German Working Papers in Law and Economics

Volume 2002 *Paper* 17

Incentive Contracts in Team Sports - Theory and Practice

Tina Heubeck
University of Hamburg

Jochen Scheuer
University of Hamburg

Abstract

A comparison of incentive clauses of players' contracts in German soccer and clauses used in the NFL and NBA shows considerable differences. Against the background of principle-agent theory we have a closer look at these incentive systems. In contrast to other industries it is easy to observe the employees' effort in team sports. Therefore, it would be desirable to set incentives for players based on their individual effort. We show that there are reasons why incentive clauses in professional German soccer, the NBA and the NFL are not directly based on effort. We argue that there are two main reasons: Firstly, efficient incentives are complementarily provided by subjective and objective performance measures. Secondly, cooperation amongst team members is essential in team sports.

Incentive Contracts in Team Sports - Theory and Practice

by Tina Heubeck and Jochen Scheuer[1]

University of Hamburg, Germany

Draft: November 19, 2002

Abstract

A comparison of incentive clauses of players' contracts in German soccer and clauses used in the NFL and NBA shows considerable differences. Against the background of principle-agent theory we have a closer look at these incentive systems.

In contrast to other industries it is easy to observe the employees' effort in team sports. Therefore, it would be desirable to set incentives for players based on their individual effort. We show that there are reasons why incentive clauses in professional German soccer, the NBA and the NFL are not directly based on effort. We argue that there are two main reasons: Firstly, efficient incentives are complementarily provided by subjective and objective performance measures. Secondly, cooperation amongst team members is essential in team sports.

JEL classification: D62, D82, J30, K12

Keywords: sports, labor contracts, agency theory, incentives

---

[1] Both authors are members of the Doctoral Programme for Law and Economics at the University of Hamburg; Von-Melle Park 5; 20146 Hamburg. Phone: +49 40 42838 6509. Fax: +49 40 42838 4653.
E-mail: tina.heubeck@jura.uni-hamburg.de and jochen.scheuer@jura.uni-hamburg.de
The Deutsche Forschungsgemeinschaft (DFG) is gratefully acknowledged for financial support.
We would like to thank Bernd Frick, Dominique Demougin and Gerald W. Scully for helpful comments.

1. Introduction

Sports fans perceive the salaries of professionals in popular team sports as being enormous, and especially in Europe the salaries are subject to public discussion usually questioning whether players really deserve the sums they earn. In European soccer this discussion about the players´ salaries was recently stimulated again, since the clubs cannot sell the broadcasting rights as expensive as in previous years.[2] Therefore, they are not able to keep paying high salaries. The clubs try to react to the new situation in different ways. Most of the clubs reduce the number of players on their pay roll by not renewing expiring contracts. Some clubs also try to cut short on the salaries of the remaining players by increasing the variable part of the players´ salaries, which is connected to the sportive success of the club while decreasing the fixed wage.[3] So the variable part of the salary becomes more important. However, when looking at incentive clauses in German soccer we discovered that the incentive structure is rather simple and unindividualistic. They do not seem to follow the basic ideas of principal-agent theory. Even more surprising was that contracts in professional US team sports, especially the NFL and NBA, use entirely different clauses to set incentives.

In this paper we look at the variable payments more closely. The question is: What are players in team sports paid for? What are the incentives that make them run, score, defend and finally win?[4] And why are incentive clauses set differently in different types of team sports?

---

[2] The revenues from selling broadcasting rights are the clubs' major source of income.
[3] See Frankfurter Allgemeine Zeitung (FAZ); July 15, 2002.
[4] It is often argued that players prefer performing in games, i.e. players have an intrinsic motivation (Baker, 2000b). However, this assumption runs counter to all common models of labor market theory, in which it is inferred that putting forth effort imposes disutility on the agent. Although often players complain publicly about not being nominated by the coach the underlying reason is rather the maximization of future income streams than the mere desire to play. So we will leave this argument aside.

We start by giving a short overview of the relevant principal-agent literature and apply it to the management-player relationship in team sports (2). In the second chapter the incentive systems of existing contracts are illustrated. We look at contracts in German professional soccer (DFL) and at the clauses used in US sports, especially basketball (NBA) and football (NFL)[5] and compare the incentives provided (3). In the third chapter we assess the incentives used in Europe and the US with regards to the theoretical perspective of the principal-agent literature, including some more recently made arguments about the use of subjective and objective performance measures (4), before drawing some conclusions (5).

2. A principal-agent perspective to team sports

In this chapter we start with a short overview of the principal-agent theory (2.1).[6] In the second part of the chapter the focus is on the principal-agent relationship between management and players in team sports. We will point out the distinctive features of the team sports industry compared to other industries (2.2).

2.1 The principal-agent theory: a short overview

Principal-agent relationships arise, whenever one person engages another person to perform some service on his behalf. The hiring person gets dependent on the other's action. The dependent person is called principal, the person taking the action on behalf

[5] Deutsche Fussball-Liga (German Soccer League) (DFL), National Basketball Association (NBA), National Football League (NFL).

[6] Since the principal-agent literature is extensive, this overview only considers the parts that will be relevant for the further discussion. For a more comprehensive overview see e.g. Stiglitz (1998).

of the other is called agent.[7] Agency-theory makes two basic assumptions about the actors:

- The principal as well as the agent are self-interested, utility-maximizing actors.
- Furthermore the agent is risk-avers, while the principal is risk-neutral or at least less risk-avers than the agent.[8]

Since it is obvious that an utility-maximizing agent does not necessarily act entirely in the principal's interest, normative agency-theory[9] makes proposals how the agency-problem can be solved: The question that normative agency-theory tries to answer is, how contracts have to be designed to provide the agent with incentives that make him act in the best interest of the principal.

Usually the output of the agent's action, i.e. the principal's revenue, is positively correlated with the effort the agent puts forth. However, the output generally is not only a function of the agent's effort but also of other variables influencing the outcome in either a positive or a negative way.[10] These exogenous effects cannot be controlled by the agent.

The first-best solution for the principal to induce the optimal level of effort is to base the salary directly on the agent's effort. The principal knows the amount of effort which maximizes his own revenue and sets a wage function accordingly, so that the agent self-interestedly chooses the optimal effort.[11] Payment by effort is the first-best

---

[7] See Pratt and Zeckhauser (1985).
[8] See e.g. Gibbons (1998).
[9] The distinction between normative and positive agency theory is drawn by Jensen and Meckling (1976).
[10] See Arrow (1985).
[11] Of course the principal only offers a contract, when the expected profit from hiring an agent is higher than performing the task himself. The agent accepts the contract if his participation constraint is fulfilled. When putting forth the ex ante determined effort the agent receives the agreed upon wage. If he signs the contract, but does not fulfill his specified duties he does not receive money and might be penalized. The agent only puts forth the required effort if his incentive-compatibility constraint is fulfilled.

incentive contract, the outcome is socially optimal. However, paying according to effort requires, that the principal can monitor the agent perfectly and cheaply. If such monitoring is possible the principal-agent relationship is unproblematic.

The assumption that the principal can monitor the agent perfectly, is very strong. Usually there are information asymmetries between the principal and the agent after signing the contract, for two reasons:[12]

- The agent has better knowledge about the decisions he is taking on behalf of the principal (hidden information).
- The principal is not able to observe exactly how much effort the agent really puts forth, because monitoring is costly and precise measures of the agent's behavior are not available, i.e. only the agent himself knows if he acted in the best interest of the principal and how much effort he put forth (hidden action).

Therefore the agent can act against the interest of the principal, e.g. he can put forth low effort without the principal being able to detect it.[13]

Given asymmetric information the principal can no longer base his payments on the agent's effort. The best thing the principal can do under these circumstances is using the output as an estimator for the agent's effort. However, the greater the influence of the above mentioned exogenous variables on the output the weaker the correlation between the agent's effort and his output. Being paid according to an estimator, which he can not fully control, exposes the agent to risk.[14] Since he is risk-avers he has to be compensated by a risk-premium. Shifting risk from the principal to the agent causes a

[12] See Richter and Furubotn (1999), p.163.
[13] The possibility of moral hazard causes agency costs. Jensen and Meckling (1976) define agency costs as the sum of monitoring expenditures by the principal, bonding expenditures of the agent and the residual loss.

loss from inefficient risk-sharing[15] and is, therefore, not socially optimal. Hence any contractual solution not directly based on effort has to deal with a tradeoff between the benefits from setting incentives for the agent and the costs of exposing him to risk.

2.2 Principals and agents in team sports

In this paper we analyze the relation between the management (principal) and the players (agents). This relationship is different from the employer-employee relationship in other industries. We illustrated that paying according to effort very often is impossible since there are ex post asymmetric information. In the team sports industry these information asymmetries hardly exist because it is easier and less costly to observe players´ efforts.[16]

The effort agents in team sports are required to put forth is their performance in training and in games. Training as well as the games themselves are monitored by the principal, i.e. the management, and the coaches.[17] The effort of an individual player cannot only be observed by the principal, but it is also monitored and evaluated by the public and the press. Therefore, the public and the press can be regarded as an objective third party observer. Given the assumption that the effort of players in team sports can be observed easily and cheaply it should be expected that the bonus payments are directly based on the player's effort. Individual effort particularly should be expected to be used as basis for variable payments, because the quality of the team output as an estimator for individual effort is diluted by strong exogenous effects. Two exogenous effects are

[14] See Milgrom and Roberts (1992), p.207.
[15] Given the assumption that the principal is risk-neutral or at least less risk averse than the agent.
[16] This is also claimed by Lehmann and Weigand (1999).
[17] In this paper we do not consider the agency-problems between the management and the coach. Coaches are employees of the club, too, and, as such, not part of the management although they decide who participates in a game. But coaches neither have any type of contract with the players nor do they pay or decide about the players' salaries.

especially strong in team sports: Firstly, each player is strongly dependent on the performance of his teammates.[18] Secondly, the output is strongly dependent on the relative strength of the opposing team. Additionally, there are further variables like the weather and the condition of the pitch that influence the outcome of the game. So the result of the game is only weakly correlated with the player's effort and bonus payments based on results of games can only provide inefficient incentives.

In the next part we will analyze the incentive clauses written in existing contracts to see what type of performance such contracts aim for and how they differ depending on the type of sports.

3. Incentive clauses used in actual sports contracts[19]

In this chapter we look at contracts between the management and the players in professional German soccer and in US sports[20]. We concentrate on the variable parts of the salaries and discuss the incentive effects.[21] We start by looking at contracts in German soccer (3.1). Afterwards we analyze contracts used in the NFL and the NBA (3.2). In both parts we do not only look at the contracts but also provide an overview of the distinct governance structures and their impacts on the respective labor markets. In

[18] This is especially true when competitiveness in team sports increases and the gap between good and bad teams gets smaller. There might be very few exemptions like Michael Jordan in basketball, Pele in soccer, and Joe Montana in football. But they also were dependent on good team members like Scottie Pippen, Garrincha and Jerry Rice respectively.

[19] Most of the information presented here was given by clubs, agents or the League itself.

[20] The four major sports are basketball, football, baseball and ice hockey. Here we concentrate on professional football (NFL) and basketball (NBA) in the US as the information for those sports is most easily accessible. It should be noted that the incentive clauses used in the NHL and MLB differ, sometimes significantly, from the ones used in the NFL or NBA, e.g. MLB does not allow performance bonuses based on statistical achievements.

[21] It should be noted that incentives are always set with regards to the number of wins. The underlying assumption for this is that business and sporting success are strongly correlated in the long run, i.e. winning more games increases profits. This relation is certainly not total and clear-cut. Profits are by far

the third part of this chapter we shortly summarize our findings, comparing German soccer and US sports (3.3).

3.1 Incentive clauses in professional German soccer

The general situation in German soccer can be summarized as follows. In the first place, there is no labor union or other collective bargaining units with power comparable to the Players Associations in the NBA or NFL.[22] There is also no compulsory standard contract. None of the European soccer leagues limits individual salaries of the players or the sum of salaries of a team.[23] Players and clubs enjoy freedom of contract to a large extent.[24] Thus, the precise conditions of the contract depend on the bargaining power of the player and the management.[25]

Incentives in soccer contracts are similar for all players and only vary with the amount at stake.[26] The salary of a player usually consists of the following components: [27]

- a fixed monthly (gross) salary,

---

not solely dependent on a team winning (see Downward and Dawson (2000, pp.67) and Hoehn and Szymanski (1999)).

[22] There is a labor union in soccer called FIFPro. It is operating world wide but has no bargaining power. The regulative framework is set by a hierarchy of associations: FIFA – world-wide; UEFA – in Europe; DFB/DFL – on a national level. They not only set the rules of the game but also provide a governance structure for the business, e.g. see Satzung Die Liga – Fussballverband e.V. (Ligaverband), DFL – Lizenzordnung Spieler (LOS).

[23] The idea of a salary cap was discussed in Germany during the 2001/2002 season as salaries were rising fast and the managers worried because the price for the sale of broadcasting rights seemed to have reached an upper limit (Koelner Stadtanzeiger; December 28, 2001).

[24] Due to the repetitive nature of contracting in team sports, both, players and clubs, have individualized standard contracts.

[25] There are, however, labor regulations that control the transfer of players which could affect the bargaining power and, hence, the salary of a player. These limitations can be classified as severely as far as they reduce the possibility of an early termination of a contract, considerable regarding the transfers of non-EU players and, since the Bosman Case [ECJ (C-415/93)] and the changes following it, almost non-existing for the rest of the transfers.

[26] It should be noted that the contracts suggested by the DFB (Deutscher Fußball Bund), which were valid until 2000, only named a monthly base salary and profit-sharing bonuses as remuneration of the player in Paragraph 5. Incentives or performance based payments are not mentioned at all.

[27] The variable parts can add up to a considerable share of the total salary, i.e. around 50% (see www.spiegel.de/spiegel/0,1518,druck-192806,00.html (April 30, 2002). There seems to be a strong

- a payment depending on the outcome of the game,[28] and
- an annual bonus based on participation in the games.[29]

This incentive scheme relies on two main features. Firstly, paying a player according to the result of the game, i.e. individuals are paid based on the performance of the team. However, it does not matter if he played five minutes or the whole game. If he scored or did a great save. For receiving this bonus is also not important how he performed and how much effort he put forth.

Secondly, paying a player bonuses based on the number of games he participated in regardless of the result sets incentives to put forth effort ex ante, i.e. in training.[30]

In general it can be observed that there are no explicit incentive clauses directly based on effort. The incentive clause aiming at the performance during the game is only based on team performance and, therefore, individual effort is estimated inaccurately.

3.2 Contracts in US sports

In contrast to German soccer there are labor unions represent the supply side of the labor market in the US in all four major sports. Collective Bargaining Agreements (CBA), which are negotiated between the players' union[31] and the leagues[32], regulate almost every sporting and business aspect of the game. The main aim of the Player

---

tendency towards paying signing bonuses, even though this is hard to evaluate since signing bonuses are usually not part of the contracts. See also Frankfurter Allgemeine Zeitung (FAZ); August 7, 2002.

[28] As three points are awarded for a win, one for a draw and none for a loss it is usually agreed to pay an amount per point on the basis of the position in the league, e.g. Euro 3000 per point if team is ranked 2.-5. in the current table.

[29] Usually this only includes games played as part of the ordinary league schedule, the national cup or a European competition. Also these bonuses are only paid up to a certain limit.

[30] Obviously this is based on subjective evaluation of the player's effort. But this is an implicit agreement and not explicitly specified in the contract. See also chapter 4.

[31] National Football League Players Association (NFLPA) and National Basketball Players Association (NBPA).

[32] The NFL is represented by the Management Council. The NBA is represented by the Commissioner, the deputy Commissioner, various owners, the NBA's attorneys, and financial experts.

Associations and the CBAs is to provide a general governance structure for the labor market and to protect the players from the monopsonic exploitation of the league. Generally, the CBAs restrict the freedom of individual contracting for players and clubs by prescribing the mandatory use of standard contracts[33] and the amendments allowed.[34] The Commissioner has the right to veto a player's contract in both leagues.[35] The freedom of contract is indirectly further reduced by artificially setting boundaries to the total amount that clubs are allowed to spend on the salaries of all players on the roster, i.e. setting a salary cap[36], and by laying down a Minimum Team Salary[37]. In addition, the CBA influences the decision of an individual player even further and weakens his bargaining position by imposing restrictions on the mobility of players[38] and by limiting the choice of the first employment by holding an entry draft[39]. However, in most cases the CBA does not set strict boundaries for individual salaries,[40] i.e. the club and the player are allowed to bargain.[41]

[33] The standard contracts are called Uniform Player Contract (NBA) and NFL Player Contract (NFL).
[34] See Article XIV of the NFL Collective Bargaining Agreement and Article II Section 2 and 3 of NBA Collective Bargaining Agreement.
[35] See Greenberg (1993).
[36] The salary cap is basically calculated as a certain percentage of gross revenue. For more details see Article VII of NBA CBA and Article XXIV of NFL CBA. The NBA has one notable clause known as "Bird" exemption. For a critic on the salary cap and its implications see Frankfurter Allgemeine Zeitung (FAZ); February 1, 2002.
[37] See Article VII Section 2 (b) of the NBA CBA and Article XXIV Section 5 of the NFL CBA.
[38] The regulations limiting the mobility of players with a valid contract are biased in favor of the clubs who can release players much more easily than players can terminate their contract. In addition the NFL imposes limits on the movement of a player even after his contract has expired (See Article XVI – XX of the NFL CBA). Thus, increasing the bargaining power of a club relative to that of a player. See Article XI of the NBA CBA and Article XIX of the NFL CBA in particular.
[39] See Article XVI of the NFL CBA and Article X of the NBA CBA.
[40] However, there are a couple of notable exemptions. First, the NBA Rookie Scale Contracts laid down in Article VIII and Exhibit B of the CBA which limit the individual wage of rookies. Second, Article VII Section 5 (c) of the NBA CBA outlines the limitations for increases or decreases of the annual salary split in fixed salary and likely bonuses as part of the incentive compensation for all players classified in different categories. And third, the Minimum Player Salary and Maximum Annual Salary as identified in Article II Sections 6 and 7 respectively of the NBA CBA. The NFL only determines a Minimum Salary (see Article XXXVIII Section 1 to 5 of the NFL CBA) and sets loose boundaries for the decrease and increase in salary (see Article XXIV Section 8 of NFL CBA) but imposes no further restrictions on individual salaries.
[41] As the compensation agreed upon in the contract is the result of a bargaining process between the club and the player an analysis of the structure of compensation has to consider the interests of the two parties

A player`s wage usually consists of the three following primary components:

- *Signing bonuses* are up-front payments players receive for the execution of a new contract or the extension of the previous one. The player keeps such payments even if the club terminates his contract before the end of the contracting period.[42] As such it can be regarded as an insurance against unfair dismissal. Signing bonuses are spread over the entire length of the contract for salary cap calculations[43]
- *Fixed payments* are usually agreed upon as an amount per season[44] and generally count towards the salary cap[45].
- *Performance bonuses* (incentives) are based on various individual and team achievements. They can be classified in several categories, e.g. based on individual or team performance. Consequences of reaching an agreed upon benchmark are either an additional payment, a "rollover"[46] or the option to void one or more years

involved. The club is interested in maximizing profit. So it will try to sign those players where the difference between the revenue it derives from such players and the salary is the largest. Having said that, it should be noted that determining the exact revenue of a player is impossible in team sports as that would mean calculating the additional number of spectators a player attracts. Hence, proxies are used to estimate the marginal revenue product (Mandle, 1998). However, these hiring decision are interdependent as the sum of the salaries is subject to salary cap regulations. The player is interested in maximizing his utility. Hence, he tries to earn as much money as possible and at the same time minimizes effort. These two aims are conflicting because showing effort imposes a disutility on the player and profits the club as the winning probability is rising, hence, attracting more spectators (See footnote 20 and Quirk and Fort, 1995).

[42] Such termination is possible because most contracts are not guaranteed (see http://www.nflpa.org/PDFs/Shared/Guaranteed_Contracts.pdf; July 14, 2002) in the NFL. In the NBA clubs can terminate the contract according to Exhibit A "National Basketball Association Uniform Player Contract" Paragraph 16 of the CBA. This Paragraph, however, is subject to changes as laid down in Article II Section 3 of the CBA in most players' contracts (Roberts, 1992).

[43] See Article VII Section 3 (b) of NBA CBA and Article XXIV Section 7 (b) of the NFL CBA for more details.

[44] Fixed payments are paid in accordance to the regulations laid down in Exhibit A Paragraph 3 of the NBA CBA or Appendix C Paragraph 5 of the NFL CBA. Generally, the amounts agreed upon in Paragraph 5 of the NFL Player Contract or in Exhibit 1 or Exhibit 1A following Paragraph 3 of the Uniform Player Contract in the NBA count towards the salary caps.

[45] See Article VII of the NBA CBA and Article XXIV Section 7 (a) of the NFL CBA.

[46] When the player achieves an agreed upon benchmark his base salary is increased by the predetermined amount for one or more years (Walanka, 1997).

at the end of the contract.[47] For salary cap purposes bonuses are classified as “likely to be earned” or “not likely to be earned”[48] dependent on the performance of the player or the team during the previous season.[49] Only the former count towards the cap.

In the following we concentrate on performance bonuses. Their influence on the production of a player highly depends on their precise nature. The number of players having such incentive clauses in their contracts varies with the type of sports.

3.2.1 Incentive clauses in the NFL

The NFL CBA lists a large number of incentives in Article XXIV Section 7 (c) for the purpose of salary cap calculations but, as such, they also provide an overview of all types of performance-based payments.[50] These bonuses can be roughly divided into team incentives[51] and individual incentives.[52]

Examples for team incentives include:

- for the complete team: winning games, the Conference Championship, or the Super Bowl;

[47] In the case of waving one or more years of the contract it often includes the option for the club to buy back this time for an amount in excess of the salary previously agreed upon.
[48] Article VII Section 5 (d) of the NBA CBA limits the amount earned through “unlikely bonuses” to 25% of the player’s regular salary.
[49] See Article XXIV Section 7 (c) of the NFL CBA.
[50] http://sportsillustrated.cnn.com/statitudes/onthemoney/news/1999/09/14/williams_contract/index.html (July 17, 2002) and http://sportsillustrated.cnn.com/football/nfl/news/1999/08/12/colts_edgerrin_ap/index.html (July 17, 2002) give examples of such incentive clauses referring to contracts of former New Orleans’ running back Ricky Williams and Indianapolis’ running back Edgerrin James.
[51] See Article XXIV Section 7 (c) page 107 of NFL CBA.
[52] The NFL also allows for bonuses based on a combination of team and individual performance, e.g. a player receives a bonus of $1m if he scores 10 touchdowns and the team ends the season with more rushing yards than the previous season.

- for the offence: points scored by offence, total offence (net yards), ranking based on yards in the Conference;
- for the defense: touchdowns allowed, sacks, average net yards given up by passing plays, ranking in the league based on points allowed; and
- for the special teams: own punt return average, opposite kick-off return average.

Examples for individual incentives include:[53]

- statistical accomplishments, e.g. number of touchdowns, sacks, or catches, average yards per rush, field goal percentage, pass rating;[54]
- physical condition, e.g. staying under a certain weight limit;
- roster[55], reporting[56], or playtime bonuses, e.g. playing more than eight games as a starter, playing more than 40% of the offence plays;
- achieving a certain position in a specified ranking, e.g. first in the number of passes caught in the league; and
- being voted by the media or the public into the Veteran/Rookie Honors or Veteran/Rookie Media Team, e.g. Pro Bowl, MVP-NFL, NFL or Conference Player of the Year.[57]
- In addition incentives based on subjective standards are allowed, counting 100% towards the salary cap.[58]

In the NFL about 65-75% of the players receive payments which are based on some kind of individual accomplishments.[59] Even as such payments only account for 5% of

[53] See http://sportsillustrated.cnn.com/football/nfl/news/1999/05/14/williams_sign/index.html for examples.
[54] In the NFL in some cases incentives are even based on the individual performance of another player (Walanka, 1997).
[55] Roster bonuses are paid for being a member of the team at a specific date.
[56] Reporting bonuses are paid for attending training-camps and reporting to the club on time.
[57] For a complete list see page 122 and 123 in Article XXIV Section 7 (c) of NFL CBA.

the total salary of all players.[60] it should be noted that the individual contract is decisive and not the summed up amount over all players' contracts.

3.2.2 Incentive clauses in the NBA

In the NBA performance bonuses are less common than in the NFL. In basketball such incentive clauses can be based on:[61]

- performance of the team at the end of season,
- physical conditions,
- statistical accomplishments, or
- receiving a league-wide recognized award.

It is not allowed:[62]

- to offer bonuses for winning specific games or series of games and
- to refer to achievements during the previous season, e.g. free throw percentage higher than in the previous season, when setting benchmarks for the current season.

Additionally to the incentive clauses in individual contracts there is the payment of the NBA Playoff Pool to the appropriate teams which collectively pays for team

[58] See page 122 of Article XXIV Section 7 (c) Side Letter 4/27/93: Sec.12 of NFL CBA.
[59] See Frick, Dilger and Prinz (2002). For more details see http://www.usatoday.com/sports/nfl/salaries/splash.htm (July 13, 2002) which shows the distribution between base salary and bonuses for all players individually for the NFL 2000 season.
[60] According to information given by the NFL. Also see http://www.canoe.ca/Slam020627/nfl_ten-ap.html (July 16, 2002). It is more likely for players at skill positions, e.g. quarterbacks, running backs, wide receivers, and tight ends, to earn additional money on incentive features but there are also players at other positions, e.g. defensive linemen, that have such clauses written in their contracts. However, the value of a player for the team is not reflected by having incentive clauses in the contract, i.e. there are star players who only receive a signing bonus and a fixed salary and there are journeymen who earn performance based payments.
[61] See Article II Section 3 (c) of NBA CBA.
[62] See Article II Section 3 (c) of NBA CBA.

performance. However, this only represents a small fraction of the normal salary for each player and as such has little incentive effects.[63]

3.2.3 Interim findings for the NFL and the NBA

As seen in chapter 2 principal-agent theory suggests, that efficient incentive clauses should be conditioned on the observed effort of the players. However, explicit incentive clauses used in contracts in the NBA and the NFL are not based on observed effort but rather on individual or even team output.

As illustrated before, team output cannot be attributed to the effort of a single player, but is a function of multiple variables. Therefore, the team output is only loosely correlated with the effort of an individual player. Even individual output is only partly correlated with the effort of the player. As mentioned before, the individual performance of each player is strongly dependent on the performance of teammates, e.g. the amount of passing yards a quarterback can achieve is dependent on the quality of the receivers. This means that players can benefit from each others abilities and effort as these are interdependent.

Even though we did not find any explicit agreements directly based on individual effort there are some payments connected to reasonable estimators for the player's effort[64], thus providing individual incentives, as we will show in chapter 4. Still, the above described explicit incentive clauses used in US sports based on individual and team output alone do not seem to provide efficient incentives for the individual player.[65]

---

[63] See Mandle (1998).

[64] Better proxies include incentives based on the voting of the media, on statistical achievements, on individual ranking and on playtime. Mediocre and bad proxies for individual effort include clauses referring to roster bonuses, to reporting bonuses and to physical condition.

[65] Even if it could be argued that the success of a team might be highly correlated with the effort of one player, e.g. Michael Jordan and the Chicago Bulls, it seems to be unreasonable from a risk sharing perspective to include such clauses in the contract of a single player. See also footnote 17.

3.3 Comparative concluding remarks

Generally, contracts used in the NBA and NFL are more complex and more restricted by the respective CBA than the counterparts in professional German soccer.

Looking at the contracts two things stroke us as being unusual. Firstly, the explicit incentives clauses used do not seem to be based directly on individual effort but on individual or team output. This contradicts the propositions of normative agency theory. So why is it, that even though individual effort is publicly observable, it does not seem to be used as a basis for bonus payments?

The second thing that seems odd is, that – especially in German soccer – not individual output is used as an estimator of the effort, but team output. Why is it, that in the US at least some estimators for individual output are used while this is not the case in German soccer?

We will turn to these two questions in the following chapter by looking into additional theoretical approaches to the principal agent problem.

4. Explanations for the deviation between principal-agent theory and practice and for the differences between the NBA, NFL and professional German soccer

The contracts of players in the NFL, the NBA and professional German soccer seem to contradict principle-agent theory. The general idea, derived from principal-agent theory, is to reward observed effort by setting explicit agreements in contracts if possible. None of the incentive clauses used in actual contracts does not follow these implications as none of the described explicit incentives seems to be based on individual effort directly.

In the following chapter some reasons for this apparent contradiction are elaborated. Firstly, we will elaborate on the idea that subjective performance measures and tournaments – instead of pay-for-performance clauses - could provide efficient incentives (4.1). The second part illustrates the problems of setting the correct incentives by only using objective performance measures in more detail. We will expand the analysis with some rather recent arguments about the quality of objective performance measures concentrating on applications to contracts in team sports (4.2). Thereby we are able to explain why incentive clauses used in US sports are different from those used in soccer. The last part of the chapter will elaborate on the idea that a combination of subjective and objective performance measures might provide efficient incentives for players in team sports (4.3).

4.1 Subjective performance measures and tournaments

At first sight we could not find any explicit incentive clauses based on individual effort. But in this part of the paper we show that the management partly induces effort by using subjective performance measures which are not explicitly stated in the contract. The subjective performance measures are used as a basis for tournament-style incentives. Tournaments in various forms in which a player competes primarily against his teammates, but also on the labor market in general, are the most important device to influence the players' behavior.[66]

[66] Although the underlying principle of these tournaments is identical in all the analyzed sports, the applications of the systems are somewhat different.

4.1.1 Subjective performance measurement

Subjective performance measures have the advantage, that they allow the principal to examine the agent`s behavior ex post, i.e. the principal can observe the actions of an agent and then decide if the behavior of the agent was in his interest. [67] Therefore, it is not necessary to define the specific task ex ante.[68] A broader definition of what the agent is supposed to do is sufficient.[69] For the principal it is easier and, hence, less costly to evaluate the result of the agent's action ex post. Usually subjective evaluation is unpopular amongst supervisors and employees, because employees tend to believe that their performance appraisal is ineffective, while the supervisors think subjective measures generate conflicts.[70] The problem using subjective evaluation and implicit arrangements usually is that opportunistic behavior by the management becomes more likely as it is difficult to verify the situation to third parties.[71] Hence, the agent is vulnerable to the discretional powers of the principal. In team sports these rejections against subjective performance measures do not exist as coaches have to evaluate players as part of their job anyway,[72] and players are used to public discussions about their individual performance. Additionally, as performance is publicly observable the media can be regarded as third party enforcement.

---

[67] "Subjectivity allows the supervisors to examine, *ex post*, the actions that an employee took and decide whether it represented dysfunctional behavior or gaming. It also allows the supervisors to subjectively "back out" noise in an objective performance measure, reducing the riskiness of a measure without adding distortion" (Baker, 2000b).

[68] Due to the complexity in the interaction of team members, coaches and the management and the variety of on- and off-field tasks such an ex ante specification would be extremely costly and probably even impossible in team sports.

[69] A narrow definition would also include the rewards and punishments conditioned on the outcomes. This can be very costly as the agents have „superior specific knowledge about the job they are doing" (Baker, Jensen and Murphy, 1988).

[70] See Baker, Jensen and Murphy (1988). The tendency "to establish simple, quantifiable standards against which to measure and reward performance" is also mentioned by Kerr (1975).

[71] For a more detailed elaboration see Baker, Jensen and Murphy (1988).

[72] As coaches are usually fired first when a team is unsuccessful their motivation to supervise and sanction is clear.

In team sports implicit agreements based on subjective performance measures induce tournament competition between the players, as we will see in the next part.

4.1.2 Tournaments[73]

Both, in German soccer and US sports, tournament-style competition is used to trigger individual effort of the players. Such an incentive system is based on subjective performance measures evaluated by the coaches and the management.

In soccer, tournaments take place when players fight for the spots on the team which is fielded for a game.[74] Players are induced to put forth effort in training when competing against their teammates. The winner at each position - chosen subjectively by the coach - is allowed to participate in the game and receives a bonus. During the game this incentive also triggers effort since playing well in one game increases the chance to play in the next game, too, while bad performance highly increases the probability of being substituted.

A similar tournament-style competition takes place for the spots on the roster or for playing time in teams in the NFL and NBA. When a NFL team opens training camp there are more players on the team than are allowed to be on the roster at the beginning of the regular season. For most positions there is a fierce competition to “survive” successive cuts and to remain on the team, especially as the wages players receive in their respective outside option are much lower. These tournaments continue during the season as there is consistent pressure to perform in order to stay on the team. Besides the option to simply put a player on the bench or to trade a player, clubs in the NFL can also terminate the contract. Furthermore, it is necessary to play in the game in the first

[73] See Lazear and Rosen (1981) for a general discussion of advantages and disadvantages of tournaments. For a formal model of team rank-order tournaments see Scully (1995; pp.44).

place in order to achieve a statistical benchmark for a bonus. So the opportunity to earn such bonuses depends on the subjective evaluations of the coaches.[75]

Besides these tournaments within the team there are external tournaments, i.e. competition amongst all players in the labor market for the best contracts.[76] Contracts are characterized by security, duration, salary, and division[77] of the salary.[78] If a player shows exceptional performance over a couple of seasons combined with other criteria he qualifies for a contract which combines a long duration and a high salary. Thus, most players have incentives to show their talent, abilities, willingness to fight, and co-operate with teammates.

This incentive is even bigger considering that by showing their skills players greatly enhance their marketing value. A considerable part of the future income stream does not come from the payments of the potential employer(s) but from a mechanism outside the scope of the normal labor market. The value of a player in the market for advertisement is based on the fact that he represents something (almost) unique and his characteristics and abilities are well known. Most players in the highest professional leagues are well known to the public but only when they achieve star status their marketing value increases notably.[79]

Tournament-style incentives have several drawbacks which apply to various extends to professional German soccer and US sports. Firstly, playing in a game means additional

---

[74] Usually a soccer club has around 30 players, but only 11 to 14 can play in a single game.
[75] Therefore, steps in the hierarchy can be described as "making the team" followed by "getting regular playing time" to "being a starter". But unlike in other industries there is a clear distinction between sporting and financial promotion, i.e. moving up the hierarchy is not perfectly correlated with the quality and type of the player's contract.
[76] See Frick (2001).
[77] This includes signing bonuses, fixed and incentive related payments as well as the distribution of the fixed salary over the years of the contract.
[78] Interestingly, there is no trade-off between the different components of a contract in the NBA and in the NFL (Frick and Prinz, 2000).

effort and, hence, disutility for the player, so the bonus for participating in a game could be considered merely a normal payment.[80] Secondly, the coach might use tactics in which not the best player overall is needed, but a player with a certain quality who might be inferior to his competitors in several other aspects.[81] Thirdly, tournaments result in players preferring to compete against weak opponents because the chance of winning is higher and less effort is needed to win. Fourthly, as players are heterogeneous with regards to their contract duration they have different motivation depending on the stage of their career.[82,83] Hence, competition is less fierce than amongst homogeneous players.[84] The most severe shortcoming is that such tournaments have harmful effects, because players of the same team compete against each other and have incentives to boycott or, even worse, injure their own teammates in order to win the price, i.e. the spot on the team.[85]

Having these drawbacks in mind, it is doubtful whether tournaments within a team automatically induce efficient incentives. The fact that clubs in the NFL and NBA try to use objective performance measures <u>and</u> tournament-style incentives based on subjective performance measures supports this impression. Before we will conclude this chapter, considering the possibility of combining subjective and objective performance

---

[79] See Frank and Cook (1991) on the issue of winner-take-all markets and Rosen (1981) on the economics of “superstars”. See Frick (2001) for an application of the later theory to labor markets in team sports.
[80] This depends on the size of the bonus payment.
[81] This also includes using varying numbers of players in defense, offense and midfield.
[82] See Frick and Prinz (2000).
[83] So players at the beginning of their career have incentives to be on the team because there are effects on the reputation which then have consequences for the future chances of employment and remuneration. See Prendergast (2000): “He [the employee] realizes that good performance today is informative of his talent, which increases his future pay. Thus, in a certain environment, the worker has incentive to exert effort in the absence of a contract explicitly tying current pay to performance.” Players at the end of their career have less incentives as these effects on reputation are no longer important and partly because they can rely on past merits. Based on these assumptions it is easier for young players to beat veterans.
[84] Additionally, there is no ultimate sanction a club can impose on a player, especially at the end of his career. All contracts in soccer are guaranteed, i.e. terminating the contract is not a viable option.

measures in team sports we return to analyze the problems with objective performance measures more closely.

4.2 Objective performance measures

Principal-agent theory as described above, focuses on the trade-off between incentives and insurance. Risk-neutral principals insure risk-avers agents. Thereby the principal simultaneously reduces the incentives provided. This perspective did not proof to be very powerful in explaining existing incentive systems as there seems to exist a gap between theory and practice. [86] Therefore, part of the discussion in agency theory shifts the focus from this trade-off to the quality of objective performance measures.[87] In the following we will revise some of these recent arguments with regards to the contracts in the NFL, the NBA and professional German soccer. We start by looking at the trade-off between risk and distortion of objective performance measures (4.2.1). Then we elaborate on the implications of this trade-off with regards to bonuses paid based on individual effort in team sports (4.2.2) before turning to the costs of incentive systems based on objective performance measures (4.2.3).

4.2.1 Objective performance measures: the trade-off between risk and distortion

Traditional agency theory predicts, that since the agent is assumed to be risk-avers, low-risk performance measures[88] are preferable if payments according to observed effort are not possible. In the case of team sports low-risk performance measures should be based

[85] As injuries are part of team sports it is almost impossible to say whether a tackle was done with the intention to hurt a player or if the injured player was just unlucky. This is even valid under our assumption of observability of effort.
[86] As described by Baker, Jensen and Murphy (1988). As seen above this is also true for the incentive systems used in sports.
[87] See e.g. Baker (1992, 2000a, 2000b) and Prendergast (2000).

on the output of the individual player, e.g. a soccer player could be paid according to the number of one-on-one-situations won during a game. This would expose the player to less risk than being paid according to team output, i.e. the result of the game, as it makes him less dependent on the other team members and on exogenous variables.[89] But as seen above variable payments – especially in soccer - are usually based on team output. Why is that? When determining the power of an incentive system not only risk is playing a crucial role but also the distortion of a performance measure.[90] A performance measure is highly distorted if it provides incentives to take actions that although increasing the performance measure (and thereby the agent's payments) hardly increase the principal's target[91] at the same time or are even counterproductive.[92]

Usually there is a trade-off between risk and distortion, i.e. the principal has a choice between higher-risk, lower-distortion and lower-risk, higher-distortion performance measures.[93] This trade-off is very evident in team sports, as we will show in the next part.

---

[88] Low-risk performance measures are those that expose the agent to little risk. Those measures are strongly correlated with the agent's effort.

[89] Baker (2000b) defines the extent to which the agent is able to control or influence the used performance measure as „controllability". Here, the controllability of the measurement „one-on-one-situations won" is higher than the controllability of the result of the game.

[90] See Baker (2000a, 2000b).

[91] Baker (1992) claims that in most cases the principal's target is not contractible since many organizations lack a clear objective. He argues that "the absence of a well-articulated organizational objective ‚trickles down' through the entire performance measurement system". In the team sports industry and especially in European soccer the exact aim of the club, i.e. the principal, is ambiguous (see e.g. Downward and Dawson (2000), pp.27). In this paper we assume that the aim is profit maximization of which the sportive success is a proxy.

[92] See Kerr (1975) for several examples where the principal rewards A, although he is hoping for B. For example, if a player is paid according to the number of one-on-one-situations won, he has an incentive to win one-on-one situations but that might not entirely reflect the interest of the coaches or the management. In some cases it might be necessary to cover an opposing player instead of attacking the one having the ball. One example for this is known as the "Ted Williams" effect who ignored the instructions of the coach in order to get the hitting record in baseball (We thank G. W. Scully for this example).

[93] See Baker (2000a).

4.2.2 Objective performance measures and cooperation in team sports

As seen in chapter 3 the incentives in German soccer are mainly based on the result of the game, i.e. the output of the team. Following traditional agency-theory this is surprising, since paying a player according to the team output exposes him to high risk. From this perspective the incentive systems based on team output are inefficient. Still, there might be a good reason for using team output as a performance measure: Individual rewards, e.g. paying the goal-keeper for the number of saves, a striker based on the goals scored, and a defender on one-on-one-situations won, might distort incentives to cooperate within the team. As explained above there is a trade-off between the distortion and the risk of incentives. Paying a player according to the team output has the disadvantage of exposing him to high risk, but at the same time it aligns his interest with the interest of the principal, i.e. winning the game. Depending on how important and valuable cooperation is, it might be reasonable to pay the agents based on team output.[94] Especially in soccer cooperation between the players is very important.[95] As a single player is not able to decide the game the team members have to support each other.[96]

The trade-off between distortion and risk also explains why in the NFL there are more bonus payments based on the individual performance: Obviously cooperation is not as important in football as in soccer.[97] Therefore, it is easier to align the individual performance measures of the players with the interest of the club. Even in the NBA, although the concept of the game seems to be roughly similar to soccer, a single player

[94] In general, it is also important how well cooperation can be monitored and at which cost (Frick, 2000).
[95] Cooperation becomes even more important if the tasks the individuals have to perform are complementary because the effect of shirking is increasing (Frick, 2000).
[96] It is one of the commonplaces in soccer, that it is "always the team that wins games".
[97] The NFL as opposed to soccer has more specialized positions. The effort and abilities of a single player a more easily separable and more decisive than in soccer. So setting incentives based on individual performance is easier.

is more decisive as the tasks in the game are more separated, there are less player, and the field is much smaller.

4.2.3 The cost of incentive systems based on objective performance measures

Implementing new incentive systems based on unfamiliar performance measures is always costly.[98] Firstly, there are the costs of implementing an incentive system. This includes costs of finding a correct mechanism, especially because in team sports a single performance measure will never be sufficient. Rather the management of a team has to install a system consisting of several measures. It is very difficult to specify ex ante, what the players should do.[99] Therefore, it is very difficult to identify a performance measure, or a combination of several performance measures, without distorting the incentives for the players. Not only the costs of finding and specifying such a system would be high but also the transaction costs, emerging from the implementation of such a system. Such costs include complex bargaining between management and players and monitoring.

Secondly, costs might emerge as soon as the performance measures are wrongly specified, i.e. the measure rewards something what was not intended. The players than have an incentive to optimize the actual measure instead of the intended target.

To summarize, every incentive mechanism causes costs. These costs have to be compared to the benefits of the incentive mechanism, i.e. the reduction of agency costs. In team sports it is possible that an incentive system based on individual output might not be worth its costs.

---

98 See Baker (2000a).

99 Or as Baker, Murphy and Jensen (1988) put it: “The principal knows, in general terms, what he wants the agent to do, but the range of possible actions that the agent can take, and the range of possible outcomes, is enormous.“

4.3 Combination of subjective and objective performance measures

Baker, Gibbons and Murphy (1993) argue that combining subjective and objective measures might provide sufficient incentives for individual performance.

As seen above in German soccer as well as in US sports subjective performance measures are used for tournament-style incentives. But while contracts used in US sports can be interpreted as a combination of subjective and objective performance measures, the latter are not used in German soccer at all. The above analyzed explicit clauses in US sports are based on objective measures, i.e. proxies of individual effort, which are used to condition bonuses on statistical performance benchmarks.[100] Hence, incentives based on objective, publicly observable accomplishments and implicit agreements based on subjective evaluations work complementarily. Together they might be able to induce optimal performance and off-field behavior by the players.

Taking these points into account it is surprising that incentives in German soccer are primarily conditioned on subjective assessment by the coach. But as argued before this difference might be explained by the nature of the sports, i.e. the importance of cooperation amongst the team members. It is highly likely that it is not possible to find good objective performance measures for soccer players, especially taking into account that using these performance measures can be costly.

5. Conclusion

In this paper we applied a principal-agent perspective on incentive clauses used in team sports. Comparing the variable payments in US sports to those in German soccer there are considerable differences. We found, that there are no explicit incentive clauses directly based on individual effort. However, subjective performance measures directly based on individual effort are implicitly agreed upon to induce tournaments. Tournaments seem to be an important mean to make players run, score and win.

Since tournaments have considerable drawbacks a combination of tournaments with objective, explicit clauses in contracts seems to be advisable. We discovered that such a complementary structure of performance measures is used in the NBA and NFL. Hence, the incentive systems used in the US seem to represent a good solution.

In German soccer objective individual performance measures for the players' effort are not used at all. There is only a combination of tournament-style incentives and clauses based on team output. Still, it is arguable if agency costs could be reduced by introducing objective performance measures based on individual effort instead of team output due to the nature of soccer and the necessity to cooperate. It seems to be a strong argument, that because of the nature of soccer it is difficult, costly, and maybe not even desirable to define objective performance measures in addition to the subjective performance measures already used.

[100] According to Baker, Gibbons and Murphy (1993) objective criteria should not be perfect because then the principal has a fallback position which is too attractive.

Bibliography

Alchian, A. and H. Demsetz (1972) ‘Production, Information Costs, and Economic Organization’, *American Economic Review*, p.777-795.

Arrow, K. (1985) ‘The Economics of Agency’, in: Pratt, J. and R. Zeckhauser (eds.) *Principals and agents: The structure of business*, Boston.

Baker, G. (1992) ‘Incentive Contracts and Performance Measurement’, *Journal of Political Economy*; p.598-614.

Baker, G. (2000a) ‘The Use of Performance Measures in Incentive Contracting’, *American Economic Review, Papers and Proceedings*; p.415-420.

Baker, G. (2000b) ‘Distortion and Risk in Optimal Incentive Contracts’, mimeo, Harvard Business School.

Baker, G., Gibbons, R., and K. Murphy (1993) ‘Subjective Performance Measures in Optimal Incentive Contracts’, NBER Working Paper No.4480.

Baker, G., Jensen, M., and K. Murphy (1988) ‘Compensation and Incentives: Practice vs. Theory’, *Journal of Finance*; p.593-616.

Downward, P. and A. Dawson (2000) *The Economics of Professional Team Sports*; London and New York.

Fort, R. and J. Quirk (1995) ‘Cross-subsidization, Incentives and Outcomes in Professional Team Sports’, *Journal of Economic Literature*; p.1265-1299.

Frank, R. and P. Cook (1991) 'Winner-take-All Markets, University of Western Ontario, Papers in Political Economy.

Frick, B. (2000) 'Prämien und Entlohnung in Sportwettbewerben', in: Büch, H.-P. (ed.) *Beiträge der Sportökonomik zur Beratung der Sportpolitik*, Köln.

Frick, B. (2001) 'Die Einkommen von "Superstars" und "Wasserträgern" im professionellen Teamsport', *Zeitschrift für Betriebswirtschaft*, p.701-720.

Frick, B. and J. Prinz (2000) 'Die Entlohnung professioneller Mannschaftssportler: Gibt es einen Trade-off zwischen Entgelten und Vertragslaufzeiten?', in: Backes-Gellner, U., Kraekel, M. Schauenberg, B. and G. Steiner (eds.) *Flexibilisierungstendenzen in der betrieblichen Personalpolitik: Anreize, Arbeitszeiten und Qualifikationen*; Muenchen und Mering; p.129-154.

Frick, B., Dilger, A. and J. Prinz (2002) 'Arbeitsmarktregulierung und nachvertraglicher Opportunismus: Die Verhaltensfolgen garantierter Handgeldzahlungen in der National Football League', *Zeitschrift für Betriebswirtschaft*, forthcoming.

Gibbons, R. (1998) 'Incentives in Organizations', NBER Working Paper No. 6695.

Greenberg, M. (1993) 'Drafting of Player Contracts & Clauses', *Marquette Sports Law Journal*.

Hoehn, T. and S. Szymanski (1999) 'Couch Potatoes versus Hardcore - an Analysis of the Demand for Football under Alternative League Structures', Conference Paper, EALE 16th, Castellanza.

Jensen, M. and H. Meckling (1976) 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics,* p.305-360.

Kerr, S. (1975) 'On the Folly of Rewarding A, while Hoping for B', *Academy of Management Journal*, p.769-783.

Lazear, E. (1986) 'Incentive Contracts', NBER Working Paper No. 1917.

Lazear, E. and S. Rosen (1981) 'Rank-Order Tournaments as Optimum Labor Contracts', *Journal of Political Economy*, p.841-864.

Lehmann, E. and J. Weigand (1999) 'Determinanten der Entlohnung von Profifußballspielern – Eine empirische Analyse für die deutsche Bundesliga', *Betriebswirtschaftliche Forschung und Praxis*, p.124-135.

Mandle, J. (1998) 'Team Play and the Compensation System in Professional Basketball', *Marquette Sports Law Journal.*

Milgrom, P. and J. Roberts (1992) *Economics, Organization and Management*, Englewood Cliffs, NJ.

National Basketball Players Association Collective Bargaining Agreement of 1999 (http://www.nbpa.com/cba/cba.html; July 21, 2002).

National Football League: Collective Bargaining Agreement between the NFL Management Council and the NFL Players Association as Amended February 25, 1998 (www.nflpa.org/Shared/CBAPrinter.asp; July 10, 2002).

Pratt, J. and R. Zeckhauser (1985) 'Principals and Agents: An Overview', Pratt, J. and R. Zeckhauser (eds.) *Principals and Agents: The Structure of Business*, Boston.

Prendergast, C. (2000) 'What Trade-off of Risk and Incentives?', *American Economic Review, Papers and Proceedings*; p.421-425.

Richter, R. and E. Furubotn (1999) *Neue Institutionenökonomik*, Tübingen.

Roberts, G. (1992) 'Interpreting the NFL Player Contract', *Marquette Sports Law Journal*.

Rosen, S. (1981) 'The Economics of Superstars', *American Economic Review*; p.845-858.

Scully, G. (1995) *The market structure of sports*, Chicago.

Stiglitz, J. (1998) 'Principal and Agent' in: Eatwell, J., Milgate, M., Newman, P. (eds.) *The New Palgrave: A Dictionary of Economics*, London.

Walanka, D. (1997) 'An Alternative Approach to the Problem of Midterm Demands for Contract Renegotiation in the National Football League: the Incentive-based Contract', *Loyola of Los Angeles Entertainment Law Journal*; *Symposium Using Law and Identity to Script Cultural Production, Comment* .