Abstract
In this paper the simultaneous decision of a professional sports club on gate ticket prices and talent demand is analysed for a profit and a win maximizing sports club. Although the pricing rule is the same in both scenario’s, the ticket price and the talent demand turn out to be higher in a win maximizing club. Somewhat unexpected is the result that an increase of salary level lowers the optimal ticket price, which complicates the impact of a salary cap on the ticket price. One of the consequences of the identical pricing rule is that all tests based on the pricing rule cannot be conclusive w.r.t. the objective of a club. Also the value of the estimated price elasticity of the demand for tickets can hardly reveal anything about the objective of a sports club. More reliable tests could be based on the comparison of the marginal productivity and the salary level, or on the different impact of revenue sharing.

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1. Introduction.

An important topic in the literature of professional team sports is the competitive balance in a league. Club owners and league administrators argue that some regulation of the player labor market is necessary to restrain big-city teams from monopolizing all playing talent and killing the spectators' interest in the league championship. However, many academics as well as player associations strongly argue against any restrictions on player mobility and player salaries. Rottenberg (1956), in his seminal article on the baseball player labor market, asserts that the profit maximizing behaviour of professional sportclubs is a sufficient condition for a balanced competition and that no regulation of the player market, like a transfer system or revenue sharing, is needed. This so-called invariance proposition has been confirmed by formal economic modeling and empirical research (Quirk and El Hodiri, 1974, Quirk and Fort, 1992). However, Késenne (1996, 1999, 2000), starting from a win maximizing model, which is a variant of Sloane’s (1973) utility maximization model, shows that without any market regulation the
competitive balance in a league can be seriously threatened and, moreover, that revenue sharing can improve the competitive balance.

This raises the important question whether clubs are profit maximizers or not. The American and Canadian literature presents some evidence that confirms the hypothesis that the owners' main objective is profit maximization (Demmert, 1973; Noll, 1974; Quirk and El Hodiri, 1974; Jones, 1969; Stewart, Jones and Le Dressay, 1991). From a European and Australian perspective there is a strong belief that clubs are utility maximizers (Sloane, 1971; Dabscheck, 1975; Kesenne, 1999). Their objective functions include, besides profits, also variables like playing success, average attendance and the health of the league. One argument in favor of the utility maximizing hypothesis is that professional soccer teams in many European countries have been making losses over a long period. This is sometimes countered by the assertion that accounting figures cannot be trusted (which is true), but why should Europe have less trustworthy accountants than America? Of course, a win maximizer is a profit maximizer if all non-financial revenues are taken into account such the owners' satisfaction (psychic income) of being the president of a winning team. Although things in Europe are changing in today’s sports business the lesser emphasis on profits in European sports can not be denied.

In section 2 we compare the win maximizing and the profit maximizing hypothesis in a model that takes into account the simultaneous management decision on ticket price and talent demand. Section 3 present some policy implications. In section 4 a simplified numerical example is presented. Section 5 tries to show that most empirical tests of the profit maximizing hypothesis so far are unreliable. Section 6 concludes.

2. The profit versus the win maximizing hypothesis.

In this section we develop a model of professional team sports that allows to compare both optimal ticket prices and talent demand in the profit and the win maximization scenario. So far the decisions club owners have to make about the ticket price and the demand for playing talent have been studied separately, holding the value of the other variable constant. Obviously, both decisions have to be made simultaneously, which is the approach taken in this model. Maximizing the winning percentage of a team, as a special case of utility maximization, is a rather specific but not unrealistic objective for many professional sports clubs in Europe. If we assume a club to be mainly interested in sportive success, which means trying to win the
championship or as many games as possible, the only way to reach that goal is to hire as much playing talent as possible, within the limits of the (expected) budget, or given a fixed profit rate that is needed to satisfy the shareholders or to finance stadium investements or talent development.

The most important assumptions that are generally made in the literature on professional team sports (see Salant, 1992) are that clubs are local monopolists and price-makers on the product market (although some price regulations like imposing maximum prices do exist). Clubs are wage-takers on the player labor market and the unit cost of a playing talent is determined by demand and supply on a 'free agency' player labor market or on a competitive transfer market where players are traded by the owners. There are no stadium capacity restrictions, which is a reasonable assumption for nearly all professional sports in Europe. Since the marginal cost of spectators is very small, it is assumed to be zero.

Under these hypotheses the following demand function for stadium tickets can be specified:

$$A = A( m, p, l )$$

with: $A_m > 0$, $A_p < 0$, $A_l > 0$, $A_l < 0$  \hspace{1cm} (1)

$A$ is a club's season attendance, $p$ is the ticket price, $l$ is a team's playing talent and $m$ is the size of the market or the drawing potential of a club. Subscripts are used to indicate first partial derivatives. We assume that the size of the market cannot be changed by the club's management. The demand for stadium tickets is assumed to be a downward sloping function of the ticket price.

The empirical evidence has shown that big city clubs have more spectators than small town clubs, and also that spectators prefer to see a winning team. The winning percentage, i.e. the percentages of season games won, is 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 winning percentage directly but it can change the number of playing talents. Under the plausible assumption that the winning percentage is a function of the relative playing talent of a team, which is the ratio between its playing talent and the total supply of playing talent. If we assume the total supply of talent to be constant in a closed league, and put equal to unity, the demand function can as well be written in terms of the number of playing talents. The player labor market is clearly not homogeneous, each player has a different number of talents, therefore $l$ is the total number of playing talents and not the number...
of players. It cannot be denied that also the closeness of the competition or the so-called ‘uncertainty of outcome’ affects the interest of spectators and the clubs’ revenue. We therefore assume that playing talent has a positive but decreasing marginal effect on a club’s season attendance. Moreover, the impact of price and talent changes on ticket demand are assumed to be larger for large-market clubs.

Total revenue in a modern professional sportsclub not only consists of gate receipts but increasingly depend on broadcasting rights, sponsoring and merchandizing. However, it is obvious that there exists a strong positive correlation between a club's stadium attendance and most of its other revenues. Sponsors are more interested in a successful club and television companies prefer to broadcast games that are watched by many people. The possible negative effect that broadcasting a game might have on stadium attendance is too small to offset this positive correlation. Also merchandizing profits from a high number of spectators. Therefore, we assume that all non-gate revenues are proportional to the number of attendances with proportionality factor \( q \). So, total club revenue \( R \) can be written as:

\[
R = (p + q)A
\]  

(2)

A club's total cost \( C \) consists of labor and non-labor costs. In a free agency system, the unit cost of a playing talent is the wage per playing talent \((w)\). The capital cost \((c^0)\) is considered to be constant in the short run.

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

\[
\pi = (p + q)A - wl - c^0
\]  

(3)

The first-order conditions for a maximum are:

\[
\pi_p = (p + q)A_p + A = 0
\]  

(4)

\[
\pi_l = (p + q)A_l - w = 0
\]  

(5)

In equation (4) the pricing rule is given and in equation (5) we see that a team will hire playing talent until marginal revenue equals marginal cost. The second-order condition for a
maximum requires the Hessian matrix to be negative definite, so that the following inequalities must hold:

\[ \pi_{pp} < 0 \quad \pi_{ll} < 0 \quad \pi_{pl} \pi_{pp} - \pi_{pl}^2 > 0 \]  

(6)

where:

\[ \pi_{ll} = (p + q)A_{ll} < 0 \]  

(7)

\[ \pi_{pp} = (p + q)A_{pp} + 2A_p < 0 \]  

(8)

\[ \pi_{pl} = \pi_{lp} = (p + q)A_{pl} + A_l \]  

(9)

From the total differential of the equations (4) and (5) we can find the slopes of the locus \( \pi_p = 0 \) and \( \pi_l = 0 \) in the \( p-l \) diagram:

\[ \frac{dl}{dp} \bigg|_{\pi_p=0} = -\frac{\pi_{pp}}{\pi_{pl}} > 0 \]  

(10)

\[ \frac{dl}{dp} \bigg|_{\pi_l=0} = -\frac{\pi_{pl}}{\pi_{ll}} > 0 \]  

(11)

Given the properties of demand function (1) and the second-order conditions (6), these slopes depend on the unknown sign of \( \pi_{pl} \). Based on the plausible assumption that the demand function is strongly separable in price and playing talent, i.e.: \( A_{pl} = 0 \), it follows that \( \pi_{pl} > 0 \). However, this assumption is not necessary, a sufficient condition is that the positive value of \( A_l \) is large enough to outbalance the possible negative effect of \( A_{pl} \). It follows that both slopes in (10) and (11) are positive.

From the second-order condition (6) we can derive also that the slope of the locus \( \pi_p = 0 \) is steeper than the slope of the locus \( \pi_l = 0 \). This is shown graphically in figure 1. The two first-order conditions for profit maximization are met in the point of intersection \( E_1 \) of the two loci, which marks the optimal price level \( p_1 \) and the optimal number of playing talents \( l_1 \).
The model can also tell us how the exogenous salary level affects the optimal ticket price. Many American club owners argue that player salaries have to be kept low in order to keep the ticket price low. Economists can show that, given a constant number of playing talents in the club, the optimal ticket price of a profit maximizing club is not affected by the salary level. However, if clubs can adjust the demand for talent due to a changing salary level, the optimal ticket price will also change. The effect of a salary increase on ticket price and talent demand can be derived by differentiating the first-order conditions (4) and (5) w.r.t. the unit cost of talent $w$, so that can be derived that:

$$\frac{\partial p}{\partial w} = \frac{\pi_{pl}}{\pi_{pl} - \pi_{pl}^2} < 0$$  \hfill (17)

$$\frac{\partial l}{\partial w} = \frac{\pi_{pp}}{\pi_{pp} - \pi_{pl}^2} < 0$$  \hfill (18)

Contrary to what is generally accepted, a higher salary level will reduce the optimal ticket price in the profit maximizing scenario. Also the demand for talent will be cut back. In figure 1 a higher salary level will shift the locus $\pi_l = 0$ to the right so that the optimal ticket price and talent demand will indeed be lower.

**Figure 1. Profit and win maximizing equilibria**

Turning to the **win maximizing scenario**, a club's objective is to maximize the season winning percentage, which can only be done by maximizing the number of playing talents, under the restriction to break even or to realise a reasonable profit rate. The constant capital cost ($c^0$) can also include a certain amount of profits. Because the capital stock is constant in the short run, a constant amount of profits also means a fixed profit rate. So we no longer assume that clubs are profit maximizers but that they need to be profitable or to reach a breakeven point. We assume that clubs behave as if they maximize the number of playing talents $l$ under the following restriction:
\[(p + q)A - wl - c^0 = 0 \]  \hspace{1cm} (12)

The first-order conditions for win maximization can be written as:

\[(p + q)A_p + A = 0 \]  \hspace{1cm} (13)

\[(p + q)A_t = w - \frac{1}{\lambda} \]  \hspace{1cm} (14)

\[(p + q)A - wl - c^0 = 0 \]  \hspace{1cm} (15)

where \( \lambda \) is the positive Lagrange multiplier. Equation (13) is the pricing rule which turns out to be exactly the same as in the profit maximization case. From (14) it can be seen that a win maximizing club will hire playing talent up to a point where marginal revenue is lower than marginal cost. Equation (15) indicates that the equilibrium is found where the net average revenue, i.e.: after subtracting the fixed capital cost, equals the unit cost of playing talent.

In order to compare the optimal price level and number of playing talents under the profit and win maximizing hypothesis we have to find the iso-profit contours. From the total differential of profit function (3) we find that the slope of the locus \( d \pi = 0 \) is given by:

\[
\frac{d l}{d p}\bigg|_{d \pi = 0} = -\frac{\pi_p}{\pi_t} 
\]  \hspace{1cm} (16)

It follows that the slope of the locus \( d \pi = 0 \) equals zero if \( \pi_p = 0 \) and is infinite if \( \pi_t = 0 \). The iso-profit contours can now be added to the graphical presentation of the first-order conditions in figure 1. One of these contours is the zero-profit contour. If a club maximizes the number of talents under the restriction of a fixed profit rate the equilibrium point is \( E_2 \) with price \( p_1 \) and playing talent \( l_2 \). It turns out that both the demand for playing talent and the ticket price are higher in a win maximizing club.

3. Some policy implications.
A first policy implication of this result is that some price regulation in the European leagues with win maximizing clubs can be justified. Imposing maximum ticket prices is needed not only because of the local monopoly position of most clubs, but also because of the higher price set by win maximizing monopolists compared with profit maximizing monopolists. However, one should take into account that in the win maximizing scenario the supporters may also get a better product because some clubs are fielding more playing talent. It can be derived from figure 1 that imposing a maximum ticket price, which implies a vertical line on the level of the maximum price, results in lower demand for playing talent in both the profit and the win maximizing scenario. Its impact on attendance will depend on the relative size of the price elasticity and the talent elasticity of ticket demand. If it does not change the total number of spectators in the stadium, imposing maximum ticket prices can change the composition of the stadium public, because lower prices will probably attract the more price-elastic low-income people but a lower win percent keep away the more win-elastic supporters.

For each individual club in this model, the salary level is exogenous. However, if all clubs in a league reduce their demand for talent, due to the imposed maximum ticket price, this will also lower the equilibrium salary level on the competitive player labour market. And a lower salary level will increase the demand for talent so that the final effect on the demand for talent of imposing a maximum ticket price is theoretically undetermined.

It is also of some interest to find out how a stadium capacity restriction affects the optimal ticket price and talent demand. The answer turns out to be very complicated. This can be seen by including in Figure 1 the stadium capacity restriction \( l = A^{-1}(m, p, A^0) \), which is the inverse function of equation (1), where \( A^0 \) is the stadium capacity. This function is an upward sloping line in the diagram because of the opposite effects of talent and ticket price on attendance. The new equilibrium point is found at the point of tangency between this restriction and the highest possible iso-profit curve. However, the problem is that, given the properties of the ticket demand function, this restriction turns out to be convex which complicates the impact of a stadium capacity restriction.

Another policy implication is the effect on the optimal ticket price if the league imposes a so-called salary cap. In fact, a salary cap is cap on the total payroll of a team i.e. \( wL \leq cap \). This
effect can be derived by maximizing the profit function under the restriction of a salary cap. Because a salary cap is only relevant for a big and rich clubs, we look at the impact it has on the bigger clubs. With a binding salary cap the first-order conditions for maximal profits can be written as:

\[(p + q)A_p + A = 0 \tag{19}\]
\[(p + q)A_t = w(1 + \mu) \tag{20}\]
\[wl = \text{cap} \tag{21}\]

where \(\mu\) is the positive Lagrange multiplier. Equation (20) shows that for the large-market clubs the marginal product is higher than the salary level. For an exogenously given salary level, a salary cap can be drawn in figure 2 as a horizontal line at the level \(\text{cap}/w\) below the profit maximizing equilibrium point. The new equilibrium is found at the intersection (E2) of the cap-line and the locus \(\pi_t = 0\) which indicates not only the expected lower demand for talent but also a lower optimal ticket price. However, in a competitive player labour market the salary level is no longer exogenous. We have to take into account that a lower demand for talent by the big clubs, and an unchanged demand for the small clubs, will also lower the market clearing salary level. This lower salary level will shift both the cap-line and the (irrelevant) locus \(\pi_t = 0\) upward. It is also important to see that, given a constant supply of talent, the market clearing salary level cannot go down to a level that will increase the demand for talent of the large market club. It follows that the optimal price and talent demand is found in point E3 which indicates a lower ticket price and a lower talent demand.

**Figure 2. The impact of a salary cap for a large-market club**

For the small-market clubs, which are only indirectly affected by the salary cap, the outcome is different. Due to the lower equilibrium salary level, the (irrelevant) cap-line and the locus \(\pi_t = 0\) both shift upward so that at the new equilibrium ticket price and talent demand are higher.
So if clubs decide simultaneously on ticket price and talent hiring, imposing a salary cap will, besides its well-known impact on talent distribution and individual salary level (see Quirk and Fort, 1992 and Kesenne, 2000b) also lower the ticket price of the large-market clubs and raise the ticket price of the small-market clubs.

4. A simple numerical example.

A simulation with a very simplified model can illustrate these results. Starting from the following attendance function:

\[ A = (\ln l - p)m \]  \hspace{1cm} (22)

the profit function can be written as:

\[ \pi = (p \ln l - p^2)m - wl - c^0 \]  \hspace{1cm} (23)

where we assume that \( m = 1 \) and \( c^0 = 0 \) for simplicity reasons.

The first-order conditions for maximal profits are:

\[ \pi_p = \ln l - 2p = 0 \]
\[ \pi_l = \frac{p}{l} - w = 0 \]

it follows that:

\[ p = \frac{\ln l}{2} \]
\[ p = wl \]  \hspace{1cm} (24)

This first non-linear line and second linear line clearly have two points of intersection but only one point satisfies the second-order condition, i.e. where the slope \( \frac{dl}{dp} \) of the first line is steeper than the slope of the second. As can be derived from (24), increasing the salary level decreases the slope \( \frac{dl}{dp} \) of the linear line so that it lowers the optimal ticket price and the demand for talent.

The first-order condition for win maximization can be calculated as:
\[ p = \frac{\ln l}{2} \]
\[ p = \sqrt{wl} \]  

(25)

In table 1 the simulation results are given for the profit and the win maximizing case and for two different levels of the salary, which is the exogenous variable in this model.

**Tabel 1. Simulation results: profit versus win maximization; salary cap**

<table>
<thead>
<tr>
<th>Salary (w)</th>
<th>Profit Max</th>
<th>Win Max</th>
<th>Profit Max</th>
<th>Win Max</th>
<th>Profit Max</th>
<th>Salary cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.08</td>
<td>18</td>
<td>40</td>
<td>13</td>
<td>28</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>0.10</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.09</td>
</tr>
<tr>
<td>Talent (l)</td>
<td>1.5</td>
<td>1.8</td>
<td>1.3</td>
<td>1.7</td>
<td>1.15</td>
<td>1.2</td>
</tr>
<tr>
<td>Price (p)</td>
<td>1.5</td>
<td>3.2</td>
<td>1.3</td>
<td>2.8</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Cost (C)</td>
<td>1.4</td>
<td>1.9</td>
<td>1.3</td>
<td>1.6</td>
<td>1.15</td>
<td>1.2</td>
</tr>
<tr>
<td>Attendance (A)</td>
<td>2.1</td>
<td>3.2</td>
<td>1.6</td>
<td>2.8</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Revenue (R)</td>
<td>.6</td>
<td>0</td>
<td>.3</td>
<td>0</td>
<td>.3</td>
<td>.4</td>
</tr>
<tr>
<td>Profits ((\pi))</td>
<td>.08</td>
<td>.08</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.09</td>
</tr>
</tbody>
</table>

As can be seen in the two first columns, and as is shown in general above, both the ticket price and the demand for talent are higher in the win maximizing case. For this particular ticket demand function also attendance and total revenue are higher in the win maximizing case. The two last columns show that a higher salary level is causing a lower optimal ticket price in both scenario's. It also reduces attendance, revenue, cost and profit for this particular revenue function, but this not necessarily true for a more general specification of the revenue function.

The last column presents the simulation results for a profit maximizing large-market club if a salary cap of 1.0 is imposed by the league, first under the assumption that the salary level is kept constant at .10 and then under the more interesting assumption that the market clearing salary level goes down from 1.0 to 0.9. In any case, one can see that the ticket price is lower than without a salary cap. A salary cap will also increase profits, mainly because of the lower player
cost. What happens to attendance and total revenue depends on the talent and price elasticities of demand.

5. Implications for tests of the profit maximizing hypothesis.

Ferguson, Stewart, Jones and Le Dressay (1991) developed a test of the profit maximizing hypothesis based on the (ticket) price setting behaviour by National Hockey League teams. The authors estimated a simultaneous model starting from a functionally specified version of the ticket demand function and the first-order condition for the profit maximizing price, i.e.:

\[
A = f(p, l, m, )
\]

\[
(p + q)A_p + A = 0
\]

The results of their test supported the hypothesis that hockey teams are profit maximizers. However, comparing the profit and win maximization scenario’s, and looking at equations (4) and (13), one can see that the pricing rule of a win maximizing club is the same as the pricing rule of a profit maximizing club. So this test supports both profit and win maximization (see also Salant, 1992). It is possible that tests based on the implicit pricing rule might be able to distinguish profit maximization and other club objectives, but is not capable of distinguishing the profit maximizing hypothesis and the win maximizing hypothesis. One can derive that the pricing rule is still the same if one assumes that clubs are maximizing a linear combination of wins and profits as in Rascher (1997).

Other empirical tests that can be found in the literature to distinguish the profit and the utility maximizing hypothesis are based on the estimated value of the price elasticity of the demand for tickets. Economic theory suggests that profit maximizing clubs set ticket prices in the elastic range of demand. Noll (1974) finds that the demand for baseball tickets at the current price has an elasticity that is smaller but not significantly different from one. He concludes that, given the fact that the marginal cost of spectators is close to zero, the profit maximizing hypothesis cannot be rejected. Demmert (1973) found an elasticity of .93 and drew similar conclusions. Scully (1989) concluded that baseball ticket prices are set in the inelastic range of demand. More
recently, Alexander (2001) estimated baseball price elasticities that are significantly larger than one. In our opinion, the value of the price elasticities is an unreliable indicator of a club’s objective for several reasons.

- First of all, a club’s objective can be to be profitable without being a profit maximizer. What can the value of the price elasticity tell us about this?
- The fast changing revenue structure of most clubs shows that the share of non-gate revenues have become very important. In some professional football clubs in Europe gate receipts are less than 30% of the total budget. However, these other revenues are positively correlated with stadium attendance so that a profit maximizing club sets its ticket price where the price elasticity of demand is smaller than one, as can be easily derived from equation (4):

\[
e_p = \frac{p}{p + R_A} < 1
\]  

(28)

- If the marginal cost of spectators is not zero, the profit maximizing value of the price elasticity will be higher.
- If a club is very successful in attracting spectators or if the ballpark is too small so that it faces a stadium capacity restriction for most of its games, a club can set its ticket price above the unrestricted optimal level.
- Another complication is that the total cost of attending a game includes more than the price of the ticket, such as the cost of transportation and parking, of snacks and drinks at the ballpark etc. Some of these expenditures are extra revenue for a club so that they affect the optimal ticket price, but other expenditures are not. It follows that, in some cases, the estimated elasticities underestimate the real price-elasticity of the spectator, whereas these estimated elasticities can be the relevant ones for the pricing policy of the club, in other cases they are not.

So far, the topic of club objectives has received little empirical investigation. If profit and win maximizing clubs have the same pricing rule and if the value of the price-elasticity of profit or win maximizing clubs can be equal to, smaller or larger than one, depending on many different factors, ticket pricing cannot reveal much about the objective of a sports club. It is still not clear, as mentioned by Cairns, Jennett and Sloane (1986), "that we are capable in principle of empirically distinguishing utility and profit maximizing behaviour" They correctly pointed out
that most contributions produce evidence in accord with profit maximization but do not pay enough attention to whether or not the competing hypothesis might also be consistent with such observations.

Do the results from the analysis above offer any testable hypothesis that separates profit from win maximization? If there is any, it has to be based on the first-order condition (14), from which can be derived that in a win maximizing club players are hired even if marginal revenue tumbles below the salary level:

\[(p + q)A_w = w - \frac{1}{\lambda} < w\]  

(29)

So, win maximizing clubs, even if they make some profit, pay salaries above marginal revenue whereas, in a free agency player market, profit maximizing clubs pay salaries in accordance with marginal revenue. The economic theory shows, as indicated by Kesenne (2001), that also under the monopsonistic transfer system win maximizing clubs pay salaries above marginal revenue whereas Scully (1989) has empirically shown that for profit maximizing clubs there is a considerable degree of monopsonistic exploitation. If it is possible for a sport like baseball, using Scully's (1974, 1989) two-step procedure, to calculate the individual contribution of a player to club revenue, and to compare his contribution with his salary level, this comparison might reveal something about club objectives.

Moreover, economic theory has also shown that revenue sharing arrangements among clubs in a profit maximization league does not improve the competitive balance (see Fort and Quirk, 1995), whereas it does improve competitive balance if clubs are win maximizers (see Kesenne, 2000). Maybe this observation might also provide a test on the objectives of sport clubs.

For the time being, we are still inclined to share the view of Quirk and El-Hodiri (1974) who wrote: “The assumption that the actions of franchise owners are motivated solely by profits from operation of their franchises is admittedly somewhat unrealistic. Owning a major league franchise carries with it prestige and publicity, and a wealthy owner might view it simply as a type of consumption; for such a sportsman owner, winning games rather than making money might be the motivating factor”.
6. Conclusion.

In this paper we have compared the win maximizing objective of a sports club, which we believe to be a more realistic assumption for most European professional sports clubs, with the more conventional profit maximizing objective. We have used a model where club managers have to decide simultaneously about the optimal ticket price and the demand for talent.

One of the important conclusions is that win maximizing clubs not only hire more talents but also charge higher ticket prices than profit maximizing clubs. Another finding is that higher player salaries do not result in higher ticket prices but in lower optimal ticket prices. Imposing a salary cap will lower the ticket price of large-market clubs but will raise the ticket price of small-market clubs.

The analysis also shows that the price setting rule of clubs is the same under the profit and the win maximizing hypothesis and that observed price elasticities are unreliable indicators of a clubs's objective. It follows that the empirical tests in the literature, based on the pricing rule or on the value of the price-elasticity of demand, do not have the power to reject the win maximizing hypothesis in favor of the profit maximizing hypothesis.
References

- Dabscheck, B., (1975), 'Sporting equality: labour market versus product market control', *Journal of Industrial Relations*, 17/2
- Scully, G.W., (1974), Pay and Performance in Major League Baseball, American Economic Review, 64/6
- Scully, G.W., (1989), The Business of Major League Baseball, Univ. of Chicago Press