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Player Sales, Trade of Players and Draft Choices and Competitive Balance

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ABSTRACT

Sports economists such as Fort and Quirk (1995) argue that in professional team sports leagues in the US, if team owners try to maximise profits, unbalanced trades of draft choices and players can provide a substitute for cash sales of players and therefore also undermine the effectiveness of a player draft in increasing competitive balance (evenness of competition).

This theoretical paper extends the authors' model by analysing the effect of cash sales and trades in a league where team owners are win maximisers (that is, try to win as many games as possible subject to breaking-even financially), such as in the Australian Football League (AFL) where clubs are predominantly member-owned. In these circumstances, cash sales will undo the effects of a player draft only if wage levels are relatively high, and then only partially.

Where the cash sale of player contracts is banned, it is shown that if wage levels are relatively high, unbalanced trade of player talent can act as a (partial) substitute for cash sales when team owners are either profit maximisers or win maximisers.

The role of a salary cap in preventing unbalanced trades is discussed, and whether the circumstances that would lead to unbalanced trades in a league of win-maximising teams should be of concern.

KEY WORDS: Australian Football League; competitive balance; player draft; salary cap; unbalanced player trades; profit-maximising clubs; win-maximising clubs.

JEL CLASSIFICATION: L83

1 INTRODUCTION

A theme that has emerged from some authors in the US is that even in the presence of a ban (formal or informal) on the sale of player contracts, unbalanced trades of draft choices and players can provide a substitute for cash sales and undermine the effectiveness of player drafts.

In *Pay Dirt*, Quirk and Fort (1992, p.283) argue that the trade in draft choices can be unbalanced:

> A league operating under a reverse-order-of-finish draft, and one in which the only player transactions allowed were trades of players for

> players, would generate equal competitive balance among league teams. However, trading players for draft choices acts as a close substitute for cash sales, and has similar effects in fostering competitive imbalance.

But, in the postscript to *Pay Dirt,* Quirk and Fort (1992) refer not only to unbalanced trade in draft choices but also unbalanced trade in players as a potential source of a decline in competitive balance.[1] Quirk and Fort do this after drawing attention to an argument made by Noll at the *McNeil v. NFL* antitrust trial.[2] Noll, appearing as an expert witness for the players, argued that unbalanced player trades had acted to offset the equalising effects of the ban on sales of players for cash. According to Quirk and Fort (1992, p.363), Noll showed that:

> ... there have been a number of instances of 'unbalanced trades' ... in which high-salaried players have been traded by teams in weak

[1] The Quirk and Fort (1992) preface is dated April 1992, and the postscript is dated mid-July 1992.
[2] Roger Noll, Professor of Economics, Stanford University.

> markets for low-salaried players on the rosters of teams in strong drawing markets.

Moreover, Fort and Quirk (1995, p.1283) also draw attention to Noll's testimony in the *McNeil v. NFL* trial, where they claim he argued that:

> In an unbalanced trade, weak-drawing teams send expensive (presumably high talent) veterans to strong-drawing teams in exchange for lower-salaried, apprentice (presumably lower talent) players or draft rights. While the trade is unbalanced in terms of talent, it can well be balanced in terms of value of the players to the two teams, with both teams ending up with higher profits than before the trade.

Thus, Fort and Quirk (1995) refer to the possible effects on competitive balance of unbalanced trades of players for draft choices and unbalanced trades of players, whereas earlier Quirk and Fort (1992) refer only to the trading of players for draft choices. But, in neither case is the potential

problem of unbalanced trade in players and in draft choices discussed in terms of their two-team league model.

Noll was contacted with a request for an expansion of his argument concerning unbalanced trades and, in particular, under what circumstances they arose. Noll replied:

> With free agency and a salary cap, the only form that unequal trades would take would be end-of-season trades, where a team in contention for a championship unloads a highly paid player to free room under the cap, and then trades a low-paid young player for the star of a team that is out of contention. This would be less likely if the league allows sales of player contracts; however, for public relations purposes, sometimes teams hide a sale by including some players as well as cash so that the team that gave up a star can maintain a public stance of building for the future.

Another factor to consider is whether there is a salary floor as well as a ceiling. In the NBA, for example, the floor is not a lot lower than the cap, so massively cutting salaries is not possible. But here is a good example from baseball. In 1992, the San Diego Padres were a pennant contender and had a salary bill of $40 million. During the winter of 1993 and before the spring trading deadline, they dumped all of their stars except for Tony Gwynn, trading them for minor league players and journeyman major leaguers. In the process, they cut their payroll to $11 million. As far as I know (the data are not public) none of these trades involved significant cash payments.

Theoretically, the way to understand this process is that an unfair trade is third best, after simply signing free agents or buying contracts for cash. It arises when: (a) all the players are temporarily under contract (eg. middle of the season), or (b)

players have multiyear contracts so that they cannot be acquired unless through contract transactions. If a team is 'too good' for its underlying market (because its players have turned out to be better than the market can support), the team can increase profits by dumping a player with a high salary: revenues fall by less than the salary. In the case of San Diego, dropping $30 million in salaries caused revenues to fall only about $12 million. Now the Padres could have just cut the players: however, under baseball rules, they would have been liable for any portion of the remaining contract guarantee that a player's new team did not pay. Thus they expose themselves to the risk that the player might sign for a very low salary and stick the Padres with most of his salary anyway. By trading or selling the contract, they eliminate this exposure, plus get something in return. In the case of the Padres, the fall in team quality was less because they picked

up some average-quality players plus some promising minor league players.[3]

2 TRADE OF PLAYERS AND DRAFT CHOICES UNDER PROFIT MAXIMISATION

As discussed in Booth (2000, Ch.4), neither Quirk and Fort (1992) nor Fort and Quirk (1995) show diagrammatically the effect of unbalanced trades on competitive balance in US professional team sports leagues with a ban on the cash sale of player contracts. My intention in this section is to use the Fort and Quirk's (1995) two-team league model to examine whether unbalanced trades are likely when teams are profit maximisers. I will examine the likely outcomes in the presence of a player draft by itself and then with a combined player draft and salary cap. In the next section, I will repeat the analysis under the assumption that teams are win maximisers, as in the Australian Football League (AFL).

[3] E-mail from Roger Noll, 9th March 1996.

2.1 TRADE OF PLAYERS AND DRAFT CHOICES UNDER PROFIT MAXIMISATION WITH A PLAYER DRAFT

It is worthwhile first recalling the discussion in Booth (2000, Ch.4) of the Fort and Quirk (1995) analysis of the reserve clause/rookie draft in the absence of a ban on the cash sale of player contracts. Fort and Quirk (1995) show that the sale of player talent from the weak team to the strong team would restore the profit maximising free agency equilibrium thereby undoing the initial effects of a reserve clause/rookie draft. I extend the analysis to include another (higher) wage level not considered by Fort and Quirk (1995). It transpires that under profit maximisation the sale of talent results in the profit maximisation free agency outcome no matter whether wage levels under the player draft are relatively low or relatively high, that is, the wage level is irrelevant. However, different wage levels do become important in the analysis of the effect of the trade of players and draft choices on competitive balance.

To demonstrate this conclusion, let us begin by reviewing the diagrammatic analysis with cash sales of talent allowed. In Figure 1, suppose that both teams begin with the player talent to achieve a win percent of .5 and the unit cost of player talent under the player draft, arbitrarily chosen by Fort

and Quirk (1995) is c^{**}, that is, less than $c^{***} = MR^j$ at $w^j = .5$. Since $MR^i > MR^j$ (at $w^i = .5 = w^j$), if team j were to sell an units of player talent to team i, both teams could increase their profits. Even though $MR^j > c^{**}$ over this range, team j would be willing to sell talent to team i provided it received a unit price of talent $> MR^j$. Since $MR^i > MR^j$, the sale of this talent will increase the profits of both teams and restore the profit maximisation free agency outcome at e.

The profit maximisation free agency outcome at e is attained even if the unit cost of player talent under the player draft is higher than that considered by Fort and Quirk (1995). Suppose that the unit cost of talent under the player draft is c^{****} (that is, greater than $c^{***} = MR^j$ at $w^j = .5$). If cash sales are allowed, once again an units of player talent would be sold from team j to team i (since $MR^i > MR^j$ over this range). In summary, no matter whether the wage is relatively low or relatively high, the sale of player talent will result in the profit maximisation free agency outcome at e.

Now let us consider these cases where the cash sale of player talent is banned. First, suppose the unit cost of talent under the player draft is low, say c^{**} (that is, less than $c^{***} = MR^j$ at $w^j = .5$). Team i would still be willing to trade and increase its player talent by an units because MR^i is >

c^{**} over this range. However, since $MR^j > c^{**}$, there would be no incentive for team j to trade and thereby reduce its (net) player talent. If team j were to do so, the loss in revenue (MR^j) would be greater than the reduction in unit costs c^{**} and its profits would fall.

In the case of the higher wage, say c^{****} (that is, greater than $c^{***} = MR^j$ at $w^j = .5$), team i would still be willing to increase its player talent by an units because $MR^i > c^{****}$ over this range. But, team j's profit will be maximised when player talent is reduced by ab units to e_1 where $MR^j = c^{****}$. Notice that player costs (ade_1b) would fall by more than the reduction in revenue (ace_1b). Further reductions in player talent at team j would reduce revenue by more than player costs (since $MR^j > c^{****}$ for bn units of talent). Team i is willing to increase its net player talent and win percent by ab through trades of player and draft choices, because the gain in revenue ($ahgb$) is larger than the increase in player costs (ade_1b). The result of the trade in players is that ab net player talent moves from team j (weak market) to team i (strong market) and both teams increase their profits (by approximately e_1dhg for team i and by de_1c for team j). However, with $w^i = .55$ and $w^j = .45$ as the new outcome, it is clear that the trade in players and draft choices decreases competitive balance.

To summarise, under a player draft system where the cash sale of player contracts is allowed, there is always the incentive for both teams to reach the profit maximisation free agency equilibrium through the sale of talent from the weak team to the strong team. This result holds no matter whether the wage level under the player draft is relatively high (c^{****}) or relatively low (c^{**}). But, where there is a ban on the cash sale of player contracts, there is an incentive to reduce net player talent by trading players and draft choices only if the unit cost of player talent under the draft is high, say c^{****}. But this incentive to trade ceases at e_1 where $MR^j = c^{****}$. There is no incentive for team j to trade away player talent if the wage level is low, say c^{**}.

Thus, under profit maximisation, if wage levels are relatively high under the player draft, unbalanced player trades may undo (at least partially) the initial equalising effects of the player draft, thereby providing a partial substitute for the cash sale of player contracts.

2.2 TRADE OF PLAYERS AND DRAFT CHOICES UNDER PROFIT MAXIMISATION WITH A PLAYER DRAFT, A TEAM SALARY CAP AND A MINIMUM TEAM SALARY

Let us now examine, in the presence of a player draft with a ban on cash sales, whether the addition of a team salary cap and a minimum team salary affects the incentives under profit maximisation for teams to engage in unbalanced trades.

For simplicity, let us assume that the team salary cap and the minimum team salary are equal and enforceable. In such circumstances, TC is constant and the MC of an additional unit of player talent is zero. As discussed in Booth (2000, Ch.4), under the salary cap, AC falls as win percent increases. In Figure 2, AC^i and AC^j represent the unit cost of talent for team i and team j respectively under the salary cap arrangement. They are drawn through point d, thus giving each team a salary cap of the same size as the wages bill in the previous player draft example (without the team salary cap and minimum team salary). That is, the chosen unit cost of player talent at $w^i = w^j = .5$ is the high wage c^{****} ($> MR^j$ at $w^j = .5$), because the low wage of c^{**} resulted in no incentive to trade player talent.

Again, suppose that the player draft and the salary cap initially gives teams equal playing strengths, that is, $w^i = w^j = .5$. In the absence of the salary cap, trading of players between the two teams resulted in an equilibrium at e_1, where $MRj = c^{****} = \bar{c}$, the unit cost of talent under the player draft. However, under this team salary cap-minimum team salary arrangement, team j now has no incentive to trade player talent because with MR^j positive and $MC^j = 0$, the reduction in revenue would be greater than the reduction in cost if team j's win percent were to fall below .5. Of course, this would be true even if the unit cost of player talent under the salary cap were less than MR^j at $w^j = .5$, because, by definition, MC^j is always equal to zero under a minimum team salary.

In summary, assuming profit maximisation, the addition of an enforceable team salary cap and minimum team salary should prevent unbalanced trades from undoing the effect of the player draft in achieving equal playing strengths.

3 TRADE OF PLAYERS AND DRAFT CHOICES UNDER WIN MAXIMISATION

In this section the effect of the trade of players and draft choices on competitive balance in a league comprising win maximising teams is analysed, first under a player draft, and then under a combined player draft and team salary cap such as in the AFL.

The discussion in Booth (2000, Ch.4) concluded that under win maximisation, over time equality of playing strengths would generally emerge under a national player draft. But, depending on wage levels, there could be circumstances where in order for team *j* to avoid exceeding its budget constraint, the effects of the player draft could be (partially) undermined through the cash sale of player talent. Whilst competitive balance will be reduced in these circumstances, the undermining of the effect of the player draft is partial, not total.

3.1 TRADE OF PLAYERS AND DRAFT CHOICES UNDER WIN MAXIMISATION WITH A PLAYER DRAFT

Let us now consider the incentives facing win percent maximising teams in the presence of a player draft with a ban on the cash sale of player contracts.

In Figure 3, let us once again assume that the player draft initially results in equal playing strengths such that $w^i = w^j = .5$. Let us assume that the initial cost of talent under the player draft is c^s_1, the low wage from Booth's (2000, Ch.4) discussion of geographical zoning, which is $< AR^j$ at $w^j = .5$. Team i is making a profit since $AR^i > c^s_1$ at $w^i = .5$ and so is team j since $AR^j > c^s_1$ at $w^j = .5$. Since the objective is to maximise win percent (not profits) neither team is interested in trading (net) player talent. Both teams would like to hire more player talent, but cannot because neither team is willing to give up player talent and win percent. If so, the outcome of win percents of .5 for both teams will remain and the player draft will have achieved equality of playing strengths and a lower wage rate c^s_1.

Now consider the same scenario but with a higher wage of c^s_2. Team i is still making a profit but team j is now making a loss at $w^j = .5$ since $AR^j <$

c^s_2. It would be in the interest of team j to trade ks units of (net) player talent to team i until $AR^j = c^s_2$ at e_2. The reduction in player talent allows team j to break even. But, with the new equilibrium of e_2, there will be less competitive balance.[4]

In summary, depending on wage levels, there may be circumstances where in order for team j to avoid exceeding its budget constraint, the effects of the player draft could be (partially) undermined through the trade of player talent. Whilst competitive balance will be reduced, the undermining of the effect of the player draft is not total. That is, the equilibrium becomes e_2 in Figure 3, rather than returning all the way to the win maximisation free agency outcome e. Note that this is the same equilibrium in terms of competitive balance as that achieved under a player draft with cash sales allowed.

[4] The alternative is that team j decides to keep the player talent it has to maintain a win percent of .5 in the hope that future increases in its revenue will be sufficient for it to break even.

3.1.1 TRADES OF PLAYERS AND DRAFT CHOICES IN THE AFL UNDER A PLAYER DRAFT BY A CLUB WITH A LONG-TERM DEBT PROBLEM

Often in the AFL, a clubs is saddled with debt that is perceived to be a threat to its long-term survival. Let us examine the case of unbalanced trades where a club has debt and wishes to trade more profitably in the short run in order reduce or eliminate that debt and increase its chances of survival in the long run. In other words, let us assume that team j is prepared to sacrifice win percent for profits in the short run in order to help it survive in the long run. This outcome can also be illustrated in Figure 3. If team j is (temporarily) assumed to be a profit maximiser then MR^j becomes the relevant curve, but AR^i remains the relevant curve for team i that is still assumed to maximise win percent.

Let us again consider the implications with two different wage levels, c^s_1 and c^s_2. In the case of a lower unit cost of talent under the player draft c^s_1, at the initial player draft equilibrium ($w^i = w^j = .5$), team j is employing too much player talent to profit maximise at $w^j = .5$ since $MR^j < c^s_1$. Suppose team j were to reduce its net player talent by ks units by trading high quality, high salaried players (with many of units of player talent) for either draft choices or lower quality, lower salaried players (with fewer units of

player talent). In so doing, team j could reduce its player payments (kpe_3s) by more than its revenue (kqe_3s) and maximise its profit at e_3 where $MR^j = c^s_1$. With a higher unit cost of talent c^s_2, it will be in the interest of team j to trade km units of player talent back to e_1 where $MR^j = c^s_2$ and profit is maximised.

To summarise, the higher is the unit cost of player talent under the draft, the more incentive there is for a club wishing to profit maximise to reduce its player talent through 'unbalanced trades'. Notice also that if the unit cost of player talent is high enough (for example, c^s_2) playing strengths will be more unequal than they would be in the case where both teams are assumed to be win maximisers (that is, e_1 is to the right of e).

3.2 TRADE OF PLAYERS AND DRAFT CHOICES UNDER WIN MAXIMISATION WITH A PLAYER DRAFT AND A TEAM SALARY CAP

Let us now consider the incentives facing teams (who are win maximisers) in the presence of a player draft with a ban on the cash sale of player contracts, plus a team salary cap.

In Figure 4, as in Booth's (2000, Ch.4) discussion of the salary cap, let us assume initially that $w^i = w^j = .5$ and that the unit cost of player talent under the team salary cap is $\bar{c}_1$ which allows team j to break even financially. The effect of the addition of the team salary cap is that now team j has no incentive to trade player talent to team i because it would reduce its own win percent. Moreover, assuming the team salary cap is enforceable, there is no incentive for player talent to move from team j to team i since $AC^i < AR^i$ over this range.

3.2.1 Trade of Players and Draft Choices in the AFL with a Player Draft and a Team Salary Cap by a Club with a Long-Term Debt Problem

Let us now examine the implications of financially threatened team j sacrificing win percent in order to maximise profits in the short run in the presence of both a player draft and a team salary cap.

As before, if team j is (temporarily) assumed to be a profit maximiser then MR^j is the relevant curve in Figure 4. Team i is still assumed to maximise win percent but, in the presence of a team salary cap to allow team j to break even under normal circumstances, AC^i becomes the relevant curve.

At the initial player draft equilibrium ($w^j = w^j = .5$), team j is breaking even financially ($AR^j = AC^j = \bar{c}_1$) but is employing too much player talent to profit maximise since $MR^j < \bar{c}_1$ at $w^j = .5$. The new equilibrium will be where $MR^j = AC^i$ at e_2 with a unit cost of player talent of $\bar{c}_2$. By reducing its net player talent by kn units to $w^j = .35$, team j reduces its player talent to the point where its profits are maximised. Reducing player talent by more would lower profits since $MR^j > \bar{c}_2$ for $w^j < .35$. This is because $\bar{c}_2$ ($= AC^i$ at $w^j = .35$) represents MC^j, since that is what team j would effectively have to pay for an extra unit of player talent. Note also that at $w^j = .35$, $AR^j > \bar{c}_2$ which indicates that team j is now earning a profit.

However, once again, since player talent (and thereby win percent) of team j has been reduced to .35, there is less competitive balance as a result of this 'unbalanced' trade in players and/or draft choices. But note that at e_2 playing strengths are more equal than at e_1, the case of a player draft in the absence of a team salary cap, and even more equal than the under the free agency win maximisation outcome e.

In summary, under win maximisation, the addition of an enforceable team salary cap to the player draft limits the attractiveness of team i as a destination for traded players from financially-embattled team j, with the

result that the undermining effect of unbalanced trades on competitive balance is much less.

4 CONCLUSION

Under profit maximisation, if cash sales are allowed, any initial change in playing strengths brought about by a player draft will be undermined. Under win maximisation, if wage levels are relatively high, cash sales may partially undo the effects of a draft as a team tries to avoid making a loss. But, where the cash sale of player contracts is banned, unbalanced trade of player talent can also act as a partial substitute under both profit maximisation and win maximisation.

4.1 UNBALANCED TRADES UNDER PROFIT MAXIMISATION

Under profit maximisation, where there is a player draft with a ban on the cash sale of player contracts, if wage levels are relatively high unbalanced player trades will partially undo the initial equalising effects of the player draft. This will provide a partial substitute for the cash sale of player contracts. However, the addition of an enforceable team salary cap and

minimum team salary can prevent unbalanced trades undoing the effect of the player draft in achieving equal playing strengths.

4.2 UNBALANCED TRADES UNDER WIN MAXIMISATION

Where teams are win maximisers, if wage levels under the draft are high relative to a team's revenue, a team otherwise facing a loss can avoid exceeding its budget constraint through the trade of net player talent. Whilst competitive balance will be reduced, the undermining of the effect of the player draft is not total. The competitive balance outcome achieved is the same as that when the cash sale of player talent is permitted. If the player draft is supplemented with a team salary cap designed to allow all teams to break even, then there will be no incentive to trade player talent.

However, where a win percent maximising team has debt and wishes to temporarily profit maximise, the higher is the unit cost of player talent under the draft, the more incentive there is for a club to reduce its player talent through 'unbalanced trades'. If the cost of player talent is high enough playing strengths will be even more unequal than they would be under the free agency outcome where both teams are assumed to be win maximisers. In this situation, the addition of an enforceable team salary cap to the

player draft limits the attractiveness to players of player trades. The effect of the draft is undermined less, with the outcome still more equal than the win maximisation free agency outcome.

In summary, there are circumstances that may lead to unbalanced trades undermining the effectiveness of a player draft in the AFL. These centre on a team reducing its player talent in order to meet a budget constraint or a temporary change of objective function of a club to profit maximisation in order to reduce debt. Neither of these circumstances would appear to pose a problem for the long-term integrity of the player draft and salary cap system in the AFL.

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Figure 1 Trade of Players and Draft Choices under Profit Maximisation with a Player Draft

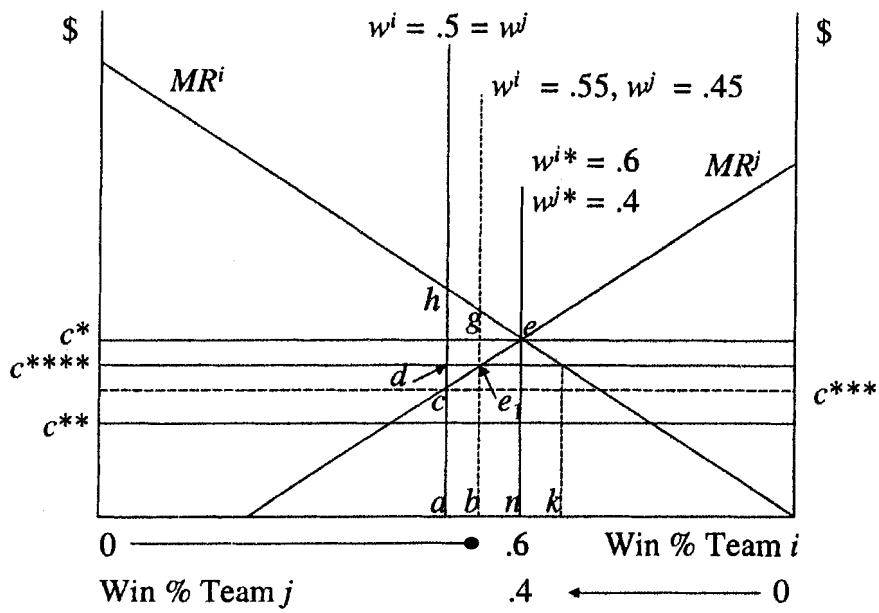


Figure 2 Trade of Players and Draft Choices under Profit Maximisation with a Player Draft, a Team Salary Cap and Minimum Team Salary

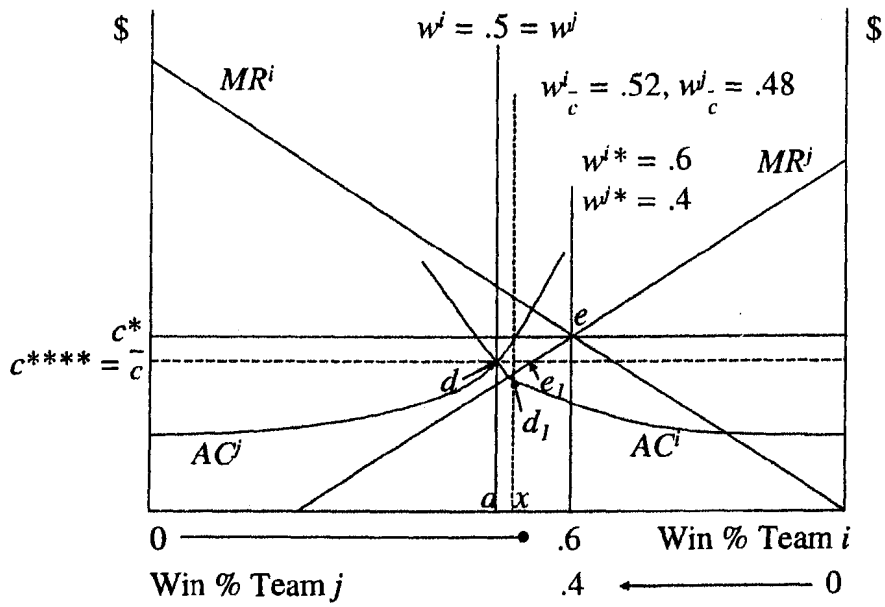


Figure 3 Trade of Players and Draft Choices under Win Maximisation with a Player Draft

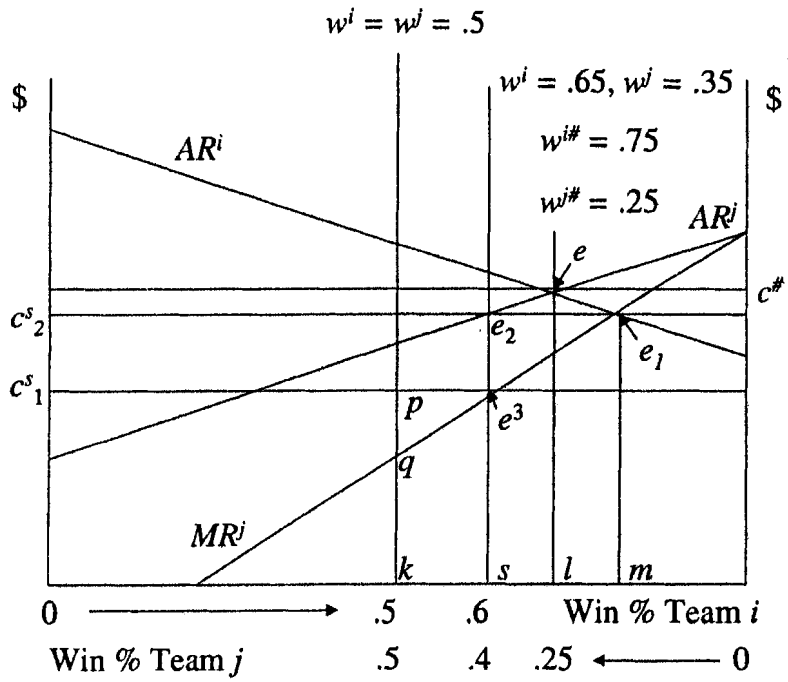
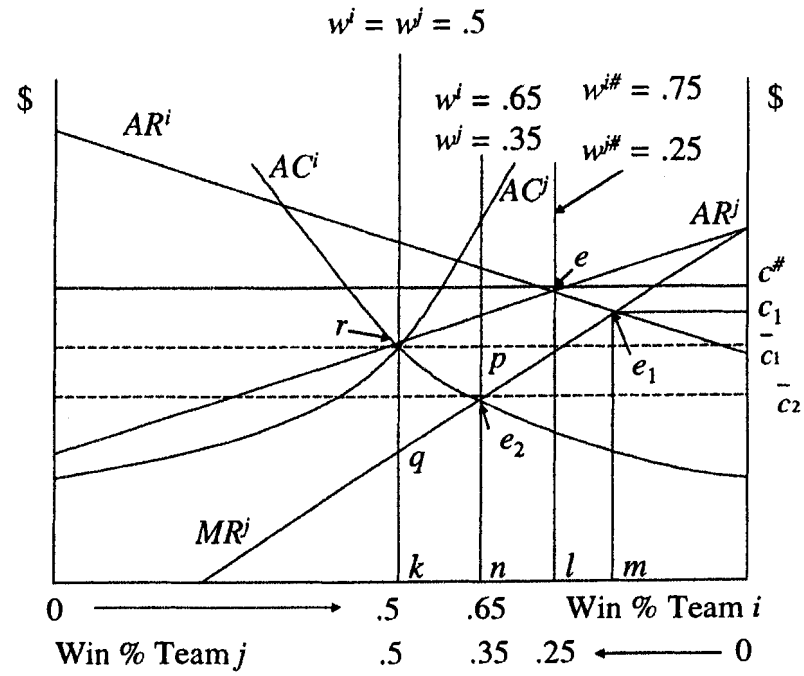


Figure 4 Trade of Players and Draft Choices under Win Maximisation with a Player Draft and Team Salary Cap



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