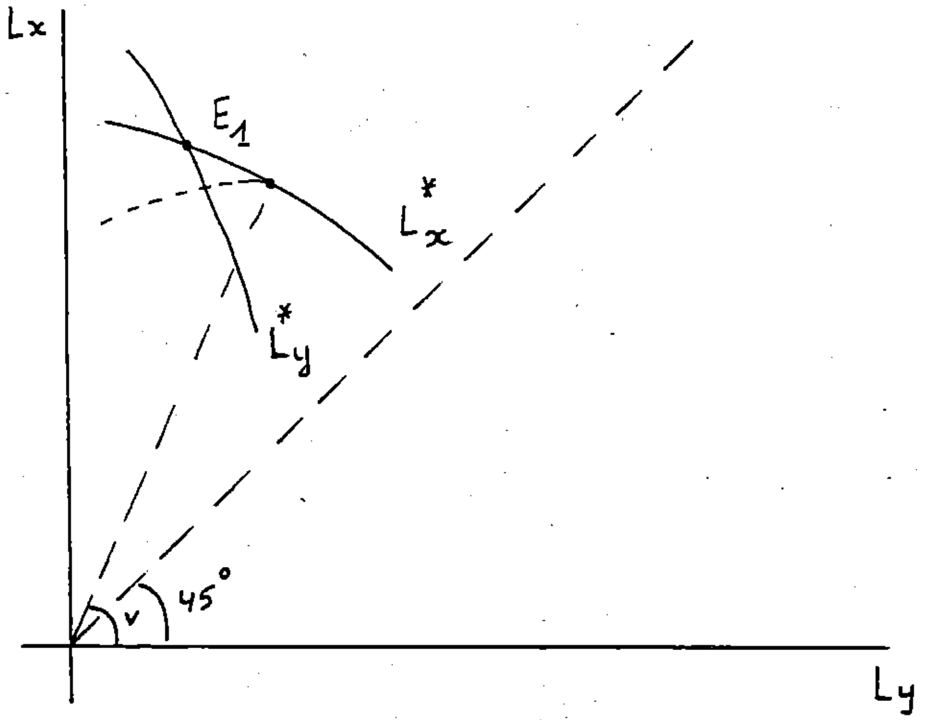
Figure 3 also reveals that revenue sharing arrangements raise the unit cost of playing talent. Given the previous finding that the cost of a playing talent was already higher under the win maximization hypothesis this conclusion holds à fortiore if there exists some revenue sharing arrangement.

4. The Externalities from Strengthening a Team

In demand equation (1) we made the assumption that the number of playing talents in a team has a positive effect on attendances. One obvious reason is that good players and particularly star players enhance the quality of the games and attract spectators. However, the quality of a game not only depends on the capabilities of the players but also of the uncertainty of outcome. Although spectators want to see a winning team, empirical research has also shown that the uncertainty of outcome in a league championship affects spectators' interest (see Jennett, 1984; Janssens and Késenne, 1987). If one or more teams are too strong and too many teams are out of competition for the championship too long before the end of the season, spectators are losing interest in the remaining games. So the win percentage of a team can already be too high so that a further increase of the win percentage can have a negative effect on attendances on both the home and away games. Sport is losing its most attractive characteristic if the uncertainty of outcome disappears.

The problem is that team owners or managers are not fully aware of this negative impact or at least do not take it this externality into account in their decisionmaking about the team's playing talents. Richer clubs in big city area's are overestimating the positive effects of putting more playing talent on the team by neglecting the negative effects of a even line. So the externality might explain why so many clubs are losing money in the long run as Cairns, Jennett and Sloane (1986) have observed for several European countries. There is also some empirical evidence that proportionally the bigger clubs are indeed losing more money than the smaller clubs.

Figure 4.



The big club is also operaring in the area where the talent ratio is greater than v, i.e. where a more balanced competition will result in increasing attendances. If a revenue sharing arrangement is introduced now L*x will shift downward and L*y will shift to the right. This will, as shown before, improve the competitive balance in the league. But now it will also raise the attendances of the big club at least until the talent ratio reaches its critical value v. Bigger clubs tend to neglect the possibility that they also can gain from revenue sharing. It follows that total league attendances and revenues will rise i.e. the attendances and also the revenues of both clubs together. Refering to M. Canes (1974) we can say that under these circumstances revenue sharing in professional team sports creates an increase in social benefits.

low uncertainty of outcome. We already know from the previous sections that the probability that this externality occurs is greater under win maximization than under profit maximization.

In this section we investigate the impact of this externality on the distribution of playing talent. We drop the assumption of a constant supply of playing talent and no additional assumption is made concerning the ticket demand of the small club. For the big club's demand equation we now assume that the ratio of playing talents Lx/Ly still has a positive and decreasing marginal effect on attendances but that this effect becomes negative if the talent ratio exceeds some critical value v ($v>1$). However the big-team owners are convinced that the effect on attendances is still positive. For simplicity reasons we make the reasonable assumption that small-team owners are more aware of this negative impact and take it into account in their decisionmaking. Based on the Envelope theorem (13) we can then derive that:

$$L^*x_{Ly} > 0 \quad \text{if} \quad Lx/Ly > v \tag{18}$$

A graphical representation of the corresponding relationships between the maximum value functions L^*_x and L^*_y are given in figure 4. We consider only the area above the 45°-line where the talent ratio Lx/Ly is greater than one, because a big-city club with a high drawing potential will always have more playing strength than a small-town club.

The curves L*x and L*y represent the break-even points for both teams as they are seen by the owners i.e. the maximum (or optimal) number of playing talents for one team given the playing talent of the other. Both curves are monotonously decreasing functions but the slope of L*y is steeper than the slope of L*x because of the decreasing marginal effect of talent on attendances (cfr supra). The adjustment proces based on the clubs' optimizing behaviour will end at equilibrium position E1, which is the point of convergence where both curves intersect. However the real L*x-curve, according to condition (18), reaches its maximum point where the talent ratio $Lx/Ly = v$. This relationship is indicated by the dotted L*x-curve. It follows that the big club is losing money in point E1 because it has overinvested in playing talent, operating in the area above its real break-

5. Conclusions

In this paper we have studied the implications of the win maximizing hypothesis in professional team sports with special attention to the impact of revenue sharing betweem teams. The main conclusions from our analysis are the following:

- The price setting behavior of clubs in professional team sports is the same under the profit and the win maximizing hypothesis and observed price elasticities are smaller than unity because clubs' revenues are increasingly based on other revenues than gate receipts.
- The price level set by win maximizing clubs can be expected to be higher than the price level of profit maximizing clubs. This offers an additional justification, apart from the clubs' local monopoly positions, for leagues to impose maximum ticket prices.
- Players' wages in a competitive players market with a fixed supply of playing talent will be higher if clubs are win maximizers rather than profit maximizers because of a higher demand for playing talent. It is unlikely for players to be generally underpaid even if clubs have some monopsony power.
- Player reservation systems or any other restrictions on players' mobility do not have any effect on the distribution of playing talent nor on players' salaries.
- Revenue sharing can improve the distribution of playing strength if clubs are win maximizers which we believe to be true for most sports in Europe; it also raises players' salaries.
- Revenue sharing might also improve the financial situation of all clubs in the league in case they are losing money because of declining attendances caused by too high a concentration of playing talent diminishing the uncertainty of outcome in the league's championship.

The conclusions of this theoretical analysis offer a few interesting hypotheses to be tested empirically. First of all the question remains whether professional sportclubs are profit maximizers or win maximizers. It turns out that test based on the pricing rule or on the value of the price-elasticity of demand cannot discriminate between both objectives. Other hypotheses to be tested are whether or not players are underpayed in a monopsonistic players' market with win maximizing clubs, or to what extent the existing competitive imbalance between big and small clubs has a negative effect on attendances.

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