SIMON ROTTENBERG AND BASEBALL, THEN AND NOW: A 50TH ANNIVERSARY RETROSPECTIVE

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Allen R. Sanderson and John J. Siegfried

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DEPARTMENT OF ECONOMICS
VANDERBILT UNIVERSITY
NASHVILLE, TN 37235

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Allen R. Sanderson (University of Chicago)

and

John J. Siegfried (Vanderbilt University)[1]

Abstract: Fifty years ago the *JPE* published Simon Rottenberg's "The Baseball Players' Labor Market", the first professional journal article in sports economics. In this retrospective we review some of his insights and analyses with regard to competitive balance, constraints on payroll and freedoms to contract, revenue sharing, territorial rights and the supply of talent. We also note subsequent industry developments Rottenberg could not have anticipated, and identify where he was ahead of his time.

[1] The authors thank Stanley Engerman for helpful comments on an earlier draft.

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I. Introduction

Exactly fifty years ago, in June 1956, the *Journal of Political Economy* published "The Baseball Players' Labor Market" by Simon Rottenberg. This was the first and remains the seminal article in what has become since the burgeoning "sports economics" research field. In spite of the narrow focus implied by its title, this article anticipated many important economic ideas concerning the economics of professional team sports, as well as several path-breaking concepts in general economic theory that have evolved over the subsequent half century.[2] This is apparently the only research Rottenberg published on sports economics[3], but it makes a greater contribution to our understanding of the field than anything published since.

Long associated with the University of Massachusetts-Amherst, Rottenberg spent portions of his early career at the University of Chicago, first as a post-doctoral student and then as an assistant and associate professor. After leaving Chicago for Duke and eventually Massachusetts, his research turned to the economics of drugs, occupational licensing, minimum wages and mandated employer-provided health insurance. Born in 1916, Rottenberg died in 2004.

In this short retrospective we review portions of Rottenberg's analysis of "a number of market problems which are interesting because of some unusual characteristics of the baseball labor market and the organization of the baseball industry," [242], identify

[2] In a 1971 article, also published in the *Journal of Political Economy,* Mohamed El-Hodiri and James Quirk were the first to develop a formal model of a sports league (El-Hodiri and Quirk, 1971). See *The Economics of Sport*, Vols I & II (Zimbalist, 2001) for a collection of important journal articles.
[3]Forty-four years later, Rottenberg contributed an invited essay on resource allocation and income distribution in professional team sports for the February 2000 inaugural issue of the *Journal of Sports Economics* (Rottenberg, 2000). Remarkably, he did not mention or reference his classic 1956 article.

places where he was ahead of his time and others where he could not possibly have anticipated later developments, and note contributions of other researchers who have stood on his 1956 shoulders.

II. Competitive Balance

Rottenberg begins his essay with an observation about monopsony labor markets. However, it is a subsequent sentence that grabbed his attention and that of scholars who write on sports economics issues: "The nature of the industry is such that competitors must be of approximately equal 'size' if any are to be successful. This seems to be a unique attribute of professional competitive sports." [242] A few months after the article appeared, Don Larsen pitched the only perfect game in World Series history and the New York Yankees went on to defeat the (then) Brooklyn Dodgers 4 games to 3, giving the Yankees their 7th title in 8 years, the most dominant stretch by any one baseball team ever. Unequally distributed playing talent can produce, in contemporary terminology, "competitive imbalance," a situation Rottenberg addresses in the contexts of the reserve system, player drafts, territorial rights, franchise relocations, revenue sharing, salary caps and other institutional arrangements.

Following the strike-shortened 1994 baseball season, the Yankees won 4 out of 5 World Series from 1996-2000, using a payroll that dwarfed that of most other teams. This prompted a number of contemporary concerns about the deterioration of competitive balance and induced baseball commissioner Allan "Bud" Selig to convene a four-member panel (which included one economist – Richard Levin) to study the impact of revenue and payroll disparities, resulting in "The Commissioner's Blue Ribbon Report on

Baseball Economics" (see Levin *et. al.,* 2000). Economists and others wrote about competitive balance issues throughout the late 1990s and into this century.[4] Although higher payroll teams have continued to fare disproportionately well during the regular season, the failure of the Yankees to capture another title after 2000, and occasional strong showings by small-market, lower-payroll teams, have lessened somewhat the immediate concern over competitive balance.

Rottenberg used "the number of times each team has won its league pennant" to gauge imbalance. Subsequent scholars have employed more sophisticated measures: within-season and inter-season imbalance measured by the dispersion of won-lost percentages in a league, Lorenz curves and Gini coefficients, the number of times teams finish over .600 or under .400, excess-tail frequencies, Markov approaches and other "uncertainty of outcome" metrics.

III. Salary Caps and Revenue Sharing

In an effort to create more balance in baseball, contemporary scholars and practitioners have proposed schemes to constrain spending – salary (and/or payroll) ceilings, taxes on excessive payrolls – or to reduce revenue disparities – more revenue sharing among teams – as ways to create more parity. Rottenberg anticipated salary caps[5]: "As [a] possibility, let teams bid for players and players accept offers, subject only to the constraint that a ceiling is imposed on the salaries that may be paid to individual players." [256-257] Baseball has not moved, as other professional league

[4] For a review of the theoretical and empirical scholarship on competitive balance, see Sanderson and Siegfried, 2003.

[5] Although "salary cap" is the commonly used term and the one Rottenberg employed, technically it would apply only to the maximum amount that could be paid to any one player. What is usually meant by "salary cap" to level the economic playing field is actually a ceiling on total team payroll, or a "payroll cap."

sports have, to formal ceilings on either payrolls or individual salaries, though for most of the last ten years the league has imposed "luxury taxes" on high payrolls, which has mainly affected only two teams (the Yankees and Red Sox), with the proceeds being distributed by a strict formula to other teams.

Caps or taxes may discourage teams from amassing an inordinate amount of talent, but they also reduce the overall demand for talent as well, which is why players' unions oppose them. As with reserve systems and player drafts (see below), this suppression of payrolls, rather than competitive balance, may be their real impact, which is why owners favor them. In addition, unlike the other team sports leagues, baseball has never instituted a payroll floor, which leaves open the very real possibility of free-riding by weaker teams.

Recognizing the possible effect of revenue sharing on incentives to win, Rottenberg wrote:

> [L]et the total revenues of all teams in the major leagues be pooled and shared equally by all teams, … All teams will then be equal in capacity to bid for talent. There will be no incentive, however, for any single team to win or to assemble a winning combination. Win or lose, playing badly or well, it will receive its equal slice of pie … No team will be willing to expend if it cannot be assured that others will also do so … A rule of equal sharing of revenue leads to the equal distribution of mediocre players among teams and to consumer preference for recreational substitutes." [256]

The validity of this assertion turns on whether fan demand is absolute – wanting to see the very best – or relative – a competitive contest among evenly matched teams where the outcome is uncertain. Sports certainly contain some of both elements.[6]

[6] Rosen and Sanderson (2001, pages F61-63) provide a detailed discussion of this distinction and its private and public implications.

IV. Territorial Rights

In addition to allowing for player and revenue redistributions, Rottenberg also allowed for the relocation or redistribution of franchises themselves:

> "As still another possibility, let there be a free players' labor market and let franchises be distributed so that the size of the product market is equal for all teams. Suppose, for example, that all teams are located in markets of two million. Thus, in the New York area there will be six teams rather than three; in the Chicago area, three rather than two; and so on. If attendance is a unique function of the size of the market, such a distribution of teams may equalize revenues among teams." [257]

He characterized professional baseball as a collusive combination of teams that have agreed to be bound by rules that inhibit competition. Primary among these rules are teams' "territorial rights," guaranteeing that no other team in organized baseball may play in a team's territory without consent. This restriction recently created considerable conflict when Major League Baseball moved the Montreal Expos to Washington, D.C., prior to the 2005 season. Upon learning of the relocation plan for the Expos, which the league had assumed ownership of a season earlier, Baltimore Orioles' owner Peter Angelos argued that Washington was in his exclusive "territory." He may have lost this dispute because as a ward of the league, the Expos uniquely were owned partly by each of the other team owners, including Angelos himself, creating an incentive for many owners to vote for the move.

Rottenberg recognized that territorial rights allow each team to monopolize its own territory within organized baseball, and that this monopoly right is a marketable commodity, by which he seems to have been thinking of the prospect that team owners might sell the future income stream of their team to a new owner. He does not mention the now common practice of selling access to the monopolized scarce supply of a major

league baseball presence to metropolitan areas by asking taxpayers to subsidize the construction of a stadium under threat of territorial relocation. It was only in 1953 that the first taxpayer subsidized stadium--County Stadium--built to lure a team (to Milwaukee) opened. Thus, it is understandable that Rottenberg did not sense the lucrative opportunity of teams to sell their mere presence to their host city, and the impact of this new source of revenue on player compensation (see below).

Near the end of the article, Rottenberg considers a scenario in which the league distributes franchises so that the size of the population accessible to each is equalized in order to promote the uncertainty of outcome at games. He supposes a league such that each team has access to a population of two million, and concludes that remaining differences among the cities, such as in the taste for baseball as recreation, income levels, or the cost of reaching the ball park, however, would perpetuate differences in revenue potential and, accordingly, playing talent. Rottenberg does not consider the possibility of simply removing territorial property rights, which would lead teams to equalize potential revenue rather than just population on the margin. The equilibrium attained would result in a more equal distribution of playing talent because teams would move to the areas where the demand for baseball is greater, whatever its source.

Moreover, Rottenberg never explicitly recognizes that the efficient distribution of playing talent is that which satisfies the demand for playing talent (or the resulting outcomes from that talent distribution), which may be far from either equal across franchise territories or proportional to population. Throughout the article he seems to imply that an equal distribution of playing talent maximizes league revenues, and never

considers the possibility of different demands for winning or whether the maximization of league revenues also maximizes efficiency.

V. The Reserve Clause

At the time Rottenberg wrote, baseball employed a mechanism – the reserve clause – to avoid teams bidding against each other for players. Players signed a *uniform contract* and almost all contracts ran for a one-year term. They contained: "a renewal clause, conventionally called the *reserve clause,* which permits the team to renew the contract for the following year at a price which the team may fix . . ." [244-245] Having survived Supreme Court challenges in 1922 and 1953, the reserve clause gave each club exclusive monopsony rights for as long as the player was in the league. As Rottenberg correctly observed, "The reserve rule is the heart of the limitation on freedom in the baseball labor market." [246] Twenty years later, the reserve clause finally ended with successful challenges by pitchers Catfish Hunter, Andy Messersmith and Dave McNally, and the era of player free agency in baseball began.

Here Rottenberg parted company with the usual explanation for the reserve clause: "The most commonly heard [defense] is that the reserve rule is necessary to assure an equal distribution of playing talent among opposing teams" [246], which is necessary, allegedly, to have uncertainty of outcome, which is necessary to attract paying customers. "It will be seen later that this premise is false." [246]

> "Players under contract to a team may be used by that team itself, or they may be sold to another team. Each team determines whether to use a player's services itself or to sell him, according to the relative returns on him in the two uses." … "It follows that players will be distributed among teams so that they are put to their most 'productive' use; each will play for the team that is able to get the

> highest return from his services. But this is exactly the result which would be yielded by a free market." [256]

Rottenberg's observation was an important insight – that ownership of a players' property rights would have no effect on the allocation of players across teams in a league; players will gravitate – or, under a reserve system, *be gravitated* – to where their marginal revenue product is the highest. This conclusion is, for all practical purposes, consistent with and predates the Coase Theorem articulated four years later. (Coase, 1960). Subsequent research has attempted to measure the extent of player mobility before and after free agency, and its impact on competitive balance; the results generally support Rottenberg's predictions and the Coase Theorem.[7]

What purpose, then, did the reserve clause serve if its impact on playing strengths across teams was approximately zero (what some authors have termed "the invariance principle')? "By confronting each contracted player with an exclusive bidder, the rule can have the effect of depressing salaries, at least for some players." [248]

> Then: "If the reserve rule does not, in fact, equalize the distribution of players, can it have some other result? The difference is only that in a market subject to the reserve rule part of the price for the player's services is paid to the team that sells his contract, and part of this value is kept by the team that holds his contract; in the free market the player gets his full value." [256]

The redistribution of rents between owners (and/or the league) and players appeared to Rottenberg and other later writers to be the real intent of this and other institutional arrangements, generally under the guise of preserving competitive balance. One of the first scholars to estimate empirically the extent of the monopsony expropriation—pay versus value--under the reserve system was Gerald Scully (1974). He found that wages

[7] See Rosen and Sanderson, 2001, pages F56-F57.

were 20-50 percent lower than marginal revenue products under a reserve system, with the better players suffering the most.

VI. Baseball Players' Labor Markets Today

For Rottenberg the reserve system was the heart of the labor market for baseball players. But within 20 years (of 1956) the labor-market ground in baseball shifted dramatically. First, the players' association morphed into a full-fledged union with former United Steelworkers' economist Marvin Miller as its head in 1966. This was followed by arbitration – final-offer arbitration – at the end of the 1973 season. Finally, free agency – for veterans – came officially to baseball as of the end of 1975.[8]

Although a monopsony in 1956, the labor market in sports did allow for some bargaining because both sides had some bargaining power at various points, as Rottenberg states:

> "The market for baseball players has really divided into three markets. One is the market for free agents, in which the player is the seller; another is the market for players who have already signed their first contracts, in which teams are both the
>
> sellers and the buyers [this is the one that changed with the demise of the reserve clause in the 1970s]; the third is the market for current services of contracted players, in which the player is the seller and the team that holds his contract is the buyer."

Rottenberg's first market – in which a player had an initial "seller" advantage – was largely eliminated with the creation of a draft for amateur high school players and advanced college students[9]. Conceived of in 1964 by major league baseball as a way to prevent intense financial bidding for a new crop of talent each year, major league

[8] An implicit reserve clause still holds for players with less than three years' of service; players are eligible for arbitration after thee years, and they can become free agents after six years.
[9] International players continue to be exempt from the draft, a source of controversy and contention.

baseball instituted a reverse-order[10] draft. Prospective players still retain some leverage – they can hold out and not sign, or in some cases refuse to sign with a particular team, thus depriving the club of larger revenue streams, and a few have done so successfully. However, because economic rent is such a large component of today's salaries, there are built-in limitations to this tactic.

With a maturing players' union also came collective bargaining, bi-lateral monopoly over indeterminate wage rates, and the possibility of labor-management disputes over the disposition of rents. It was thus inevitable that there would be protracted conflicts and work stoppages. The last 30 years have seen five strikes and three lockouts, as well as illegal collusion on the part of baseball team owners in the late '80s that resulted in a $280 million antitrust judgment against them.

After noting the paucity and unreliability of salary data, Rottenberg went on to report: "On July 1, 1950, the range of major-league salaries was from $5,000 to $90,000 per year. The mean was $13,288, and the median $11,000." [250] In 2005 dollars, those four figures would be, respectively, approximately $41,000; $745,000; $110,000; and $91,000. For the 2005 season, player salaries ranged from $310,000, the league minimum, to more than $20 million, with a mean of $2.54 million and a median of $875,000.[11]

The money explosion in baseball – and for all individual sports and professional sports leagues, as well as for entertainers in general – stems largely from forces that could not be foreseen by Rottenberg. First, he states that: "Most of the revenue of baseball

[10] In a reverse-order draft, the legality of which has been upheld by the courts in all professional sports leagues, the team that finishes in last place, or with the worst record, in one season gets to pick first of newly eligible players on each draft round; the best team from the previous season picks last.

[11] The increased spread between mean and median is attributable to tournament pay and the "superstar" effect. See Rosen (1981) for a discussion of this issue and impact on the distribution of income.

clubs comes from admission receipts." While attendance in baseball has more than tripled since 1956 (and the number of franchises increased from 16 to 30 teams), gate receipts are no longer the primary source of teams' revenues. In addition to what one would normally think of as ticket sales, sports franchises have been able to increase their revenues dramatically through other ballpark-related financial sources: luxury suites, premium seating, advertising, and facility naming rights. Second, in its infancy when Rottenberg wrote, local and national broadcast revenues have exploded, accounting today for sizable fractions of team revenues in baseball. Third, as noted above, a market for franchises themselves has developed, creating bidding wars for expansion teams, and the opportunity to use a league's leverage over territorial rights (and threat to leave a city) to extract publicly-financed facilities from a local community. A final factor accounting for the rise in salaries is the rise in per capita incomes. "Attendance at baseball games, as a whole, is a function of the general level of income" [246]. In the fifty years after Rottenberg wrote, real per capita income in the United States approximately tripled; moreover, population roughly doubled.

VII. The Supply of Talent: General and Specific Training

In a lengthy analysis, Rottenberg concludes that monopsony power, derived from the reserve clause is the most plausible reason why players are likely paid less than their marginal revenue product. At the end of this analysis, Rottenberg acknowledges (p. 253, footnote 47) that Gary Becker suggested to him an alternative explanation for salaries falling short of marginal revenue product in baseball, namely the necessity to recoup specific training costs. Under the reserve clause, the cost of investment in player skills

could be recouped by the team either by reducing the player's salary in the future, or by selling the player's contract to another team for an amount sufficient to cover training costs. Training was specific because players could not sell their enhanced skills to anyone else as a consequence of the agreement among teams not to hire players under contract to rival teams.

Becker reciprocated in his 1964 discussion of specific training in *Human Capital.* After explaining that the recoupment of specific training costs is the most plausible reason for salaries falling short of marginal revenue product for baseball players, he acknowledges Rottenberg's argument (p. 28, footnote 23) that monopsony power of teams could also cause marginal revenue products to exceed salaries. Becker noted, however, that the entry of new leagues, which had in fact occurred in professional football and basketball during the eight years intervening between the publication of "The Baseball Players' Labor Market" and *Human Capital* would reduce the effectiveness of monopsony power.

The exchange between Rottenberg and Becker about the role of specific training as an alternative explanation for monopsony exploitation, however, bypassed another important connection between their work. In *Human Capital* (11-29) Becker analyzes and distinguishes general from specific training. The essence of the distinction is that general training is useful in and can be sold to firms other than those providing it, while specific training increases productivity more (and sometimes only) in firms that provide it than in other firms. We expect employees to pay for general training, and firms to pay for specific training if it is of little use elsewhere.

Rottenberg anticipated this distinction in 1956, when, after a discussion of how teams recoup specific training costs by discounting players salaries, he wrote:

> If players were not indentured to teams but were free to accept the offers of the highest bidders, would the amount of investment in the training of players and the quality of play fall? In such a market, players will bear a larger proportion of the cost of training, and the wages they receive will have to compensate for this cost. If it pays … in a monopsonistic market, to invest in training and development, it will also pay to do so in a free market. [256]

In a monopsonistic market, baseball training is specific because no other baseball team will employ the trained player without compensating the team that trained him. In a free market for players, baseball training is general because there were, at the time Rottenberg wrote, 15 other potential teams that might hire the trained player. By simply hypothesizing a free market for players, Rottenberg converted specific to general training and recognized that, as a consequence, players would bear a larger share of training costs.[12]

VIII. Conclusions

Rottenberg concludes his essay with a return to the reserve rule and constraints on freedom to contract vis-a-vis market outcomes:

> "Markets in which the freedom to buy and sell is constrained by the reserve rule or by the suggested alternatives to it do not promise better results than do markets constructed on the postulate of freedom. It appears that free markets would give as good aggregate results as any other kind of market for industries, like the baseball industry, in which all firms must be nearly equal if each is to prosper. On welfare criteria, of course, the free market is superior to the others, for in such a market each worker receives the full value of his services, and exploitation does not occur." [258]

[12] Given the overlapping human capital interests of Rottenberg and Becker, Becker's contemporaneous contribution on discrimination (1957), and the beginning of racial integration in Major League Baseball (starting with Jackie Robinson in 1947), it is surprising that nowhere in his article does Rottenberg mention discrimination. One of the earliest analyses of racial discrimination by owners and customers (fans) in baseball was Gwartney and Haworth (1974). The *Journal of Political Economy* also published it.

With fifty years of hindsight and subsequent research, Rottenberg's logic and observations stand up remarkably well. In addition to players receiving more of their marginal revenue product (and owners fewer rents) in freer labor markets, resources devoted to the training of players under free agency remain sufficient to ensure high-quality play on the field, and competition in baseball appears to be as vigorous today as debates about it.

References

Becker, Gary S. 1957. *The Economics of Discrimination*. Chicago, IL: University of Chicago Press.

Becker, Gary S. 1964. *Human Capital.* New York: Columbia University Press.

Coase, Ronald H. 1960. "The problem of social cost. " *Journal of Law and Economics*, 3 (October): 1-44.

El-Hodiri, Mohamed and James Quirk. 1971. "An economic model of a professional sports league." *Journal of Political Economy*, 79 (Nov/Dec): 1302-1319.

Gwartney, James and Charles Haworth. 1974. "Employer costs and discrimination: the case of baseball." *Journal of Political Economy*, 82 (July/August): 873-81.

Levin, Richard C., George J. Mitchell, Paul A.Volcker, and George F. Will. 2000. *The Report of the Independent Members of the Commissioner's Blue Ribbon Panel on Baseball Economics*. New York: Major League Baseball.

Rosen, Sherwin. 1981. "The economics of superstars." *American Economic Review*, 71 (December): 845-98.

Rosen, Sherwin.and Allen R. Sanderson. 2001. "Labour markets in professional sports." *The Economic Journal*. 111 (469): F47-F68.

Rottenberg, Simon. 1956. "The baseball players' labor market." *Journal of Political Economy,* 64 (June): 242-258.

Rottenberg, Simon. 2000. "Resource allocation and income distribution in professional sports leagues." *Journal of Sports Economics.* I (1): 11-20.

Sanderson, Allen R. and John J. Siegfried. 2003. "Thinking about competitive balance." *Journal of Sports Economics,* 4 (November): 255-279.

Scully, Gerald. W. 1974. "Pay and performance in major league baseball." *American Economic Review,* 64 (December): 915-30.

Zimbalist, Andrew. 2001. *The Economics of Sport*, Vols. I and II. Northampton, MA: Edward Elgar.Publishing, Inc.