

Journal of Sports Economics

<http://jse.sagepub.com>

The Effectiveness of Incentive Mechanisms in Major League Baseball

Joel G. Maxcy, Rodney D. Fort and Anthony C. Krautmann

Journal of Sports Economics 2002; 3; 246

DOI: 10.1177/1527002502003003002

The online version of this article can be found at:
<http://jse.sagepub.com/cgi/content/abstract/3/3/246>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

On behalf of:

The North American Association of Sports Economists

Additional services and information for *Journal of Sports Economics* can be found at:

Email Alerts: <http://jse.sagepub.com/cgi/alerts>

Subscriptions: <http://jse.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

The Effectiveness of Incentive Mechanisms in Major League Baseball

JOEL G. MAXCY

State University of New York–Cortland

RODNEY D. FORT

Washington State University

ANTHONY C. KRAUTMANN

DePaul University

Past work on principal-agent problems in sports does not effectively compare among players. The comparison must be made between players nearing contract negotiations and other players to detect ex ante strategic behavior (turning up performance just prior to contract negotiations) and ex post shirking (slacking off after signing the contract). The authors' productivity measures include statistics reflecting both the player's desire (or availability) to play as well as his performance once he enters a game. The data reject strategic performance. This suggests that mechanisms aimed at curbing strategic performance by players appear to be working well. However, pitchers with nagging injuries may be more likely to be placed on the disabled list while under long-term contracts. This may imply strategic behavior or, conversely, that clubs are choosing to protect an investment. A performance measure used to test for shirking affects some results but not the ultimate conclusions.

Long-term employment contracts that guarantee income are believed to create an incentive toward opportunistic behavior, typically called “shirking,” in principal-agent models (Alchian & Demsetz, 1972; Holmstrom, 1979). The upshot of that literature is that unless monitoring or incentive mechanisms are employed, shirking can generate inefficient pay and performance outcomes. In the face of such problems, contractual mechanisms typically evolve to combat this tendency.

The growing literature analyzing this principal-agent problem in professional sports has come to mixed results (Blass, 1992; Krautmann, 1990, 1993; Lehn, 1982; Maxcy, 1997; Scroggins, 1993; Sommers, 1993). The main reason for this discrepancy is because analysts have implicitly assumed that existing labor contracts do not contain incentive-compatible mechanisms explicitly targeting shirk-

JOURNAL OF SPORTS ECONOMICS, Vol. 3 No. 3, August 2002 246–255

© 2002 Sage Publications

ing behavior. Thus, the literature simply undertakes a search for declining performance of some players as evidence of opportunistic behavior. We argue that a proper test of the shirking hypothesis must include a comparison between those players at a point where strategic behavior is likely and other players who are not at such a point in time. The labor market in Major League Baseball (MLB) provides an ideal environment for studying shirking behavior because these strategic points are easily identified, contracts that might educe such behavior are commonplace, and productivity is simply measured.

The employment process in MLB contains an array of mechanisms aimed at deterring opportunistic behavior. First, there is direct monitoring of player effort. With very few exceptions, players are pulled through a grueling selection process from the time they initially reveal talent, often at a very young age. Those that exhibit the most productive combinations of talent and effort are selected for higher levels of play, from youth baseball on into high school, college, the minor leagues, and ultimately MLB. From then on, direct oversight by coaches, on-field managers, general managers, owners, teammates, sports writers, and fans puts players' on-field actions under a microscope throughout their careers. Although it is true that we may never know the greatest potential performance of any given player, comparisons are always possible because there are numerous other players with approximately the same bundle of talent and effort. The repeated observations of players who do work hard at least allow effort to be compared.

A second monitoring mechanism that exists is aimed at rewarding maximum effort. Although players may work hard most of the time, it is often alleged that their performance appears to be highly correlated with the proximity to specific, economically strategic times—particularly, right before and after salary negotiations. For example, an executive for player negotiations with the Cleveland Indians put it this way: “The experience of individual clubs, and the industry as a whole is that for whatever reason, the player’s performance is not the same following the signing of a new multi-year contract” (“Butler, Tribe Bickering,” 1986, p. 1). Given the 25-year history of long-term free agent contracts, it seems hard to imagine that modern contracts would not include contractual stipulations aimed at minimizing this type of behavior. One such stipulation is incentive clauses that tie rewards to performance outcomes. Although such clauses make up only a small share of total compensation of MLB players, they do exist and provide rewards for attaining certain thresholds. Team performance matters as well, with extra bonuses earned for making the playoffs. Furthermore, the reward of a long-term contract may be an incentive in and of itself. Maxcy (1996) finds evidence that long-term contracts are awarded judiciously and primarily to those players who have demonstrated consistent and superior performance. Finally, contingencies sometimes specify that long-term contract payments increase over the duration of the contract, and there are clauses that often allow either side to renegotiate around threshold levels of performance.¹

It is unclear whether MLB players continue to behave strategically or opportunistically in spite of the mechanisms in place to offset such behavior. In this article, we attempt to conduct a more thorough investigation into the shirking hypothesis. By including both those players with and those players without an incentive to behave opportunistically, we are better able to discern whether there exists a pattern in performances around contract negotiations. Furthermore, our model looks for evidence of opportunistic behavior ranging from a player's on-field performance to his availability due to injury. Although we do find evidence that players spend less time on the disabled list in the season immediately preceding contract talks, we find nothing to suggest that long-term contracts adversely affect subsequent performance.

EVALUATING STRATEGIC PERFORMANCE MECHANISMS

Let the null hypothesis be that players do not engage in strategic or opportunistic behavior; that is, performance is unaffected by proximity to contract negotiations. We would fail to reject this hypothesis if no significant change in performance was found as players approach contract talks.² If, on the other hand, we do detect a discernible pattern in performance, then a rejection of the null would lead us to two observationally equivalent alternative hypotheses. One possibility is that the existing monitoring mechanisms in MLB work; it is just that the optimal level of strategic behavior is greater than zero (after all, the optimal level of most economic phenomena is positive!). Virtually the entire body of literature on this topic has ignored this possibility. Instead, analysts have formulated the alternative to imply that the optimal level of opportunistic behavior is zero and that the structure of contracts is not incentive compatible. Although one cannot convincingly argue that either specification of the alternative is more legitimate than the other, a rejection of the null has markedly different implications under the first, rather than second, alternative.³

To properly examine a player's performance, one must be careful to separate out the stochastic from the deterministic elements affecting productivity. In order for strategic behavior to occur, one must be willing to assume that there exists some type of endogenous control of effort by the player. If so, then we can model performance in the following manner. Let $PERF_{it}$ denote the i th player's performance in year t , determined by a purely random component (σ_{it}), as well as three deterministic factors: a set of human-capital skills (S_i), his work effort (E_{it}), and other firm inputs (T_{it}):

$$PERF_{it} = f(S_i, E_{it}, T_{it}, \sigma_{it}). \quad (1)$$

Assuming performance is an increasing function of each of the deterministic arguments in Equation 1, strategic behavior would be said to occur when some economic event creates an incentive structure that either encourages or deters effort.

In the present case, the suspected event is the contract negotiations between the owner and player. To test for strategic behavior, we look at how the performance of a player is affected by proximity to contract negotiations. If players have the ability to turn work effort off and on, then the performance data could reveal evidence of shirking in the period immediately preceding (called *ex ante* strategic behavior) or immediately following (called *ex post* opportunistic behavior) a new contract. Let $t = 0$ represent the season immediately preceding and $t = 1$ the season immediately following contract negotiations. *Ex ante* strategic behavior would generate evidence that those players with expiring contracts perform better than expected in Period 0, especially when compared to players (of like experience and skill) who are not up for contract negotiations. Evidence of *ex post* opportunistic behavior, on the other hand, would be indicated by below-average performances in Period 1 of those players who just signed long-term contracts, again in comparison to those players who did not just sign new contracts. This opportunistic behavior is also known as shirking.

THE DATA AND EMPIRICAL SPECIFICATION

To infer whether effort is affected by proximity to contract negotiations, it is necessary to estimate Equation 1 using some method of controlling for each player's skill level. This is accomplished by comparing his actual performance to his expected performance. In prior studies, analysts have attempted to measure expected performance using the player's career average up to the period in question (Krautmann, 1990; Scroggins, 1993). But the power of such tests is weak because this approach leaves one with very few degrees of freedom (i.e., only about 5 to 10 degrees of freedom). To solve this problem, we aggregate together a large sample of players and include explicitly within the model whether the player is currently undergoing contract negotiations. Because of the large differences between players in regard to their skills, we control for each player's expected performance by deviating his performance data using his average performance over the 3 prior years. That is, we proxy the expectation using the player's 3-year moving average, then compare it to the single-year performance just before (in the case of *ex ante* shirking) or just after (to test for *ex post* shirking) contract talks. Thus, the deviated performance, $DVPERF_{it}$ of the i th player in period t , is given by

$$DVPERF_{it} = PERF_{it} - E(PERF_{it}), \quad (2)$$

where $E(PERF_{it})$ is measured using the 3-year moving average of each player's performance.⁴ A positive value of $DVPERF_{it}$ implies an above-average performance in period t , whereas a negative value implies a below-average performance.

Because there are many ways in which job security may provoke a player to behave strategically or opportunistically, we measure performance in three differ-

ent ways. A player's skill (*SKILL*) is a measurement of the traditional performance statistics, slugging average (*SA*) for hitters or strikeout-to-walk ratio for pitchers.⁵ The second measure, playing time (*PT*), may be the ultimate gauge of a player's contribution to his team as it reflects how often, and in what capacity, the manager uses him across the season. Finally, we include a consideration of the player's durability, as measured by the time spent on the disabled list (*DL*). This last measure is included to account for the possibility that shirking may result in the player not making himself as available due to nagging injuries.

Estimating Equation 2, using these three different aspects of a player's performance, gives the following empirical models:

$$DVSKILL_{it} = \alpha_0 + \beta_1 NEGOT_{it} + \beta_2 AGE_{it} + \beta_3 AGE_{it}^2 + \beta_4 POS_{it} + \varepsilon_{it}, \quad (3)$$

$$DVPT_{it} = \alpha_0 + \beta_1 NEGOT_{it} + \beta_2 AGE_{it} + \beta_3 AGE_{it}^2 + \beta_4 POS_{it} + \varepsilon_{it}, \quad (4)$$

$$DVDL_{it} = \alpha_0 + \beta_1 NEGOT_{it} + \beta_2 AGE_{it} + \beta_3 AGE_{it}^2 + \beta_4 POS_{it} + \varepsilon_{it}. \quad (5)$$

For hitters, $DVSKILL_{it}$ is measured by $SA_{it} - E(SA_{it})$, whereas for pitchers, it is measured by $(K/BB)_{it} - E(K/BB)_{it}$. For hitters, the deviation in playing time, $DVPT_{it}$, is measured by $AB_{it} - E(AB_{it})$; for pitchers, it is measured by $IP_{it} - E(IP_{it})$; AB = at bats and IP = innings pitched. The deviation in injury time, $DVDL_{it}$, is given by $DL_{it} - E(DL_{it})$. The usual argument for a concave age-productivity relationship is why AGE and AGE^2 are included in Equations 3 through 5, while controlling for the player's position on the field, in cases where the defensive ability is most likely to affect playing decisions, is accomplished by position (POS) variables. For nonpitchers, the defensive positions of catcher and shortstop are considered the most important. Decisions on playing time for these positions are more likely to be influenced by defensive ability than for the other positions. We also believe that due to the greater physical demands, catchers are more likely to be injured and rested by management.

Testing for strategic or opportunistic behavior hinges on the negotiating status of the player. The variables used to measure a player's negotiation status ($NEGOT_{it}$) in Equations 3 through 5 are two dummy variables, $LAST$ and $FIRST$, where $LAST$ equals 1 if the player is in the final year of any contract and $FIRST$ equals 1 if the player is in the 1st year of a new, multiyear contract. Given the manner in which the dependent variables are defined, the signs of the coefficients on $FIRST$ and $LAST$ consistent with strategic behavior are as follows. For ex ante strategic behavior, the sign of the coefficient on $LAST$ would be positive for $SKILL$ and PT while negative for DL . For ex post shirking, the sign on $FIRST$ would be negative for $SKILL$ and PT while positive for DL .⁶

Because the deviation model needs at least 3 years of history on a player to calculate $E(PERF)$, we could not include any observations corresponding to a player

TABLE 1: Summary Statistics

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>
Position players ^a		
<i>SA</i>	397.60	76.81
<i>E(SA)</i>	408.90	63.42
<i>DVSA</i>	-11.30	67.99
<i>AB</i>	402.66	160.91
<i>E(AB)</i>	423.61	132.39
<i>DVAB</i>	-20.95	132.43
<i>DL</i>	11.53	24.29
<i>E(DL)</i>	8.59	12.52
<i>DVDL</i>	2.89	26.30
<i>AGE</i>	30.35	3.22
<i>AGE</i> ²	931.66	201.22
<i>FIRST</i>	0.24	0.43
<i>LAST</i>	0.60	0.49
Pitchers ^b		
<i>K/BB</i>	207.16	86.47
<i>E(K/BB)</i>	210.66	85.05
<i>DVK/BB</i>	-3.50	82.19
<i>IP</i>	140.40	73.92
<i>E(IP)</i>	147.94	61.84
<i>DVIP</i>	-7.54	55.16
<i>DL</i>	15.32	33.02
<i>E(DL)</i>	11.62	18.89
<i>DVDL</i>	3.70	36.25
<i>AGE</i>	30.40	3.58
<i>AGE</i> ²	937.01	226.62
<i>FIRST</i>	0.23	0.42
<i>LAST</i>	0.61	0.49

NOTE: *SA* = slugging average \times 1000; *E* = effort; *DV* = deviation; *AB* = at bats; *DL* = disabled list days; *FIRST* = 1st year; *LAST* = final year; *K/BB* = strikeout-to-walk ratio \times 100; *IP* = innings pitched.

a. Number of observations = 1,160.

b. Number of observations = 812.

with less than 3 years of experience. The sample used to estimate Equations 3 through 5 includes 1,972 player observations, with 1,160 player-year observations on 213 hitters and 812 player-year observations on 140 pitchers.

EMPIRICAL RESULTS

Table 1 contains the summary statistics of the sample used to estimate Equations 3 through 5, whereas Tables 2 and 3 contain the ordinary least squares estimates for hitters and pitchers, respectively. To test whether players engage in opportunistic behavior, we look at the signs of the coefficients on *LAST* and *FIRST*.⁷ The most definitive result deals with ex ante strategic behavior, inferred by the sign

TABLE 2: Ordinary Least Squares Estimates (Position Players)

	<i>Dependent Variable</i>		
	<i>SKILL</i> (Slugging Average)	<i>PT</i> (At Bats)	<i>DL</i> (Disabled List Days)
Constant	317.66* (2.46)	892.11 (3.65)	26.47 (0.51)
<i>FIRST</i>	-5.89 (-0.92)	34.67 (2.86)	-3.04 (-1.19)
<i>LAST</i>	3.20 (0.57)	24.28†† (2.26)	-4.90† (-2.16)
<i>AGE</i>	-18.28* (-2.22)	-50.92** (-3.25)	-1.48 (-0.45)
<i>AGE</i> ²	0.24 (1.84)	0.65** (2.60)	0.03 (0.51)
<i>SHORTSTOP</i>	-1.96 (-0.33)	-7.88 (-0.07)	1.17 (0.50)
<i>CATCHER</i>	0.44 (0.08)	28.51** (2.77)	-3.05 (-1.40)
Adjusted <i>R</i> ²	.03	.08	.002

NOTE: *T*-statistics are in parentheses. *FIRST* = 1st year; *LAST* = final year.

*Significant at the 5% level, two-tailed. **Significant at the 1% level, two-tailed. †Significant at the 5% level, one-tailed. ††Significant at the 1% level, one-tailed.

TABLE 3: Ordinary Least Squares Estimates (Pitchers)

	<i>Dependent Variable</i>		
	<i>SKILL</i> (Strikeout-to-Walk)	<i>PT</i> (Innings Pitched)	<i>DL</i> (Disabled Lists Days)
Constant	-58.73 (-0.41)	56.24 (0.58)	133.65† (2.04)
<i>FIRST</i>	-6.48 (-0.69)	15.52 (2.47)	-0.73 (-0.17)
<i>LAST</i>	10.46 (1.28)	23.53†† (4.31)	-8.65†† (-2.37)
<i>AGE</i>	5.37 (0.59)	-3.52 (-0.58)	-8.39* (-2.03)
<i>AGE</i> ²	-0.12 (-0.84)	0.03 (0.27)	0.14* (2.13)
Adjusted <i>R</i> ²	.01	.04	.02

NOTE: *T*-statistics are in parentheses. *FIRST* = 1st year; *LAST* = final year.

*Significant at the 5% level, two-tailed. †Significant at the 5% level, one-tailed. ††Significant at the 1% level, one-tailed.

of the coefficient on the variable *LAST*. For both pitchers and hitters, we find that time spent on the disabled list decreases in the period immediately preceding contract negotiations. Because a player does not want to be thought of as fragile when negotiating a new contract, our results suggest that those about to engage in contract talks are more willing to "gut it out" and play through nagging injuries. Those that play injured may be jeopardizing long-term performance. We also find that playing time is above average in Period 0 as well. This suggests that either players strive for more playing time to enhance their bargaining strength at the contract tables or managers overuse the player because the team may lose him in the upcoming off-season. The practice of gutting it out may not be efficient behavior in the long

run. Perhaps when teams have established a long-term contractual agreement, they may prefer that an injured player take time off to fully recover.⁸

Regarding ex post shirking, our analysis does not support the common perception that long-term contracts cause a subsequent fall off in performance. None of the coefficients on *FIRST* have the signs consistent with opportunistic behavior.⁹ In fact, we find that playing time actually increases in the period following a new long-term contract. Again, this may be explained by recognizing that management ultimately decides on playing time. As such, managers may be under pressure to use their new long-term commitments more intensively. Furthermore, Maxcy (1996) found that long-term contracts are generally offered to the best players, typically at the point when they are approaching the peaks of their careers. Thus, managers may be using these players more intensively because they contribute the most to their teams.

SUMMARY AND CONCLUSIONS

To test the shirking hypothesis, we compare the performance of MLB players who are nearing contract negotiations to the performance of those players still under contract. By measuring the player's performance in a number of different dimensions, and controlling for expected performance in two different manners, we are able to more effectively test the hypothesis that players act in an opportunistic fashion. We find that players are less likely to end up on the disabled list and playing time is higher in the period immediately preceding contract negotiations—results that are consistent with ex ante strategic behavior. But nothing here would indicate that long-term contracts incite any type of ex post shirking. Given the elaborate labyrinth of incentives that affect a player's compensation, our results lend strong support to the notion that the existing structure of labor contracts in MLB is capable of deterring ex post shirking. Even though management continues to claim that long-term contracts adversely affect motivation and performance, our results simply do not support these allegations.

Although our results do not coincide with those of Lehn (1982), perhaps it is because the antishirking mechanisms in MLB labor contracts have evolved over time. Lehn's analysis was based on data coming from the first few periods immediately following the advent of free agency (i.e., 1977 through 1980). At that time, the average long-term contract he reports was for a much greater number of periods than is typical in our sample. Furthermore, perhaps owners have learned to more judiciously allocate multiyear contracts to only the best, and most motivated, players.

The results here are both credible and reassuring. At the highest levels of competition, in an endeavor with highly unpredictable results, doing well while you can becomes the ultimate goal. The parallel to those building academic careers is striking. In an equally unpredictable academic environment, most academics pour on the effort to produce as much good work as they can. The oversight process (editors,

reviewers, department colleagues, chairs, and deans) sees to it that only those who behave in this way move on through tenure and promotion. Although some academics are better at it than others, none appear to manage their research and teaching performance so that large outputs occur just prior to tenure or promotion reviews. With a process as unpredictable as the publication game, such opportunistic behavior would not likely succeed. For academics, as well as professional athletes, the return to effort is too exogenous. Given such exogeneity, shirking is simply too expensive.

NOTES

1. Stories and rumors often circulate about how particular owners take advantage of the opportunity for high, geographically based endorsement income for players on their teams. Supposedly, the Ken Griffey Jr./Nintendo connection added value in Seattle. As endorsement income becomes more and more important, players in competition with others for such income will be driven to perform their best and earn the attachments of fans and firms. This type of "second-cousin" incentive also ameliorates principal-agent problems.

2. Of course, such an examination of a player's performance must be undertaken relative to his skill level (or some expectation of his performance).

3. It would be much better if we had a theory of optimal strategic performance by players and then analyzed data to see if the optimal level was being violated somehow. Such a model has been developed by Marburger (2000); unfortunately, it is still in the working paper stage of development.

4. Given the widely accepted notion of an inverted parabola describing the relationship between a player's age and his performance, it is critical to use something other than the career average as the player's expected performance. When the player is young and on the upward side of the parabola, the career average will be pulled down by the low performances of the player early on in his career; hence, his actual performance will tend to be above his career average. Toward the end of his career, when he is on the downward side of the parabola, this average is artificially held up by the player's peak years in the middle of his career; thus, his actual performance tends to fall short of his career average.

5. Scully (1974) explains the reasoning behind the choices of slugging average and strike-out-to-walk ratio as the most definitive skill performance statistics for the respective position categories. These measures of individual performance are independent of team performance.

6. *Ex post* shirking may be difficult to identify in the playing time (*PT*) and disabled list (*DL*) equations, for these variables are determined jointly by the player and manager. For example, a positive sign on *FIRST* in the *DL* equation may indicate *ex post* shirking, or it could reflect the response by management to protect its investment in a player who just signed a new, long-term contract. We thank Bill Kaempfer for pointing this possibility out to us.

7. Because the strategic behavior hypothesis is concerned with the sign, rather than significance, of the coefficient, Tables 2 and 3 conduct one-tailed tests on these coefficients.

8. For sure, strategic behavior should not be implied if a manager overuses the player because of the likelihood that the team will soon lose him to another team.

9. The 3-year moving average used to evaluate the player in the 1st year of a new long-term contract includes the last year of a prior contract during which a player may behave strategically. We acknowledge that this may indeed produce some upward bias in our estimates of expected performance. However, we are testing for shirking in the 1st year of the new contract, and the upward bias actually increases the likelihood of finding it. Because we find no evidence of shirking, we are inclined to stay with the moving average as a better choice for estimation of expected performance than other alternatives.

REFERENCES

- Alchian, A., & Demsetz, H. (1972, December). Production, information costs, and economic organization. *American Economic Review*, *62*, 777-795.
- Blass, A. (1992, May). Does the baseball labor market contradict the human capital model of investment? *Review of Economics and Statistics*, *74*, 261-268.
- Butler, tribe bickering. (1986, January). *The Sporting News*, p. 1.
- Holmstrom, B. (1979). Moral hazard and observability. *Bell Journal of Economics and Management*, *10*(1), 74-91.
- Krautmann, A. (1990, April). Shirking or stochastic productivity in Major League Baseball? *Southern Economic Journal*, *57*, 961-968.
- Krautmann, A. (1993, July). Shirking or stochastic productivity in Major League Baseball: Reply. *Southern Economic Journal*, *60*, 241-243.
- Lehn, K. (1982, October). Property rights, risk sharking, and player disability in Major League Baseball. *Journal of Law and Economics*, *25*, 343-366.
- Marburger, D. (2000, June 29-July 3). *An empirical investigation of shirking in Major League Baseball*. Paper presented at the 2000 Western Economics Association Meetings, Vancouver, British Columbia, Canada.
- Maxcy, J. (1996). *Efficient contract choice in the market for uniquely skilled labor*. Unpublished doctoral dissertation, Department of Economics, Washington State University.
- Maxcy, J. (1997). Do long-term contracts influence performance in Major League Baseball? In W. Hendricks (Ed.), *Advances in the economics of sport* (pp. 157-176). Greenwich, CT: JAI.
- Scroggins, J. (1993, July). Shirking or stochastic productivity in Major League Baseball: Comment. *Southern Economic Journal*, *60*, 239-240.
- Scully, G. (1974). Pay and performance in Major League Baseball. *American Economic Review*, *64*, 915-930.
- Sommers, P. (1993, June). The influence of salary arbitration on player performance. *Social Science Quarterly*, *74*, 439-443.

Joel G. Maxcy has been at the State University of New York–Cortland since 1998. He has authored a number of articles on the economics of sports.

Rodney D. Fort has been at Washington State University since 1984. His areas of research include public policy, public choice, future markets, and sports economics. He has published numerous articles and invited contributions on all of these subjects, including two books (Pay Dirt: The Business of Professional Team Sports and Hard Ball: The Abuse of Power in Pro Team Sports). He also has a textbook on the economics of sports that will be available in 2002.

Anthony C. Krautmann has been at DePaul University in Chicago since 1985. He has published numerous articles on the economics of sports.