



1995

Competitive Balance in Major - League Baseball

Matthew T. Jontry '95

Follow this and additional works at: <https://digitalcommons.iwu.edu/parkplace>

Recommended Citation

Jontry '95, Matthew T. (1995) "Competitive Balance in Major - League Baseball,"
The Park Place Economist: Vol. 3

Available at: <https://digitalcommons.iwu.edu/parkplace/vol3/iss1/12>

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Competitive Balance in Major - League Baseball

Abstract

Major League Baseball is in trouble. The recent players' strike is just one in a series of player/owner problems that have beset this sport over the past century. Since the U.S. Supreme Court granted baseball owners exemption from the Sherman and Clayton Antitrust Acts in 1922, a constant and ongoing battle has been waged between owners and players on what is best for the competitive balance of the game, for the financial stability of the clubs, and for the welfare of the players.

Matt Jontry '95 is an economics major who someday aspires to attend law school. Matt wrote this paper for his Senior Project in the fall semester and has continued it during his Independent Study with Dr. Chapman. Matt is a member of the Sigma Chi fraternity.

COMPETITIVE BALANCE IN MAJOR LEAGUE BASEBALL

by Matthew T. Jontry

"When the Supreme Court says baseball isn't run like a business, everyone jumps up and down with joy. When I say the same thing, people throw pointy objects at me."

—The late Bill Veeck, former owner of the Indians and White Sox

I. INTRODUCTION AND HISTORY

Major League Baseball is in trouble. The recent players' strike is just one in a series of player/owner problems that have beset this sport over the past century. Since the U.S. Supreme Court granted baseball owners exemption from the Sherman and Clayton Antitrust Acts in 1922, a constant and on-going battle has been waged between owners and players on what is best for the competitive balance of the game, for the financial stability of the clubs, and for the welfare of the players.

The problem centers around the structure of the labor market, which has ranged from the noncompetitive reserve system to the present day, highly competitive free agency system. According to the owners, with a growing crisis stemming from the unequal distribution of revenues among the clubs, the competitiveness of the labor market has a profound effect on the ability of teams to field a competitive team and stay financially stable.

Despite numerous challenges to the Supreme Court's landmark decision, the Court consistently held that baseball was exempted under current antitrust law. Many of the practices that baseball ownership engaged in, although challenged in the courts, had continued for years with little or no threat of reform. Two notable cases were *Toolson v. The New York Yankees* in 1953 and *Flood v. Kuhn* in 1972, in which the Court not only upheld the exemption, but also stated that the immunity would exist until an act of Congress removed or modified it (Markham and Teplitz 1981, p.8). In 1977, the House Select Committee on Professional Sports issued a report that addressed this antitrust issue, but no legislation was initiated. To this day, no bill has made it out of both houses of Congress.

One issue of the exemption that has drawn a great deal of attention over the years has been the reserve clause. In essence, this clause allowed owners to re-sign their players at whatever price they felt was appropriate, without fear of losing that player to a higher bid from another team. The only way a player could leave the club that originally signed him was either to be released or to be traded. There was no such thing as a free agent. The reasoning behind this clause was one of supposedly benevolent purposes. Owners were determined to protect the competitive balance in the game of baseball, and they felt that a purely competitive system in the labor

market (the players) would tip the balance in favor of the more profitable clubs. Many of the labor disputes between the owners and players have resulted from this issue.

A. SUCCESSFUL CHALLENGES TO THE RESERVE CLAUSE

The first dent in the owners' armor came in late December, 1975, when the old reserve clause was finally eliminated. However, owners still had the option of renewing a contract for one additional year after the original contract had expired. Still, research shows that compensation rose as did the number of multi-year contracts after the 1975 decision (Hill and Spellman 1983, p.2). Another setback (from the owners' viewpoint) came with the new Major League Agreement signed in 1985. Faced with declining revenues and no strike insurance, the owners agreed to shorten the service requirement for free agency and salary arbitration eligibility. However, the owners were not to be undone, and were determined to stop the escalating salaries that unrestricted free agency would bring. A basic, unspoken agreement was reached among the owners not to bid on any free agents. It is interesting to note that 62 players filed for free agency at the end of the 1985 season, and not one of them received an offer from any team other than the one they had played for during the 1985 season (Quirk and Fort 1992, p. 197). All 26 owners must have been experiencing financial difficulties or have been extremely content with how their teams had performed that season.

What ensued were three separate collusion grievances filed by the Player's Union, and all were found in their favor. Thus, the owners were facing an explosion of player salaries. One of the owners' oldest arguments for

A constant and on-going battle has been waged between owners and players on what is best for the game, for the financial stability of the clubs, and for the welfare of the players.

preserving the reserve clause was to maintain a competitive balance among teams and to allow the smaller market teams to compete with the big market teams by retaining their star players with smaller salaries or selling them for a considerable profit. The big market/small market argument is rooted in the reality that there are large differentials in terms of the revenue that each team generates. Whether it is due to population, fan support, or tradition has yet to be determined. In addition, whether the revenue differentials had anything to do with fielding a competitive team before free agency emerged is debatable.

Research has shown that competitive balance actually increased after the emergence of free agency in 1976 (Zimbalist 1992, p.95). The truth was that all owners were enjoying yearly increases in fan attendance, lucrative revenue shares from the league's national television contract (CBS bought the network broadcast rights in 1988 for four years at the bargain basement price of \$1 *billion*), and a steady stream of revenue from licensing.

B. THE PRESENT SITUATION

Presently, the state of professional baseball does not look as healthy. Due to the hired-gun mentality of the players and the scrambling

of owners to sign players with fan-drawing power, salaries have risen from a league average of \$400,000 in 1989 to the present average of \$1.2 million per player in 1994. Although these figures are not inflation-adjusted, it is still a 300% increase over a five-year period. The percentage of total revenue that owners spend on players' salaries has risen from 41% to 58% over the same five-year span (The Economist, 13 Aug. 1994, 59). Coupled with these increases is the diminishment of national television revenues. These revenues are split equally among the teams, and after CBS lost an estimated \$500 million on its four-year deal that expired in 1993, the networks weren't exactly lined up at the door to bid for the rights, and advertisers were not as anxious to pay top dollar for airtime during ball games. Hence, all the teams will realize a noticeable drop in revenues. This has a dramatic impact on the competitive balance, because the shared revenue of a lucrative contract tended to assist the small market teams in becoming more competitive financially. Not only did it provide extra revenue for all teams, but it increased the exposure of the small market teams, enabling them to widen their markets and increase their fan appeal. Without the large national television contract, the small markets lose a vital resource in remaining competitive. The teams who will be able to bid on and sign the free agents and still remain financially afloat are the ones in big media markets with lucrative local cable TV contracts. This phenomenon is given no better illustration than when one compares the local media revenues of the most valuable franchise in the league, the New York Yankees (est. value: \$225 million), and one of the least valued franchises, the Seattle Mariners (est. value: \$71 million). The Yankees annually receive about \$50 million in local media revenues, while the Mariners' take is about \$5

million (Zimbalist 1992, p. 49). Yet both teams must compete in the same market of free agency. It seems like a difficult situation for clubs like the Mariners to field a competitive team. The distribution of total revenues has been made more unequal by the large differences in local media revenues.

The purpose of this study is to reach a reasonable conclusion as to whether these factors (such as the revenue differences between big and small market clubs) have any bearing on the competitive balance of the league in terms of win-loss records. If a competitive imbalance is found, then it is useful to find the causes of this imbalance, possibly a comparative advantage for the big market teams in financing payrolls. Finally, we must test whether this comparative advantage, if present, translates into more success (more wins) for the big market teams, on average, as compared to the average success of the small market teams.

II. LITERATURE REVIEW

On the surface, the mere structure of Major League Baseball seems to lend itself to general cartel theory. There are a limited number of firms. There is restricted entry, along with a division of territorial markets to which each club has "franchise" rights. In addition, the output (in this case, the number of games played) is limited to 162 per club per year. Yet, there is no price fixing agreement among the clubs for the final product, the game, nor is there currently a limit on the price of the primary factor of production, the players. This has led a few economists to believe that the seemingly collusive behavior that professional clubs and their owners engage in has a different motivation than extracting monopoly profits. Markham and Teplitz (1981, p.19) offered an explanation for this behavior. In a highly comprehensive study

done in anticipation of then forthcoming Congressional hearings, Markham and Teplitz pointed to the peculiarities of professional sports leagues in general and the baseball industry itself as essential factors for collusive and cooperative behavior. The first was the trade-off between competitive balance and individual club incentive. The success of the league (its ability to draw fans to the game or entice them to view it on television) depends on the competitiveness of the event. The public is more likely to attend a game that is evenly matched and that will provide an outcome that is unknown because it heightens their interest. On the other hand, there must be an incentive for the team to play well and exert a suitable effort to win games. To achieve the former condition, leagues have rules such as the reverse-order draft, where the least talented teams (according to winning percentage) in one year have the first opportunity to sign the best new players for the next season. The reserve clause, which allows teams to retain their own players without fear of losing them to a club offering more money, also seeks to maintain competitive balance. Activities such as these seek to equalize clubs over time, and add parity on a yearly basis.

As George Steinbrenner put it, "It (how much to pay a player) depends on how many fannies he puts in the seats," known more formerly as marginal revenue product.

These measures seem to work, despite the relaxation of the reserve system's claim to

players over the past eighteen years due to the advent of free agency. Zimbalist (1992, p.95) points to the fact that over the time period of 1975-1990, only three of the 26 teams failed to win their division at least once, that sixteen different teams won the pennant in their respective league, and twelve different teams won the World Series. He also states that attendance has increased from a total of 29.8 million (1.24 million/club) in 1975 to 56.9 million (2.19 million/club) in 1991. There seems to be some correlation between the balance of competition and the demand for baseball as an avenue of entertainment.

The incentive for victory is more difficult to quantify. Markham and Teplitz offered the explanation that the owners, players, and the community gain personal satisfaction and utility from winning, not necessarily financial gain. However, the winners of Divisional and League Championships, as well as the World Series, receive a share of the revenue generated from those contests. The club receives a share, as do the individual players. In any case, there is an incentive to win ball games and to remain competitive as a club, but the long run vitality of the league as an entity also depends a great deal on a competitive balance.

Not all theoretical analysis of Major League Baseball and professional sports in general are in their favor, however. Demmart (1973, p. 140) concluded that the long run success of a team and its profitability depended on the strength of its market. He further believed that there would be a tendency for clubs located in strong markets (like New York and Los Angeles) to be both economically and sportingly superior to teams located in smaller markets (such as Pittsburgh and San Diego). He felt that the reserve clause was ineffective in eliminating long run inequality within the league, and that its only

useful purpose was as a rent transfer mechanism from players to owners, assuring the economic viability of the league at the expense of player salaries. Demmart makes some other strong points, but his data and discussion are somewhat dated and irrelevant, since free agency was granted two years after his analysis was published. The fact that parity exists after the advent of free agency in 1975 and after further relaxation of free agency restrictions in 1985 is undisputed when one compares it to the reserve clause era of 1922-1975. The level of competitiveness has increased. However, with the growing revenues of local cable contracts for the big market teams and a decline in revenues from the shares from the national broadcast contract, there is a possibility that the ability of small market teams to bid competitively for quality free agents (therefore making their teams more competitive) will be weakened. The effect of television revenues was something that neither Markham and Teplitz nor Demmart took into account in their analyses. They also did not foresee the explosion of players' salaries that management experiences today.

III. THEORETICAL DISCUSSION

Much of my theoretical discussion will be based upon the work of James Quirk and Rodney Fort (1992), who used the standard applications of supply and demand law to the market for labor services in Major League Baseball. From the viewpoint of any one club, the most this club will offer a player for his services is the amount that this player will add to team revenues. As George Steinbrenner put it, "It (how much to pay a player) depends on how many fannies he puts in the seats." This is more commonly known as the player's marginal revenue product, or MRP. It is a product of marginal productivity and marginal

revenue. The MRP is the most the team will pay because paying more would reduce team profits, while paying less would increase team profits. The MRP is the maximum any player can expect to earn from the club. The minimum that he can expect to earn is called the reservation wage. This is what a player could expect to earn for his next best employment opportunity, or the league minimum, whichever is higher. The MRP and the reservation wage represent the upper and lower bound, respectively, of what a player can expect to earn. Just how far apart these two extremes are depends on the degree of negotiation freedom between owners and players and the relative bargaining power of the two parties. The more freedom for negotiation (under a free agency system, for example), the closer the MRP and reservation wage will be to one another.

How does this theory apply to the negotiation process? Under unrestricted free agency, the bargaining will take place on its highest possible level, with owners and players free to negotiate with whomever they choose. Each player will end up signing with the team to which he is most valuable (where he has the highest MRP). His salary will lie between this MRP and the player's MRP for the team to which he is the second-most valuable (his second highest MRP). The reasoning behind this is that the team to which the player is most valuable can outbid any other team for the player's services, and still increase profits by hiring him. But the team must still offer him at least the MRP of the team to which he is the second-most valuable. This outcome can be summed up by the following relationship:

$$MRP_1 \leq \text{SALARY}_e \leq MRP_2$$

where MRP_1 is the highest MRP that a player has for any one team, SALARY_e is the salary he can expect to be paid, and MRP_2 is the second-highest MRP that a player has for any one team.

In an ideal situation, this process would equalize the teams' competitiveness. Assuming that each team could only attract so many fans per year (a sellout at each game), there would be limits as to how much a team could spend on payroll per year since revenues would be limited by attendance (if one assumes stadium capacities of roughly equal size). There will be variability in ticket prices due to clubs facing shifting demand curves in their markets, but these will even out due to the cyclical nature of performance, which is affected by player depreciation, injuries, and just plain luck.

According to Zimbalist, a "true sportsman" lies in the hearts of some owners, driving them to field a competitive team, no matter what the cost.

However, we do not live in an ideal world, and the fact of the matter remains that there are owners who will pay more than a player's MRP. Why would an owner do this? The most obvious reason may be that an owner has misjudged a player's worth. The player was not worth the money paid to him. An extension of this explanation could be that the owner was accurate in his assessment of the player's ability, but other variables (the change of venue, competitive pressure, injury, or complacency as a result of a lucrative, long-term contract) may have a depreciating effect on his value to the team.

Another explanation stems from the fact that by buying the most talented players (even though their MRP's are lower than the salaries

they are being paid), a team has benefited its own cause by depriving the other teams of those players' services. Put simply, a club can help its chances of winning, and, as a result, its chances of increasing demand for its product, by fielding the better team, man-for-man, position-by-position.

Also, this practice may have the potential to realize future profits for the team in seasons to come. The future value of assembling an outstanding team now, regardless of current MRP's, may be the determining factor that causes owners to spend excess money on free agents.

Finally, there is the explanation that some owners aren't worried about MRP's or the bottom line. According to Zimbalist (1992, p. 94), a "true sportsman" lies in the hearts of some owners, driving them to field a competitive team, no matter what the cost. This argument is supported by the fact that many owners have other business interests, some much larger than their respective baseball franchise ownership. The loss of a few million dollars on the franchise's balance sheet might be more easily accepted if those other interests are profitable and the owner has the prestige and satisfaction of winning the Division, the Pennant, or the World Series.

IV. HYPOTHESES

Due to the rising salary levels of today's players, it is only a matter of time before some teams will be forced to dump high-priced talent and settle for fielding a less competitive team just to stay afloat financially. I attribute this problem to the big media market/small media market phenomenon in professional baseball. As was pointed out earlier, big market teams have a comparative advantage due to local cable revenues. Teams like the New York Yankees and the Chicago Cubs

either play in large geographic markets or are covered by a national cable station like WGN, and these resources give them a tremendous advantage over smaller market teams in bidding for top free agents every year. The added revenues from these cable contracts and big market operations give them a cushion that allows their demand for top players to be greater, permitting them to obtain more of the top players by being able to meet their salary demands. They will trade a portion of their huge profits for victories that could possibly generate even larger profits the following season. Thus, small market teams will find the competitive balance tipping against them.

I have formed three hypotheses. First, I test the hypothesis that since 1986 (when free agency rules became dramatically unrestricted) there has been no improvement in the competitive imbalance of professional baseball. Second, I test the hypothesis that big market teams, because of their comparative advantage, have a higher average payroll over the same period. Finally, I will test the hypothesis that the big market teams have been on the winning end of the competitive imbalance due to their comparative advantage in revenue.

V. PROXY DERIVATION

The method I used to derive a proxy defining big market teams and small market teams was an OLS regression of total revenue generation. Utilizing media revenue data, stadium capacity utilization data, and a performance variable as independent variables, I derived an equation for total revenue generation. The media revenue and stadium capacity data were found in Quirk and Fort's Pay Dirt: The Business of Professional Team Sports. The performance variable is the number of divisional championships each team has won since the advent of unrestricted free

agency in 1985. This information was provided by the World Almanac Series.

Average total revenue for each particular team over the time period of 1987-1991 is the dependent variable (AVGTOT) in the proxy regression. Average total revenue is closely related to the ability of teams to finance their player payrolls from year to year. The first independent variable is average media revenues (AVGMED) of that same period. Media revenues are relevant to the hypothesized revenue differential of large market and small market teams. The second independent variable is average stadium capacity utilization (AVGCAP), which is derived by taking the average annual total attendance of a particular team and dividing that value by a product of stadium capacity and number of home games per season. This will give a ratio of actual fan patronage to maximum fan patronage, or, as we know it, stadium capacity utilization. This will give us an idea of how strong fan support is within a market and how it might affect average total revenue.

The final independent variable used is a performance variable (AVGDIV). The actual success a team has had in recent years in winning divisional championships should have an effect on the amount of total revenue it can generate through fan support. The relationship between the dependent variable of average annual total revenue and the respective independent variables is described by the linear equation:

$$AVGTOT = B_1 + B_2(AVGMED) + B_3(AVGCAP) + B_4(AVGDIV)$$

where B_i is the coefficient of the respective independent variable. The signs for each independent variable were expected to be positive, and all displayed a positive nature in the regression. The t-statistics for AVGMED, AVGCAP, and AVGDIV were 9.9276,

6.1045, and 1.8141, respectively. Thus, all independent variables were found to be significant to the 10% level, and the variables **AVGMED** and **AVGCAP** were significant to a 1% level. Further proof of the adequacy fit of this model is evident in the adjusted R^2 of the equation, which is .8916.

In order to designate a market size for each respective ball club, I compared the actual average total revenue that each team had generated over the specified time period to the estimated average total revenue over the same period. The estimated average total revenue for each team was calculated by reinserting the media, capacity, and performance data into the regression equation that was derived from these three variables. That is, I tested the regression equation to see how well it described the actual revenue data. My results were fairly accurate. Although the actual order of teams and their revenue values were not identical to the regression equation's order and estimated revenue values, both populations showed the same 13 teams in the top 50% (big market designation) in terms of average total revenue and the same 13 teams in the lower 50% (small market designation). Thus, a reasonable proxy can be derived. For the purposes of my hypotheses, the division of big market and small market teams is defined by the actual average total revenue. The top 13 teams in terms of actual average total revenue are designated big market teams, and the bottom 13 teams are designated small market teams. The breakdown of teams and their respective average total revenues are shown in Table 1 (see next page).

VI. RESEARCH DESIGN

To test my hypotheses, I will be using descriptive statistics and several graphs. My analysis uses salary data, in 1991 dollars, from

the period 1986-1991 as reported in Quirk and Forts' Pay Dirt: The Business of Professional Team Sports. The salary data for the years 1992 and 1993 were obtained from the Chicago Sun-Times and the Chicago Tribune, respectively. I adjusted the 1992 and 1993 salary data for inflation, using 1991 as the base year. My analysis also uses final records of all teams from 1986-1993 as reported in various editions of the Information Please Almanac Series. Inflation rates for 1992 and 1993 were also located in this source.

VII. RESULTS

A. FIRST HYPOTHESIS

My first hypothesis was a test of the competitive balance of Major League Baseball. More specifically, I attempted to show that a competitive imbalance was still present, even after the relaxation of free agency rules in 1985. The results from testing my first hypothesis show a competitive imbalance in professional baseball when one analyzes the frequency distribution of W/L percentages over the period of 1986-1993. To measure competitive balance, I have used a two-pronged approach. The first was an analysis of the standard deviation of W/L percentages for all teams. Using the Noll-Scully approach (Quirk and Fort 1992), one can evaluate the degree of competitive balance in the league by comparing the actual values of standard deviation for W/L percentage over a period to the idealized value of standard deviation, which is the standard deviation of W/L percentages for a league in which every team is of equal playing strength. In this idealized league, the chance of winning a game for every team is one-half in every game. Using the formula for standard deviation, the idealized value for a league with teams of equal playing strength is shown by the expression $(.5)/N^{1/2}$.

Table 1:

AVERAGE TOTAL REVENUE (1987-1991)

BIG MARKET

<u>TEAM</u>	<u>VALUE(\$M)</u>
N.Y. YANKEES	94
N.Y. METS	86.1
TORONTO	83.1
BOSTON	75
L.A. DODGERS	71.65
CHICAGO WHITE SOX	63.5
OAKLAND	61.4
ST. LOUIS	57.45
CHICAGO CUBS	57.4
TEXAS	55.9
PHILADELPHIA	55.05
KANSAS CITY	53.3
BALTIMORE	52.3

SMALL MARKET

<u>TEAM</u>	<u>VALUE (\$M)</u>
CALIFORNIA	51.35
S.F. GIANTS	49.45
CINCINNATI	48.85
SAN DIEGO	47.8
DETROIT	44.8
PITTSBURGH	43.45
HOUSTON	43
MINNESOTA	41.35
SEATTLE	39.35
MILWAUKEE	38.6
CLEVELAND	38.4
ATLANTA	37.85
MONTREAL	37.4

where N is the number of games a team plays in a season. For a typical 162-game season, the ideal standard deviation will be $(.5)/(162)^{1/2}$. This value becomes .03928, the standard deviation of W/L percentage for a perfectly competitive league. Measuring the average standard deviation for our eight year period, the value comes to .06334. A Chi-Square test showed this to be a significant difference. A comparison of the observed standard deviations of W/L percentage with Noll and Scully's ideal standard deviation is shown in Table 2 (see next page). The Chi-Square test of the significance of the difference between these two standard deviations is shown in Table 3. Hence, Major League Baseball has a significant competitive balance problem when one compares the actual standard deviation to the ideal standard deviation. These results are shown in Figure 1. The idealized league would form a normal distribution (bell-shaped curve) around the heavy, solid line at the .500 W/L mark, with roughly two-thirds of the W/L percentages coming within +/- 1 SD (the dashed lines). The increments on the x-axis each equal 1 standard deviation. Visually, one can see the excess tail frequencies accounting for more than five percent of the W/L percentages.

My main contention was that the competitive imbalance had not improved since unrestricted free agency came in 1985. Due to insufficient data, I was not able to estimate the average standard deviation for the ten years (1976-1985) prior to my sample and compare the two. However, Quirk and Fort did calculate the standard deviation for the periods of 1970-1979 and 1980-1990, and those values were .076 and .065, respectively. This shows a significant increase in the competitive balance during the transition years (1976-85), but it also shows no dramatic improvement through the unrestricted free agency era

(1986-1993). I point to the comparison of the .065 SD of the 1980-1990 period with my calculated .06334 for the 1986-1993 period. It is important to notice that we overlap some years and that may affect the results. However, there is support for my first hypothesis that there has been no dramatic improvement in the competitive balance of Major League Baseball since the advent of unrestricted free agency in 1985.

B. THE SECOND HYPOTHESIS

My second hypothesis was that big market teams, because of their larger revenues, have comparative advantage in bidding for free agents. As a result, the average annual payroll for players' salaries should be higher for the big market teams. Using average annual salary data for each team from the period 1986-1991, I assumed a 25-man roster and found the total payroll for each team for each year in the period. While the salary data for 1986-1991 were in 1991 dollars, the salary data for 1992 and 1993 were nominal; therefore, I adjusted these data for inflation, using 1991 as the base year. I then separated the big market teams from the small markets teams and found the average total payroll for each group for each year in the period. The results are shown in the graph in Figure 2. The big market teams' average total payroll was greater than the small market average total payroll in each year. One interesting thing to note about the graph is the tremendous increase in average payroll for both groups after the 1990 season. This may suggest a new, higher range of salaries which may give the big market teams more of an advantage in the next few years. It is also interesting to note the plateau that exists in average payroll for both groups (especially for the big market teams) for the years 1986-1990. This may be explained by the collusive

Table 2:

COMPARISON OF ACTUAL DISTRIBUTION OF W/L PCT. WITH IDEAL NOLL-SCULLY DISTRIBUTION: 1986-1993

<u>STANDARD DEVIATION</u>	<u>ACTUAL FREQUENCY DISTRIBUTION</u>	<u>ACTUAL CUMULATIVE DISTRIBUTION</u>	<u>IDEAL N-S CUMULATIVE DISTRIBUTION</u>
+/- 1	44.23%	44.23%	66.7%
+/- 2	35.09%	79.32%	95.0%
+/- 3	14.90%	94.22%	99.9%

Table 3:

CHI-SQUARE TEST OF ACTUAL AVERAGE STANDARD DEVIATION VS. IDEAL STANDARD DEVIATION: 1986-1993

$$H_0 : SD_{actual} = .03928 (SD_{ideal})$$

$$H_a : SD_{actual} > .03928 (SD_{ideal})$$

Reject H_0 if $X^2 > 240.20$ (5% significance level)

$$X^2 = (n-1) (SD_{actual}^2 / SD_{ideal}^2) = (207) (.06334^2 / .03928^2) = 538.25$$

$$538.25 > 240.20$$

Therefore, reject H_0 .

Figure 1:

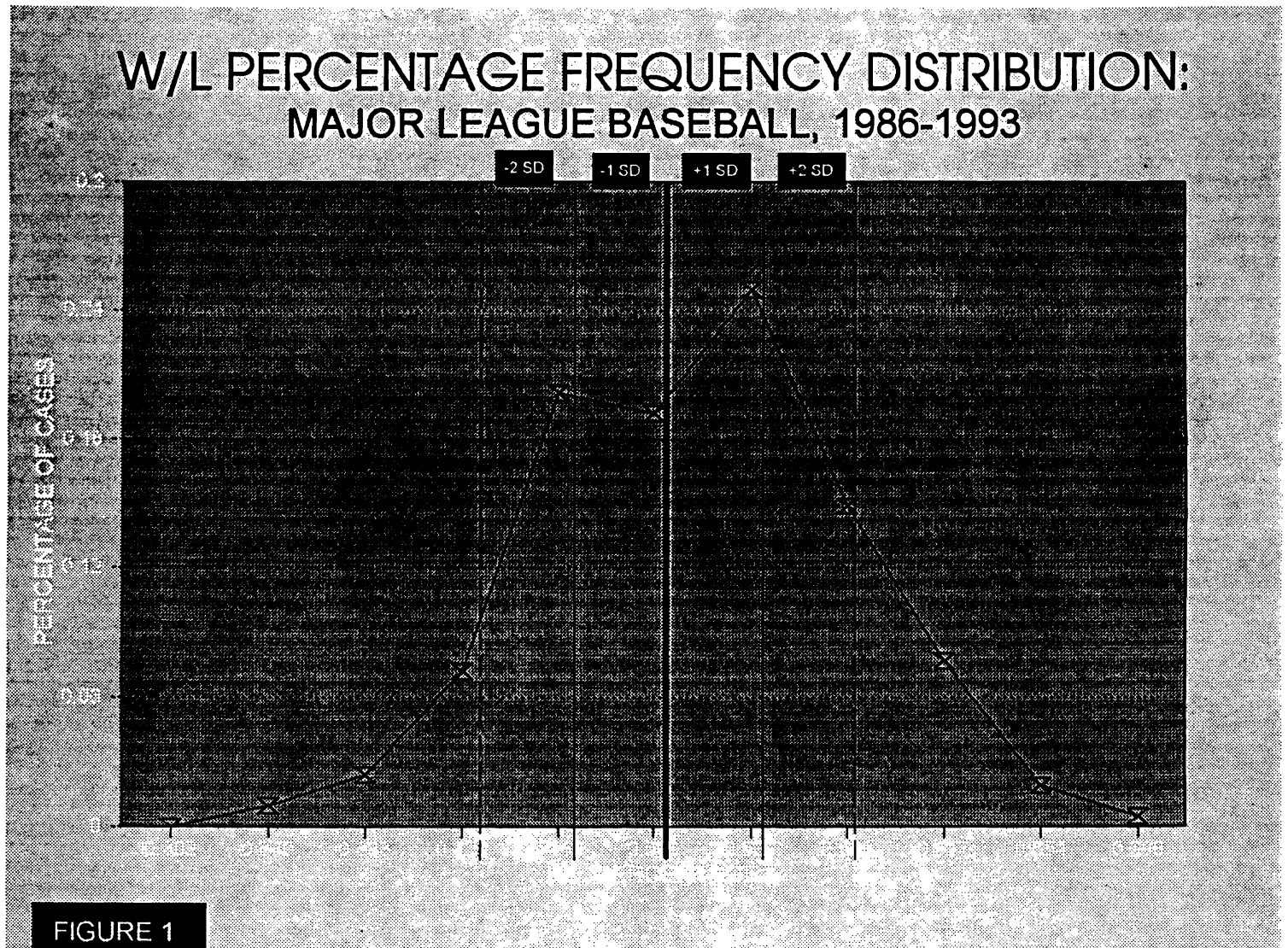
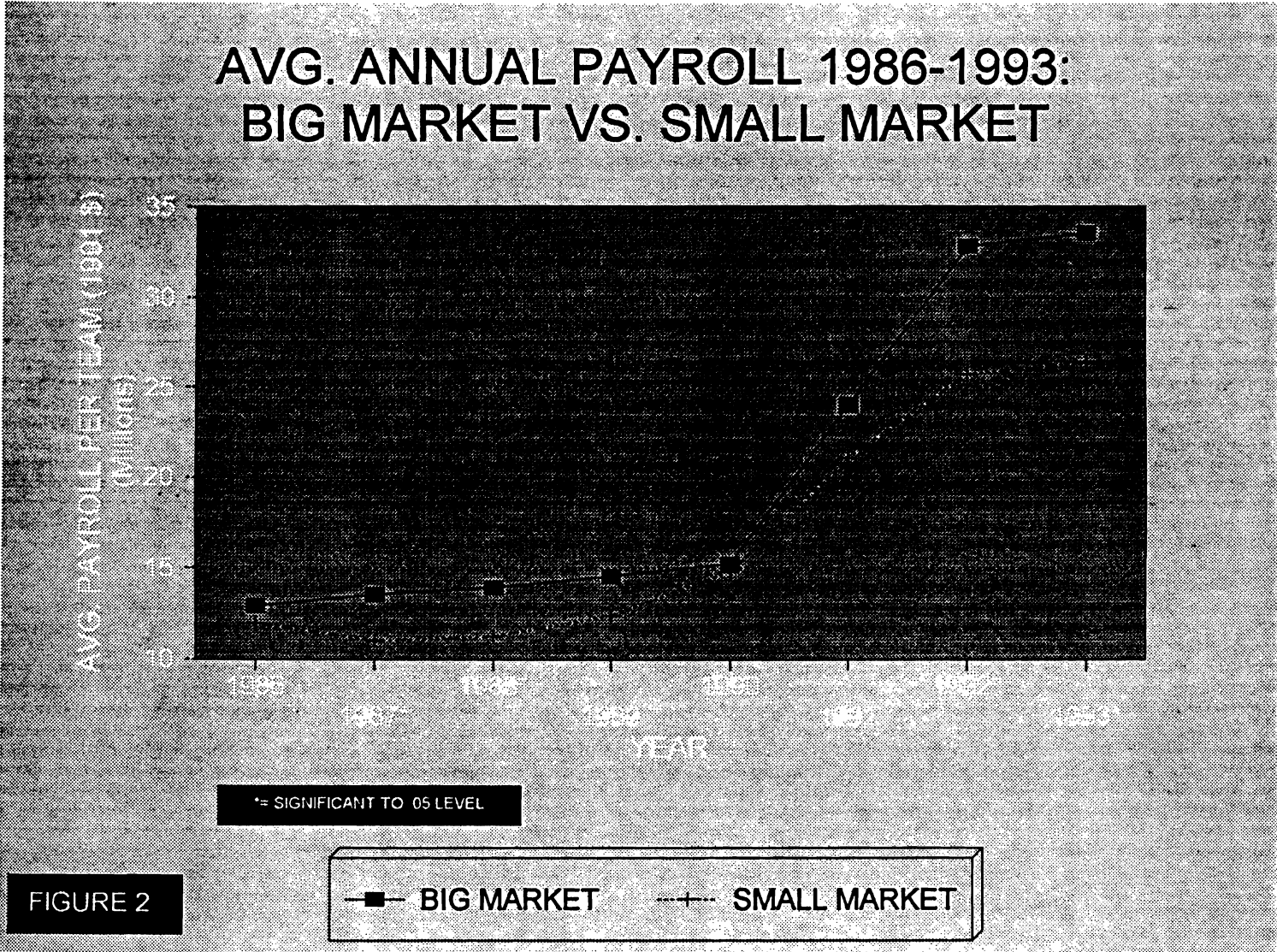


Figure 2:



agreements the owners had made not to bid on free agents during that period. I believe there was an attempt to keep players' salaries from escalating.

I also tested the average salary differential for significance using a Z-test, which evaluates the significance of a difference between the means of two populations. In this case, the two populations were the big market teams and the small market teams. The means were the average payrolls for each population. These results are shown in Table 4 (see next page). Four of the eight years showed a significant difference between the average payroll of the big market teams and the average payroll of the small market teams. Although the big market advantage was not significant in all years of the study, there are some trends could prove to validate the second hypothesis more conclusively in the future. The last three years showed a dramatic increase in average payroll for both groups, and the fact that the last two years show not only significant differences but *increasingly* significant differences may predict a larger gulf in the future between the big market payrolls and the small market payrolls.

C. THE THIRD HYPOTHESIS

Now that it has been established that there is a competitive imbalance in the league and that the big market teams are using their comparative advantage to pay higher salaries, there is a need to find some correlation between the two. In other words, is the comparative advantage of big market teams translating into more average wins for them than for the small market teams? This test is easy to show, as it only requires comparing the average wins per year for each group. I summed the wins of all teams in each group for each year and divided by 13, the number of

teams in the group. This gave me the average wins in a given year for big market teams and the average wins in a given year for small market teams. A graphic, year-by-year comparison is shown in Figure 3. Once again, I tested the yearly difference of the averages for significance using a Z-test. The actual data and Z-test values are shown in Table 5. In every year but one (1992), the average wins of the big market teams were greater than the average wins of the small market teams. However, the results do not show a significant difference in any year of our study. The closeness of the average wins between the two groups in the first three years may be attributed to a lag that may occur in signing free agents and assembling a competitive team. Also, the collusion among the owners may have had some effect on the relatively small differential between groups for the years 1986-1989. The big market teams were not using their comparative advantage to its fullest extent. If we recall the payroll plateau for the same period, there is substantial evidence for this conclusion. Also the huge difference in the final year (1993) suggests that the comparative advantage is finally paying off. It will be interesting to see the difference between the two groups over the next few years. In conclusion, the evidence does not show conclusive support for my third hypothesis. However, the final year of both the salary data and the average wins data show that small market teams may not be as competitive as the large market teams in the future.

VIII. CONCLUSIONS AND POLICY RECOMMENDATIONS

The results of my tests seem to support two of my hypotheses very well. In terms of significance, my third hypothesis did not respond very well to testing, but the trends did

Table 4:

**AVERAGE ANNUAL SALARY DIFFERENTIALS: 1986-1993
(1991 DOLLARS)**

<u>YEAR</u>	<u>BIG MARKET</u>	<u>SMALL MARKET</u>	<u>Z-TEST</u>
1986	\$12,915,385	\$11,967,308	0.7127
1987*	\$13,528,846	\$11,001,923	2.2774
1988*	\$13,926,923	\$11,244,231	2.1297
1989	\$14,571,154	\$12,396,154	1.5165
1990	\$15,271,154	\$14,794,231	0.3823
1991	\$24,057,692	\$21,092,308	1.3335
1992*	\$32,817,736	\$25,735,440	2.4015
1993*	\$33,562,300	\$26,442,000	2.9573

(* = significant to .05 level)

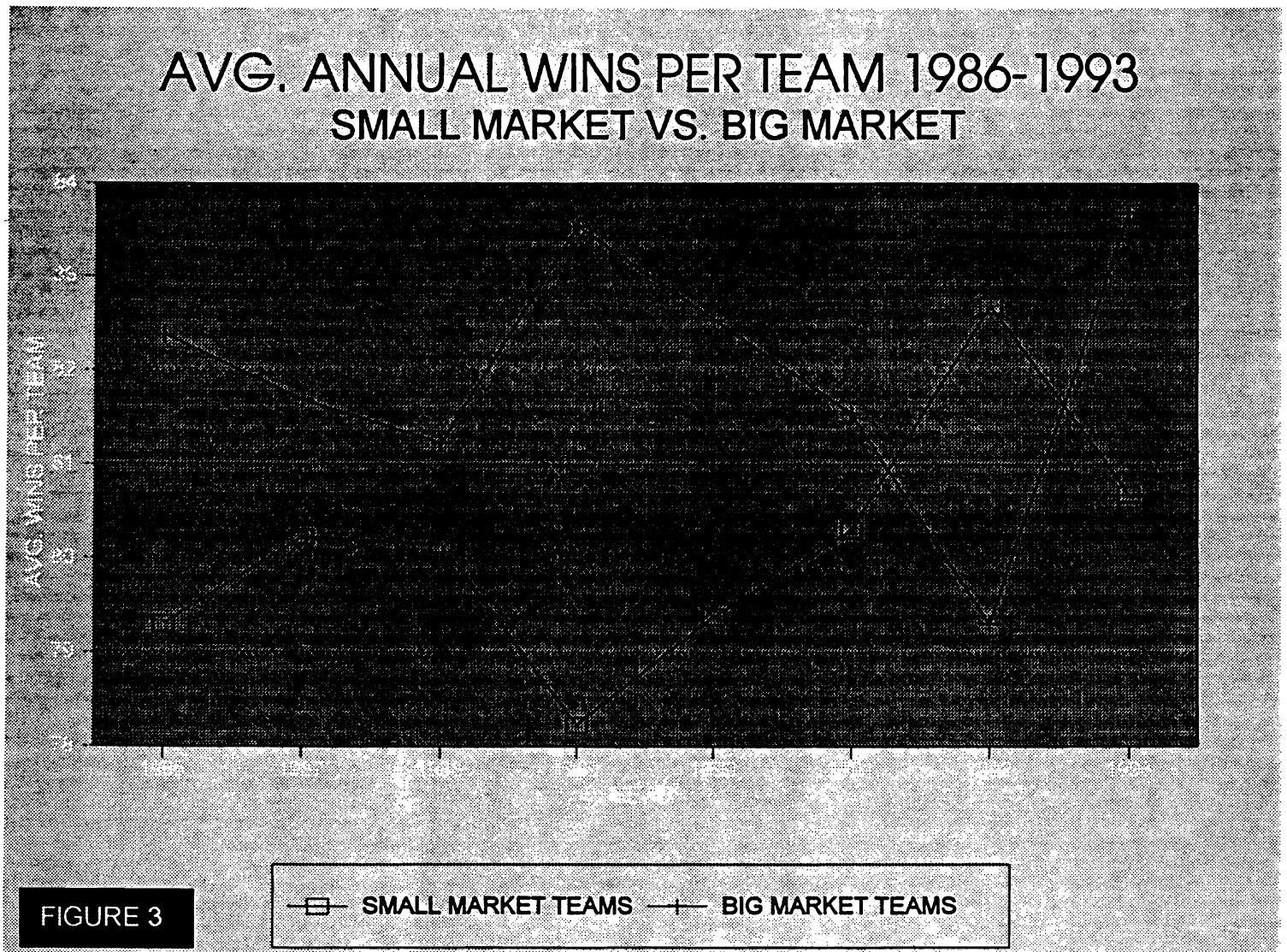
Table 5:

AVERAGE ANNUAL WINS DIFFERENTIAL: 1986-1993

<u>YEAR</u>	<u>BIG MARKET</u>	<u>SMALL MARKET</u>	<u>Z-TEST</u>
1986	82.38	79.31	0.7884
1987	81.69	80.23	0.3871
1988	81.23	80.15	0.2330
1989	83.54	78.23	1.4351
1990	82.54	79.38	0.9185
1991	82.69	79.31	0.3302
1992	79.31	82.69	0.8738
1993	83.69	80.69	0.6681

(*= significant to .05 level)

Figure 3:



raise some questions and legitimate concerns about what the future will hold for the small market teams.

One of the main, if not *the* main, issues if the recent labor dispute between baseball's management and its players has been the revenue gap between the big and small market teams. There have been a number proposals brought to the negotiating table in an effort either to close this gap or to limit the annual payrolls of each team to a predetermined level. These measures are more commonly known as revenue-sharing and salary-capping. These two measures are primarily used hand-in-hand by other professional sports, such as the National Basketball Association.

Under a revenue-sharing/salary-cap plan, all league revenues, or certain percentages of league revenues (local media revenues, for example), are pooled and divided equally among the teams. Obviously, this is an attempt to equalize the financing power of all teams for player payrolls and basic club operations by providing them with comparable, if not identical, revenues. A certain percentage of these revenues are guaranteed to the players, thus creating the cap: each team has equal revenues, and an exact percentage of these revenues can be used for players' salaries. It is important to note the term *can be used* in the previous statement. Teams are not obligated to spend the maximum amount of the salary cap. However, just as there is a cap, there is a floor. Teams are forced (by the players' union, no doubt) to spend at least a minimal amount on players' salaries. Assuming all teams have equally competent general managers and scouts, talent would be distributed relatively equally among the teams by virtue of the salary cap and revenue-sharing. In turn, the competitive balance should improve due to this redistribution of revenue and talent, *ceteris paribus*.

Despite the logical reasoning behind this plan, it would be very difficult to predict its effect. All things are not held equal; injuries occur, poor scouting and drafting are present, and pure luck is a large part of the game. However, we can see the effects a revenue-sharing/ salary-cap plan would have on total revenue distribution. Using the same variables utilized in deriving a big market/small market proxy, I was able to more equally distribute total revenue among the clubs when average total media revenues were split equally among the clubs and entered back into a linear regression with the stadium capacity and performance variables. Although not conclusive, some support was given to the revenue-sharing/salary-cap plan.

Under the original league policy where teams keep all their own local media revenues and share national media revenues, the range of average annual total revenues was \$56.6 million (a maximum of \$94 million and a minimum of \$37.4 million). The standard deviation was approximately \$15.42 million. By comparison, according to the revenue-sharing regression, sharing media revenues would reduce the range to \$40 million and the standard deviation to only \$11 million. Both of these figures are improvements in terms of making average annual total revenue "more" equal.

There are some problems with the revenue-sharing/salary-cap plan, however. First of all, trying to limit players' salaries is always difficult to do. From a self-interest perspective, players are reluctant to do anything that would decrease their incomes, or more appropriately, their future incomes. Second, just as it is difficult to police cartel output and price restrictions, it is also difficult to police big market teams whose marginal cost, under a salary cap plan, could quite possibly be below their marginal revenue. In other words, by the sheer size of their market,

there may be opportunity and incentive for big market teams to invest more in players' salaries in order to maximize profit. On the other end of the spectrum, there may be times (though seldom) that small market teams experience having the required minimum payroll above their marginal revenue curve. Thus, there is a disincentive to field a competitive team. An example of this occurred recently. The Montreal Expos held a fire sale on their most talented players before the start of the 1995 season, even though they had one of the lowest payrolls in 1994. Management for the Expos cited financial problems as the reason.

A fourth concern is the ability of management to manipulate the salary cap in their favor. By staggering the bulk payments of lucrative contracts in alternating years to different high-priced stars, teams can essentially beat the salary cap. Also, teams tend to extend "bonus" incentives to players that are not reported as raw salary, but because they can be obtained rather easily, these bonuses could be counted as guaranteed salary.

Finally, some would argue that the fact that teams would be equalized financially does not necessarily mean they will be equalized competitively. Indeed, the results from my third hypothesis test showed no conclusive evidence that more revenue and higher salaries translates into more wins. Also, the National Basketball Association, owners of the most comprehensive revenue-sharing/salary-cap plan in professional sports, actually had the worst competitive imbalance problem of the four major professional sports of baseball, football, basketball, and hockey (Quirk and Fort 1992, p. 293).

In any case, the fact that enormous revenue differentials exists between big market teams and small market teams has been proven

and is without debate. Also, there is some evidence that a revenue-sharing/salary-cap plan would equalize teams financially. But the argument that a cap on salaries would also solve the competitive imbalance of Major League Baseball is inconclusive.

REFERENCES

- Coleman, B. Jay, Kenneth M. Jennings, and Frank S. McLaughlin.** "Convergence Or Divergence in Final-Offer Arbitration in Professional Baseball." Industrial Relations 32, Spring 1993 : p. 238-247.
- Chicago Sun-Times.** "1992 Baseball Salaries." 8 April 1992: p. 95.
- Chicago Tribune.** "1993 Baseball Salaries." 13 July 1993: p. 6.
- Demmert, Henry G.** The Economics of Professional Team Sports. Lexington, Mass.: D.C. Heath & Co., 1973.
- Dworkin, James B.** Owners Versus Players: Baseball and Collective Bargaining. Boston: Auburn House Publishing Co., 1981.
- Euchner, Charles E.** Playing The Field. Baltimore: Johns Hopkins University Press, 1993.
- Goff, Brain L. and Robert D. Tollison.** Sportometrics. College Station, TX: Texas A&M University Press, 1990.
- Hill, James and William Spellman.** "Professional Baseball: The Reserve Clause and Salary Structure." Industrial Relations. 22, Winter 1983: p. 1-19.
- Information Please Almanac** (various editions). New York: Houghton

- Mifflin Co., 1987-1994.
- Markham, Jesse W. and Paul V. Teplitz.** Baseball Economics and Public Policy. Lexington, Mass.: D.C. Heath & Co., 1981.
- Ozanian, Michael K.** "Squeeze Play." Financial World. 27 October 1992: p. 24.
- Purdy, Matthew and Richard Sandomir.** "Baseball's Bottom Line." New York Times. 22 August 1994.
- Quirk, James and Rodney Fort.** Pay Dirt. Princeton, NJ: Princeton University Press, 1992.
- U.S. Congress. Senate. Committee on the Judiciary. Subcommittee on Antitrust, Monopolies, and Business Rights. -** Baseball's Antitrust Immunity. Washington, D.C.: USGPO, 1992.
- Zimbalist, Andrew.** Baseball and Billions. New York: Basic Books, Inc., 1992.