

Rank Power Analysis For Comparative Strength Of Professional Sports Franchises

K. Paul Yoon, Fairleigh Dickinson University, USA
Mohammad Sedaghat, Fairleigh Dickinson University, USA

ABSTRACT

Major professional sports teams are nowadays complex businesses, intrinsically concerned with matters of economics and finance. Performances of each teams and each franchises vary greatly. This paper makes comparative performance analyses for four profession franchises in North America. Four financial measures are chosen to represent team performances: attendance, revenue, payroll, and profit. First, the box-plot was utilized to measure the spread of the power (wealth) of each league with respect to each measures. Second, the rank-power distribution was used to visualize the team's relative standings in each measures and in each franchises. Most team performances were observed to follow the Pareto principle: few teams scored very high (significant few); large numbers of teams scored very low (trivial many). These qualitative findings can be a useful guide for franchise owners and commissioners for the future strategic planning.

Keywords: Professional Sports Franchises; Performance Measures; Comparative Team Strength; Rank-Power Distribution, Zipf's Law; Pareto Principle

1. INTRODUCTION

 Major professional sports teams are nowadays complex businesses, intrinsically concerned with matters of economics and finance. Performance on the field is inextricably linked to financial measures, such as payroll of the players (Hall, Szymanski & Zimbalist, 2002) and expenses of the club (Avgerinou, Giakoumatos, Konstantinakos & Mountakis, 2006).

The academic field of professional team sports economics dates back to the middle 1950s. Although a lot has been written ever since, Avgerinou (2007) selected three articles, which are seminal in the economics of sports: Rottenberg (1956), Neale (1964), and Sloane (1971). Rottenberg (1956) posited that the closer the competition between teams, the greater interest in the sport and, therefore, the greater the likelihood of total attendance. Neale (1964) suggested that the sports industry differs from other industry in that monopoly is not profitable because of the joint production of the sports product. He also described varying sources of demand for the sporting competition. Sloan (1971) argued that team owner may not be profit maximizers, but rather try to maximize their utility, which is a function of playing success; average attendance; competitive balance of the league, and a higher after-tax profit than the minimum acceptable.

There have been many studies in the sports management literature. However, their perspectives are too narrow to see the whole view of how each franchise operates. For example, Hansen & Gauthier (1989) studied sport attendance in professional team sports; Nourayi (2006) for the profitability of the NBA franchise; Scully (1974) for pay and performance in the MLB; Leeds, Allmen & Matheson (2018) for team performance measures in the MLB; Juravich, Salaga & Babiak (2017) for the management of human resources in the NBA.

North America is home to four preeminent professional franchises: MLB (Major League Baseball) has 30 teams; NBA (National Basketball Association) has 30 teams, NFL (National Football League) has 32 teams, and NHL (National Hockey League) has 30 teams. But performance of each team and each franchise varies greatly.

The objective of this paper is to picture the performance disparities in the major professional sports franchises in the North America and to show the comparative strength of each team in a franchise and comparative strength among

franchises. In line with above mentioned sports economists' suggestions, four performance measures are chosen for our study: attendance, revenue, payroll, and profit. Profits are simplified by taking the difference between a team's revenue and payroll. All of these factors come down to a team's willingness and desire to win, compete and improve. Refer to Hoye, Smith, Nicholson & Stewart (2018) for more financial management function in sport organization.

This paper is organized in six sections. Section 2 shows box-plots to explore performance data graphically. The box-plot illustrates the data distribution pattern (positively or negatively skewed), as well as the degree of data disperse graphically. Section 3 introduces the rank-power distribution, which was utilized to rank the size of cities, length of rivers, etc. This distribution curves visualize the relative strength of dominant teams and the relative weakness of dominated teams. Section 4 makes the rank-power analyses across franchises. Section 5 makes the rank-power analyses within franchises. Section 6 offers concluding remarks.

All performance data in this study is taken from the 2011 regular season and is given in Appendix B.

2. BOX-PLOT ANALYSIS

Box-plots are informative graphs (Iversen & Gergen, 1997). They show the extreme values (maximum and minimum) as well as mid-range values (25th, 50th and 75th percentiles). Box-plots are particularly useful to compare the data from several groups simultaneously.

Figure 1-A shows the box-plots of attendances for four franchises. First, we notice that the MLB commands almost 4 to 5 times more median attendance than the other three leagues. Teams that bring in the lowest attendance for MLB are much higher than any team in any other sport. One of reasons for the MLB having a much larger attendance may be because of the number of games played in one season: the MLB has 162 games; the NBA and the NHL have 82 games each; the NFL has 16 games, but the MLB has larger margin between largest and smallest attendances while other leagues have a smaller margin. Accordingly, the NFL has the largest fan attendance per game.

Figure 1-B shows box-plots for the revenue category. All four professional sports reveal large differences between minimums and maximums. Furthermore, they reveal positively skewed distributions, which indicate large differences among top tier (highest 25%) teams, and relatively small differences among bottom tier (lowest 25%) teams.

Figure 1-C shows box-plots for the payroll category. The MLB is the most spread out when it comes to payroll. The MLB has a team, which pays the highest payroll, but the NFL has highest median payroll, and the NHL has the lowest median payroll.

Figure 1-D shows box-plots for the profit category. Profits along all leagues are extremely widespread. The NFL has a team which earns highest profit among all US sports franchises. The MLB team with the highest revenue lost this honor to NFL due to large payroll. However, the NFL has the largest disparity in profit category. The NHL has the smallest disparity.

All four box plots have the positive skewed distribution, which indicate a larger deviation among upper teams and a smaller deviation among lower teams. Next, we need to investigate how strongly the top teams dominate the bottom teams.

3. THE RANK-POWER DISTRIBUTION

Scientists have observed a very interesting pattern of distributions of city sizes, sizes of business, the length of rivers, the frequencies of word usage, and wealth among individuals. That is, small occurrences in nature are extremely common, whereas large instances are extremely rare. For example, long rivers are very few, short rivers are many. Actually there are only 8 rivers in the world that extend more than 3000 miles in length. This power regularity is called the power-law distribution or Zipf's law (Zipf, 1949; Adamic, 2020).

The rank-power distribution is the distribution of size by rank, in decreasing order of size. For example, if a data set consists of team revenues (in million dollars) \$180, \$201, \$175, \$272, \$427, the rank size distribution is (1, 427), (2, 272), (3, 201), (4, 180), (5, 175).

While following the idea of the rank-size distribution, we made two modifications to accommodate different units (\$, number of people) in the data and large number of entries (i.e., number of teams). First, we introduce the relative figures of each team compared with the figure of the leader. That is, the ratio between the team with the highest figures in each category to the rest of the teams in the league. The rank-power of the i^{th} ranked team is defined as $R_i = X_i/X_1$, $0 < R_i \leq 1$, $I = 1, \dots, n$ where X_1 = amount of first rank team, X_i = amount of the i^{th} rank team, n = number of teams in franchise. Second, we draw a line graph by connecting n points of (I, R_i) .

4. RANK-POWER ANALYSES ACROSS FRANCHISES

Figure 2-A shows the rank-power distributions in attendance from each league. Attendance relationships among teams are very similar in NBA, NFL, and NHL, but the MLB has a greater difference between highest and lowest attendance in the stadium per season. One of the reasons is that the MLB has 162 games per season, which is more than double the number of games played by other leagues.

Figure 2-B shows rank-power curves in revenue from four franchises. Sharp reduction in revenue is observed in all the leagues after the top two or three teams. Revenues across the leagues have very similar relationships with most teams being around 40% and 60% of their league's leader. The MLB has the greatest difference with the lowest revenues around 30% that of the league leader. The NFL has the smallest difference with the league's lowest only 50% that of the league leader.

Figure 2-C shows rank-power curves in payroll across franchises. Payroll distributions across the leagues are very close, but once again the MLB is an odd league. The NFL, NHL, and NBA all have minimum payroll ratios between 40% and 60%, but the MLB has a team with a payroll that is less than 20% that of the league's leader. Actually the highest and lowest ratio is 5.7. This is partly due to the regulations among the leagues; the MLB does not have a minimum payroll cap.

Figure 2-D shows rank-power distributions in profit among league members. In the profits category all sharp reduction is observed after the top 4 to 5 teams. Both the MLB and NFL are a close distribution and so are the NBA and NHL. Profits from the MLB and NFL are greater than those from NBA and NHL. Most teams in the NFL and MLB have profits between 40% and 60% that of their league leaders. While most teams in the NBA and NHL are more spread out and are between 10% and 50% of their league leaders.

5. RANK-POWER ANALYSES WITHIN FRANCHISES

Figure 3-A shows relative performance power in the MLB league. Revenue, payroll and profit have a similar downturn pattern. But the attendance shows a relatively small variation among teams. Payroll across the MLB is spread out more than other categories, with the weakest team only posting 18% that of the league leader. Attendance has a gradual reduction up to 40%.

Figure 3-B shows relative performance power in the NHL league. It reveals attendance and payroll graphs have a very similar shape, which indicates teams' total payroll were in proportion to total attendance. Teams within the NHL do not have equally proportioned profits; the majority of teams are between 10% and 50% of the league leader due to high payroll.

Figure 3-C shows relative performance power in the NFL league. Partly due to small number of games within a single season, attendance among the NFL teams is quite high and consistent across the league. Majority of teams are between 60% and 90% that of the league leader. Revenues are extremely consistent with the majority between 50% and 60%. A majority of the NFL teams have payrolls between 60% and 80%, this shows an area of more balance within the league. Profits in the NFL are more spread out; the weakest team is near 20% that of the league leader and a majority of the teams are between 40% and 60% largely due to high payroll.

Figure 3-D shows the relative performance power in the NBA league. Attendance in the NBA is consistently high; there are not any extremely weak teams in this category. The entire league is above 60% that of the league leader. The revenues are a different story in the NBA, majority of the league is between 40% and 60% of the league leader. There

are only a few teams above 60% in the revenue category. Payrolls are also spread out in the NBA with a majority between 60% and 80% that of the league leader. However, profits are most spread out among teams. The weakest team makes around 10% of the league leader.

6. CONCLUDING REMARKS

We have employed the box-plot and the rank power distribution diagrams to extract hidden messages from the raw performance data. These analyses rendered qualitative rather than quantitative conclusions with the least amount of analytical study.

The box-plot analyses offer an overall view of team performance. Attendance box- plots clearly shows why baseball is called the most popular sport in the United States (see Figure 1-A). In general, there existed large disparities in performance measures among leagues. Especially, the disparities in profits among top teams are larger than the other categories. How to minimize disparities among teams? It is a strategic issue for the franchise commissioners.

The rank-power analysis renders the relative standing for each team power (or strength). First, Figures 3-A, B, C and D show that weaker teams in each franchise do not make high profits even with the high attendance and high revenue. Why? The top management of weaker teams need to investigate the reason.

Second, we have observed most rank-power distribution curves take “L” shape, which has very steep reduction in the beginning, medium reduction in the middle, and shallow in the end. In other word, a few mighty teams strongly dominate many weak teams.

Vilfredo Pareto in 1897 found that a wealth was concentrated in the hands of a few and poverty in the hands of the many while studying the patterns of wealth in England (Bak, 1996; Russell-Walling, 2008). Hence, we can draw similar conclusions as Pareto made 120 years ago: (1) A few teams that score very high (significant few), (2) A medium number of teams with middle-of-the-road scores, (3) A large number of teams that score very low (trivial many).

We have seen that the box-plot and the rank power distribution diagram are essential tools to extract hidden messages from the raw performance data. We could draw qualitative rather than quantitative conclusions. They can be a useful guide for franchise owners and commissioners for future planning such as revenue sharing, player recruits, salary cap, sustainability plan, etc. to reduce the disparity among teams. Considering that the majority of sport economics articles are quantitative (94.1%) (Mondello & Pedersen, 2003), our qualitative approach would complement the uncovered area of performance analysis.

ACKNOWLEDGEMENTS

Authors are grateful to Matthew Kinsley for drawing figures in this article.

AUTHOR BIOGRAPHIES

K. Paul Yoon is Professor of Decision Sciences at Fairleigh Dickinson University. His B.S. degree is from Seoul National University, South Korea, and his M.S. and Ph.D. degrees are from Kansas State University. He is a co-creator of TOPSIS, a classical multiple attribute decision making method.

Mohammad Sedaghat is a Professor in the Department of Marketing, Information Systems and Decision Sciences at Fairleigh Dickinson University. He obtained his Ph.D. in Operations Research from Polytechnic University, New York. His research interests include Queuing theory and stochastic processes. Email: sedaghat@fdu.edu (Corresponding author)

REFERENCES

- Adamic, L.A. (2020). Zipf, power-laws, and Pareto – a ranking tutorial. Retrieved from <https://www.hpl.hp.com/research/idl/papers/ranking/ranking.html>.
- Avgerinou, V. (2007). The economics of professional team sports: content, trend and future development, *Sport Management International Journal*, 3(1), 5-17.
- Avgerinou, V., Giakoumatos, S., Konstantinakis, P. & Mountakis, K. (2006). An economic approach of league position in Greek football, *ELLEDA Conference Proceedings, Thessalonki 2006*.
- Bak, P. (1996). *How Nature works: The Science of Self-Organized Criticality*, New York: Springer-Verlag.
- Hall, S., Szymanski, S., & Zimbalist, A. (2002). Testing causality between team performance and payroll, the cases of major league baseball and English soccer. *Journal of Sports Economics*, 3(3), 149-168.
- Hansen H. & Gauthier, R. (1989). Factor affecting attendance at professional sports Events. *Journal of Sport Management*, 3(1), 15-32.
- Hoye, R., Smith, A., Nicholson, M. & Stewart, B. (2018). *Sport Management: Principles and Applications*, New York: Routledge.
- Iversen, G.R., & Gergen, M. (1997). *Statistics: The Conceptual Approach*. New York, NY: Springer-Verlag.
- Juravich, M., Salaga, S. & Babiak, K. (2017). Upper echelons in professional sport. *Journal of Sport Management*, 31(5), 466-479.
- Leeds, M. A., Allmen, P.V. & Matheson, V.A. (2018). *The Economics of Sports* (6th Edition), New York: Routledge.
- Mondello, M. J. & Pedersen, P. M. (2003). A content analysis of the journal of sports economics. *Journal of Sports Economics*, 4(1), 64-73.
- Neale, W. (1964). The peculiar economics of professional sports. *Quarterly Journal of Economics*, 78(1), 1-14.
- Nourayi, M. (2006). Profitability in professional sports and benchmarking. *Benchmarking: An International Journal*, 13(3), 252-271.
- Rottenberg, S. (1956). The baseball player's labor market. *Journal of Political Economy*, 64(3), 241-258.
- Russell-Walling, E. (2008). *50 Management Ideas You Really Need to Know*. London, UK: Quercus.
- Scully, G.W. (1974). Pay and performance in major league baseball. *The American Economic Review*, 64(6), 915-930.
- Sloane, P. (1971). The economics of professional football: the football club as a utility maximizer. *Scottish Journal of Political Economy*, 17, 121-146.
- Zipf, G.K. (1949). *Human Behavior and Principles of Least Effort*, Cambridge, Mass: Addison-Wesley.

APPENDIX A

Figure 1-A. Box-Plots for Attendance

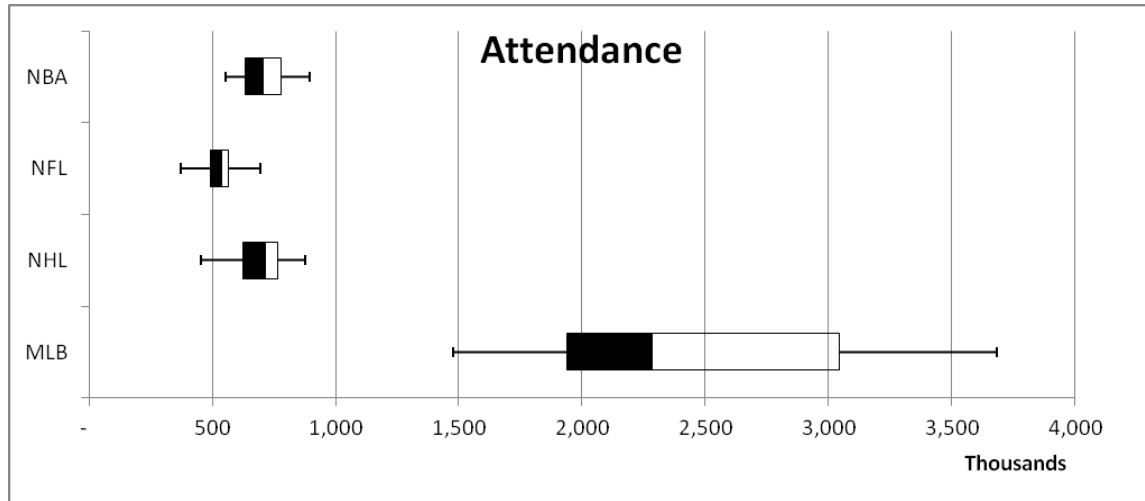


Figure 1-B. Box Plots for Revenue

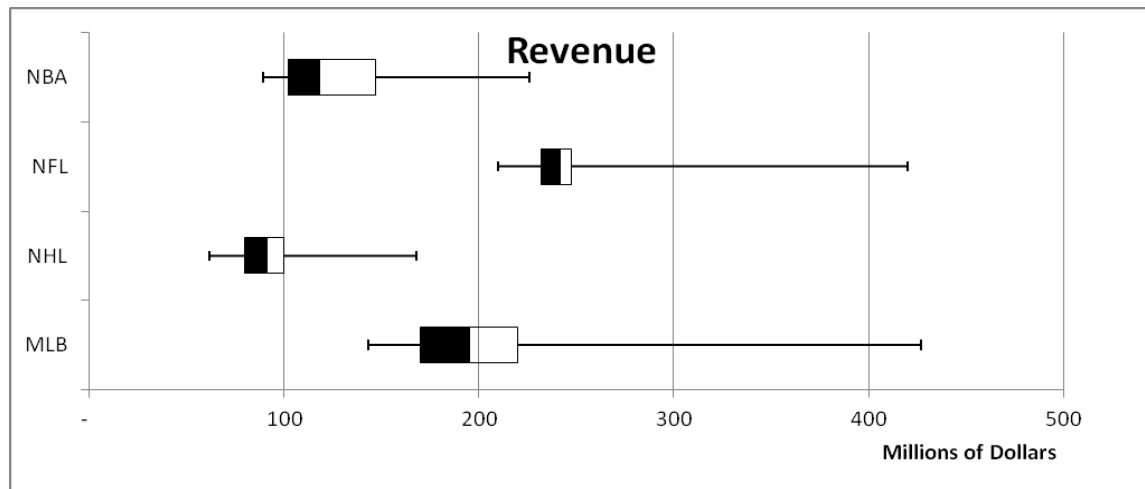


Figure 1-C. Box Plots for Payroll

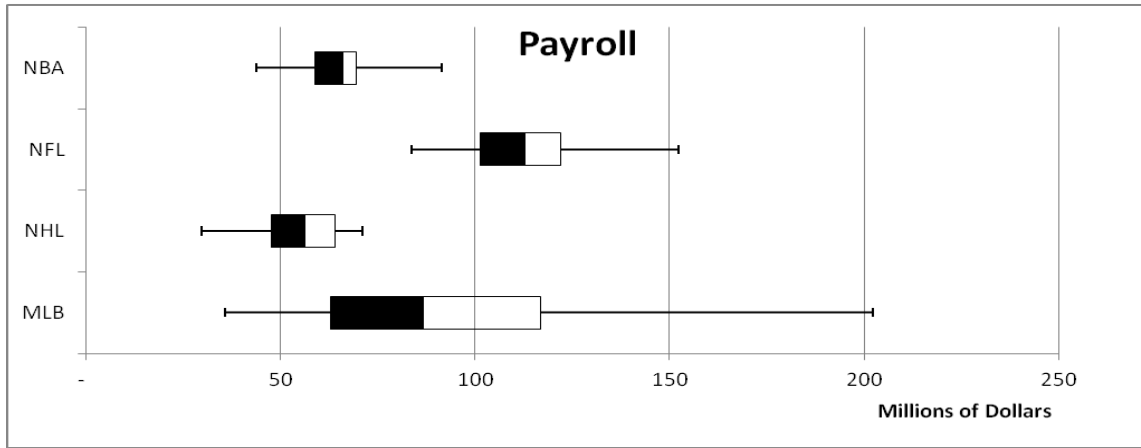


Figure 1-D. Box Plots for Profit

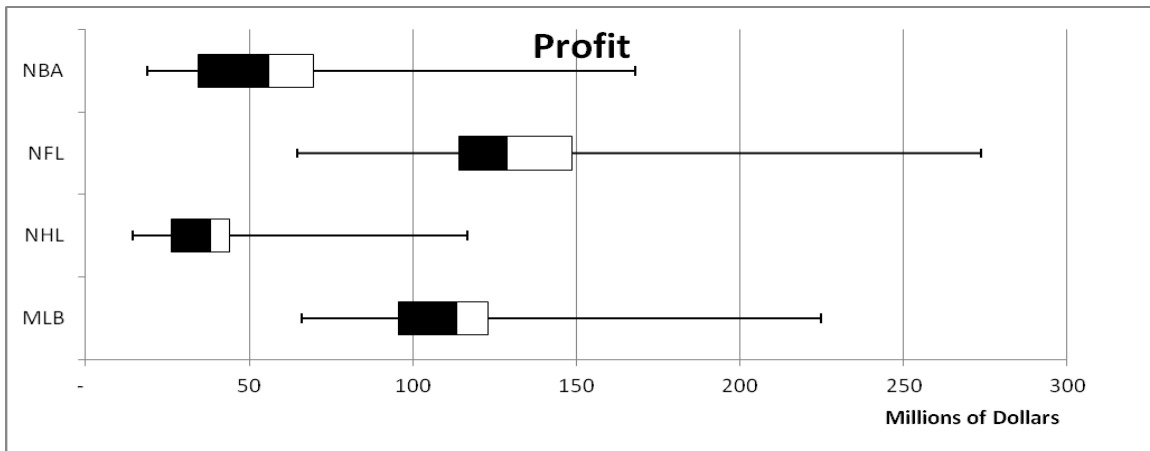


Figure 2-A. Rank – Power Curves for Attendance

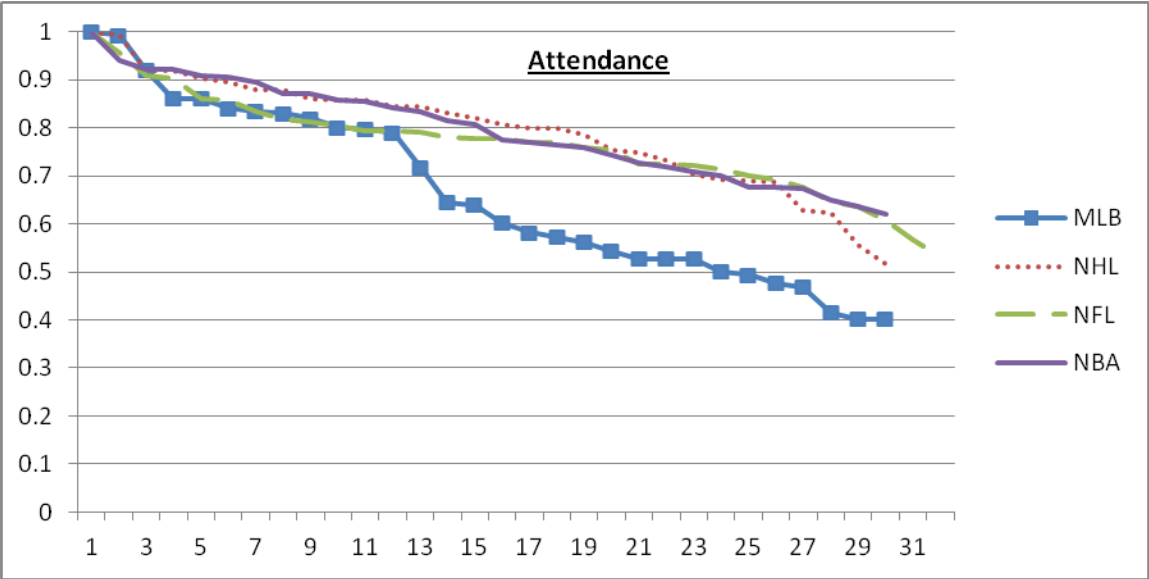


Figure 2-B. Rank – Power Curves for Revenue

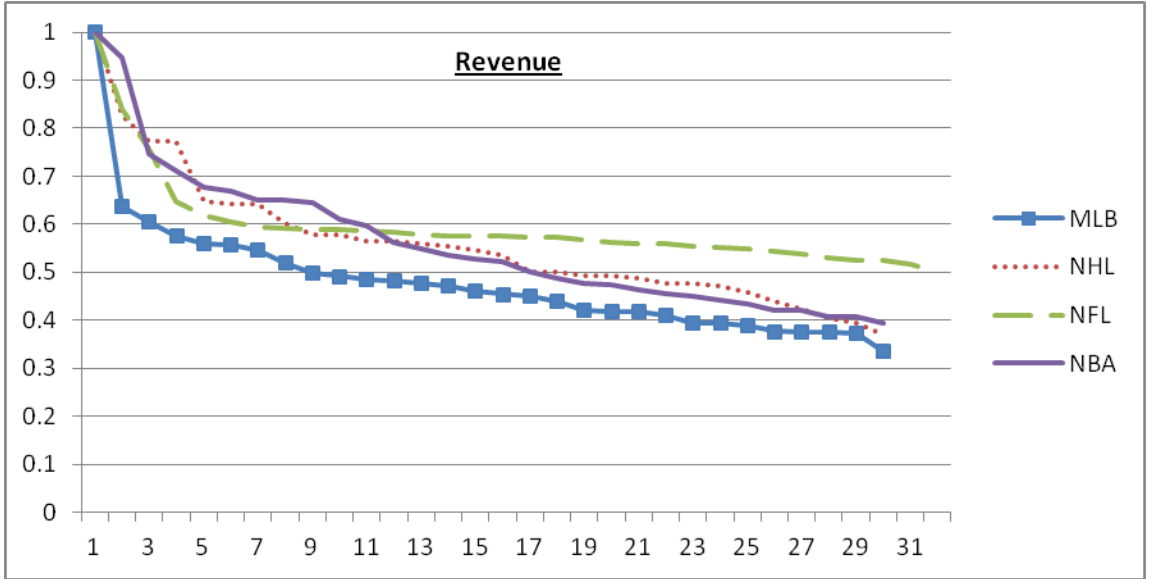


Figure 2-C. Rank – Power Curves for Payroll

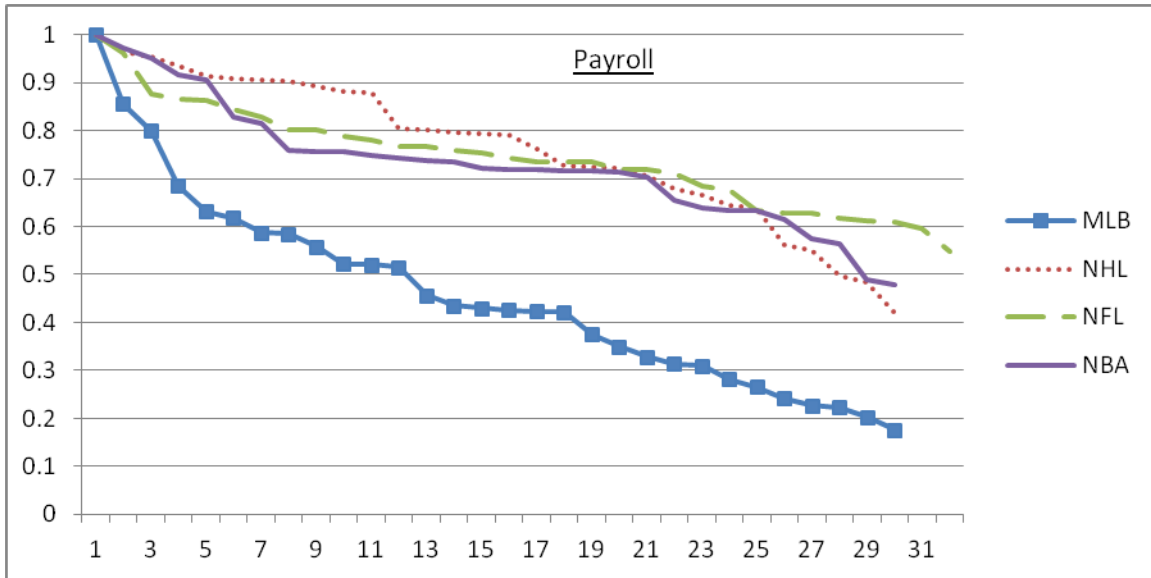


Figure 2-D. Rank – Power Curves for Profit

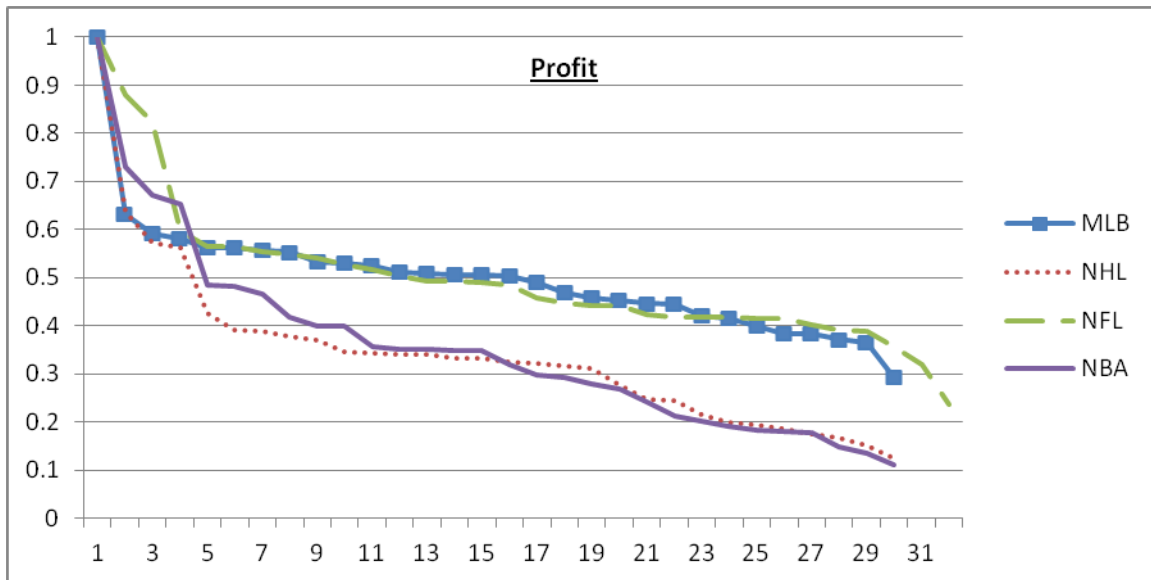


Figure 3-A. Rank – Power Curves for MLB

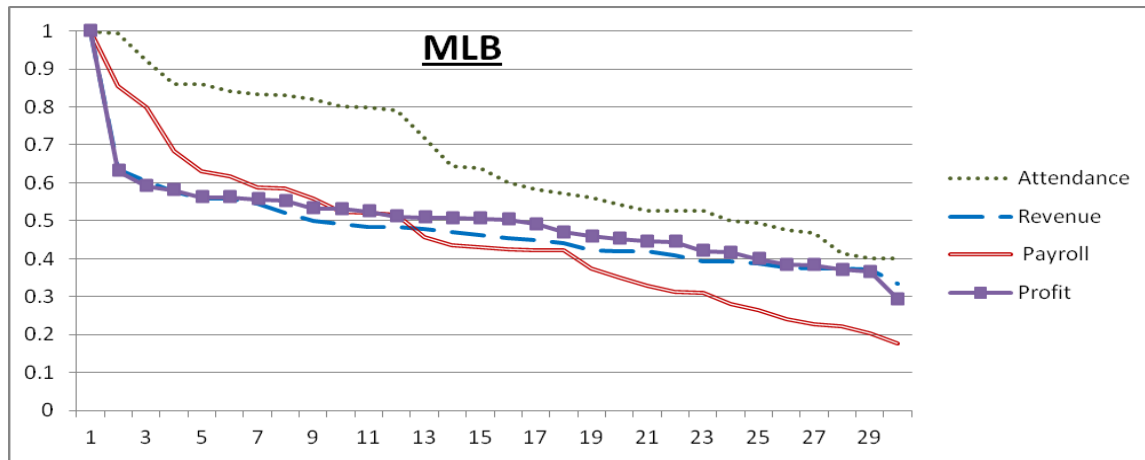


Figure 3-B. Rank – Power Curves for NHL

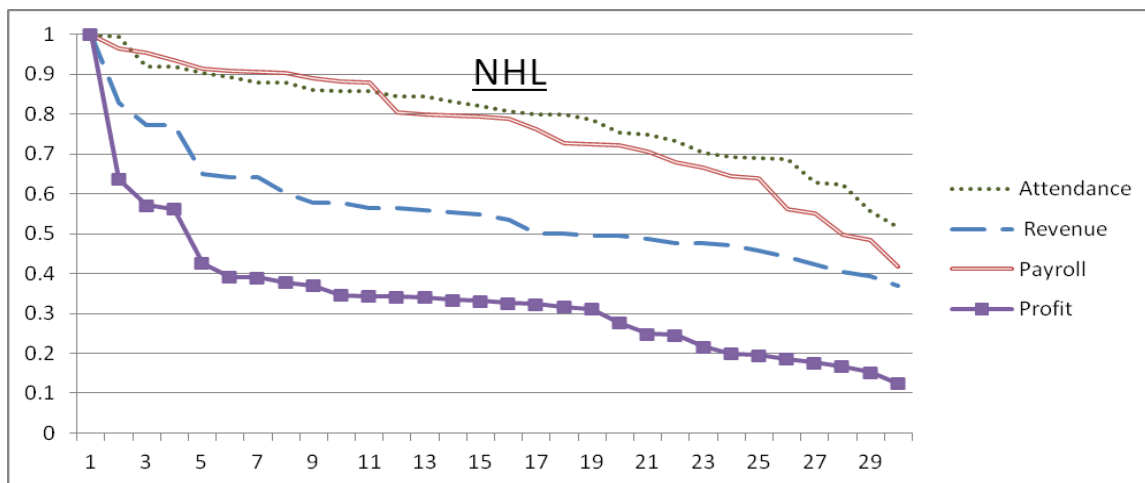


Figure 3-C. Rank – Power Curves for NFL

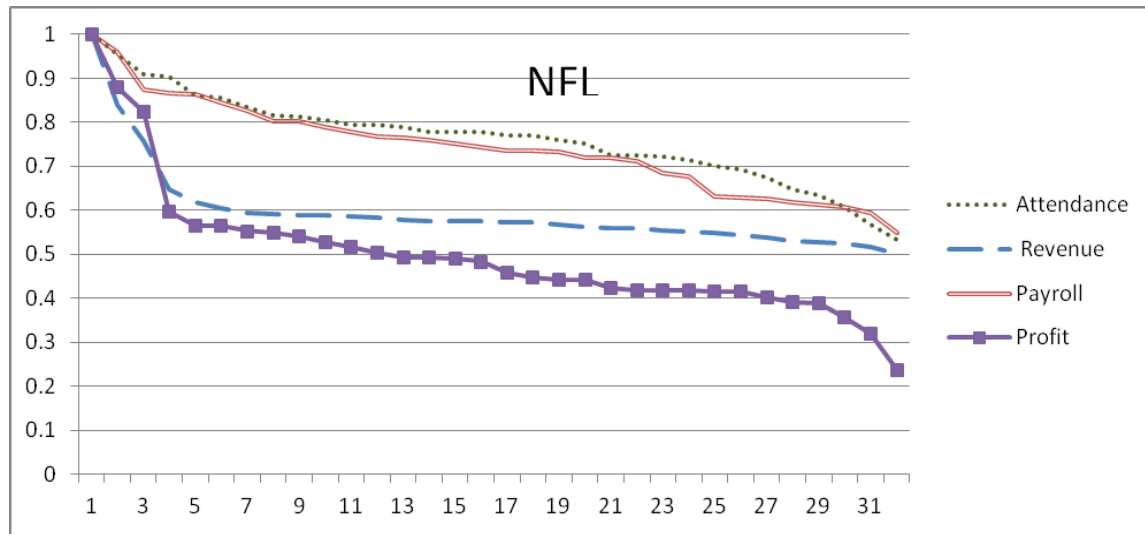
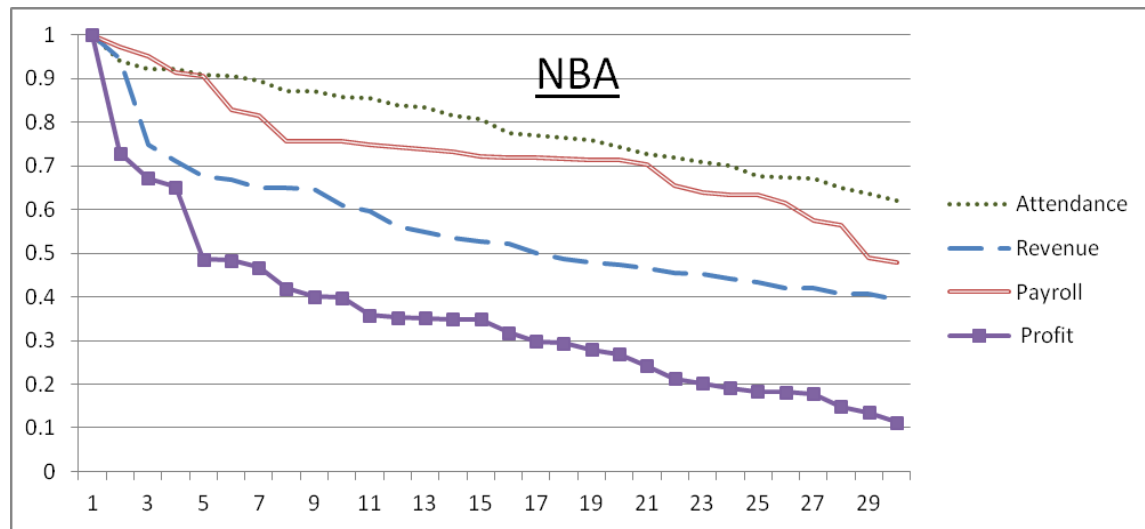


Figure 3-D. Rank – Power Curves for NBA



APPENDIX B

Performance Data for MLB

Team	Attendance	Revenue	Payroll	Profit
Arizona Diamondbacks	2,105,432	\$180,000,000	\$53,639,833	\$126,360,167
Atlanta Braves	2,373,940	\$201,000,000	\$87,002,692	\$113,997,308
Baltimore Orioles	1,755,461	\$175,000,000	\$85,304,038	\$89,695,962
Boston Red Sox	3,054,001	\$272,000,000	\$161,762,475	\$110,237,525
Chicago Cubs	3,017,966	\$258,000,000	\$125,047,329	\$132,952,671
Chicago White Sox	2,001,117	\$210,000,000	\$127,789,000	\$82,211,000
Cincinnati Reds	2,213,588	\$179,000,000	\$75,947,134	\$103,052,866
Cleveland Indians	1,840,835	\$168,000,000	\$48,776,566	\$119,223,434
Colorado Rockies	2,909,777	\$188,000,000	\$88,148,071	\$99,851,929
Detroit Tigers	2,642,045	\$192,000,000	\$105,700,231	\$86,299,769
Florida Marlins	1,477,462	\$143,000,000	\$56,944,000	\$86,056,000
Houston Astros	2,067,016	\$197,000,000	\$70,694,000	\$126,306,000
Kansas City Royals	1,724,450	\$160,000,000	\$35,712,000	\$124,288,000
Los Angeles Angels	3,166,321	\$222,000,000	\$138,543,166	\$83,456,834
Los Angeles Dodgers	2,935,139	\$246,000,000	\$104,188,999	\$141,811,001
Milwaukee Brewers	3,071,373	\$179,000,000	\$85,497,333	\$93,502,667
Minnesota Twins	3,168,116	\$213,000,000	\$112,737,000	\$100,263,000
New York Mets	2,352,596	\$233,000,000	\$118,847,309	\$114,152,691
New York Yankees	3,653,680	\$427,000,000	\$202,275,028	\$224,724,972
Oakland Athletics	1,476,791	\$161,000,000	\$66,536,500	\$94,463,500
Philadelphia Phillies	3,680,718	\$239,000,000	\$172,976,379	\$66,023,621
Pittsburg Pirates	1,940,429	\$160,000,000	\$45,047,000	\$114,953,000
San Diego Padres	2,143,018	\$159,000,000	\$45,869,140	\$113,130,860
San Francisco Giants	3,387,303	\$238,000,000	\$118,198,333	\$119,801,667
Seattle Mariners	1,939,421	\$204,000,000	\$86,110,600	\$117,889,400
St. Louis Cardinals	3,093,954	\$207,000,000	\$105,433,572	\$101,566,428
Tampa Bay Rays	1,529,188	\$166,000,000	\$41,053,571	\$124,946,429
Texas Rangers	2,946,949	\$206,000,000	\$92,299,264	\$113,700,736
Toronto Blue Jays	1,818,103	\$168,000,000	\$62,567,800	\$105,432,200
Washington Nationals	1,940,478	\$194,000,000	\$63,442,928	\$130,557,072

Source: <http://espn.go.com/mlb/attendance>

Source: http://www.forbes.com/lists/2011/33/baseball-valuations-11_land.html

Source: <http://content.usatoday.com/sportsdata/baseball/mlb/salaries/team>

Performance Data for NHL

Team	Attendance	Revenue	Payroll	Profit
Anheim Ducks	604,283	\$94,000,000	\$53,977,500	\$40,022,500
Boston Bruins	702,600	\$108,000,000	\$64,822,500	\$43,177,500
Buffalo Sabres	756,568	\$79,000,000	\$56,255,000	\$22,745,000
Calgary Flames	771,560	\$95,000,000	\$66,312,500	\$28,687,500
Carolina Hurricanes	656,611	\$82,000,000	\$45,735,000	\$36,265,000
Chicago Blackhawks	878,356	\$108,000,000	\$62,502,857	\$45,497,143
Colombus Blue Jackets	546,350	\$77,000,000	\$56,440,000	\$20,560,000
Colorado Avalanche	607,650	\$84,000,000	\$39,872,500	\$44,127,500
Dallas Stars	617,997	\$97,000,000	\$47,310,000	\$49,690,000
Detroit Red Wings	806,892	\$130,000,000	\$64,325,000	\$65,675,000
Edmonton Oilers	690,399	\$83,000,000	\$45,305,000	\$37,695,000
Florida Panthers	643,116	\$74,000,000	\$35,302,500	\$38,697,500
Los Angeles Kings	741,404	\$92,000,000	\$51,645,750	\$40,354,250
Minnesota Wild	720,508	\$95,000,000	\$56,035,000	\$38,965,000
Montreal Canadiens	872,193	\$130,000,000	\$63,245,833	\$66,754,167
Nashville Predators	661,861	\$71,000,000	\$51,387,500	\$19,612,500
New Jersey Devils	605,803	\$97,000,000	\$57,140,000	\$39,860,000
New York Islanders	453,456	\$62,000,000	\$29,727,500	\$32,272,500
New York Rangers	742,432	\$139,000,000	\$64,557,500	\$74,442,500
Ottawa Senators	753,525	\$90,000,000	\$50,083,333	\$39,916,667
Philadelphia Flyers	808,328	\$101,000,000	\$64,108,000	\$36,892,000
Phoenix Coyotes	487,543	\$66,000,000	\$48,212,500	\$17,787,500
Pittsburgh Penguins	729,628	\$93,000,000	\$67,737,500	\$25,262,500
San Jose Sharks	702,480	\$84,000,000	\$62,321,662	\$21,678,338
St. Louis Blues	785,150	\$80,000,000	\$34,350,000	\$45,650,000
Tampa Bay Lightning	708,022	\$80,000,000	\$56,812,500	\$23,187,500
Toronto Maple Leafs	793,522	\$168,000,000	\$51,235,000	\$116,765,000
Vancouver Canucks	773,260	\$109,000,000	\$70,975,000	\$38,025,000
Washington Capitals	754,309	\$83,000,000	\$68,425,000	\$14,575,000
Winnipeg Jets	552,230	\$68,000,000	\$39,035,750	\$28,954,250

Source: http://espn.go.com/nhl/attendance/_/year/2011Source: <http://www.forbes.com/nhl-valuations/>Source: <http://content.usatoday.com/sportsdata/hockey/nhl/salaries/team>

Performance Data for NFL

Team	Attendance	Revenue	Payroll	Profit
Arizona Cardinals	502,197	\$236,000,000	\$122,110,110	\$113,889,890
Atlanta Falcons	542,800	\$231,000,000	\$96,391,525	\$134,608,475
Baltimore Ravens	596,817	\$235,000,000	\$90,713,965	\$144,286,035
Buffalo Bills	442,366	\$228,000,000	\$113,364,927	\$114,635,073
Carolina Panthers	580,965	\$247,000,000	\$112,114,711	\$134,885,289
Chicago Bears	497,561	\$254,000,000	\$120,065,819	\$133,934,181
Cincinnati Bengals	482,917	\$232,000,000	\$109,727,880	\$122,272,120
Cleveland Browns	528,933	\$242,000,000	\$131,916,300	\$110,083,700
Dallas Cowboys	696,377	\$420,000,000	\$146,401,600	\$273,598,400
Denver Broncos	599,264	\$250,000,000	\$95,599,778	\$154,400,222
Detroit Lions	450,286	\$210,000,000	\$95,827,117	\$114,172,883
Green Bay Packers	566,362	\$242,000,000	\$94,018,300	\$147,981,700
Houston Texans	568,643	\$272,000,000	\$108,445,418	\$163,554,582
Indianapolis Colts	535,802	\$248,000,000	\$93,373,915	\$154,626,085
Jacksonville Jaguars	504,262	\$220,000,000	\$122,109,207	\$97,890,793
Kansas City Chiefs	541,380	\$235,000,000	\$83,623,776	\$151,376,224
Miami Dolphins	541,959	\$247,000,000	\$114,649,660	\$132,350,340
Minnesota Vikings	470,009	\$221,000,000	\$133,354,045	\$87,645,955
New England Patriots	550,048	\$318,000,000	\$92,734,120	\$225,265,880
New Orleans Saints	560,304	\$245,000,000	\$131,531,820	\$113,468,180
New York Giants	632,156	\$241,000,000	\$115,816,180	\$125,183,820
New York Jets	628,768	\$238,000,000	\$116,910,097	\$121,089,903
Oakland Raiders	371,448	\$217,000,000	\$152,389,371	\$64,610,629
Philadelphia Eagles	553,152	\$260,000,000	\$109,557,398	\$150,442,602
Pittsburgh Steelers	504,669	\$243,000,000	\$128,815,061	\$114,184,939
San Diego Chargers	524,241	\$233,000,000	\$111,813,340	\$121,186,660
San Francisco 49ers	488,124	\$226,000,000	\$118,766,239	\$107,233,761
Seattle Seahawks	535,942	\$241,000,000	\$102,985,710	\$138,014,290
St. Louis Rams	423,383	\$223,000,000	\$116,677,660	\$106,322,340
Tampa Bay Buccaneers	394,513	\$246,000,000	\$104,329,311	\$141,670,689
Tennessee Titans	553,144	\$242,000,000	\$126,017,443	\$115,982,557
Washington Redskins	665,380	\$353,000,000	\$111,963,684	\$241,036,316

Source: <http://espn.go.com/nfl/attendance>

Source: http://www.forbes.com/lists/2010/30/football-valuations-10_NFL-Team-Valuations_Rank.html

Source: <http://forums.chargers.com/archive/index.php/t-87259.html>

Performance Data for NBA

Team	Attendance	Revenue	Payroll	Profit
Atlanta Hawks	641,596	\$105,000,000	\$69,371,770	\$35,628,230
Boston Celtics	763,584	\$151,000,000	\$83,790,759	\$67,209,241
Charlotte Bobcats	649,694	\$98,000,000	\$65,880,884	\$32,119,116
Chicago Bulls	893,462	\$169,000,000	\$56,237,705	\$112,762,295
Cleveland Cavaliers	824,595	\$161,000,000	\$51,572,807	\$109,427,193
Dallas Mavericks	824,162	\$146,000,000	\$87,056,125	\$58,943,875
Denver Nuggets	692,968	\$113,000,000	\$83,020,059	\$29,979,941
Detroit Pistons	683,080	\$147,000,000	\$65,917,821	\$81,082,179
Golden State Warriors	766,398	\$119,000,000	\$65,571,058	\$53,428,942
Houston Rockets	663,839	\$153,000,000	\$74,581,719	\$78,418,281
Indiana Pacers	555,077	\$95,000,000	\$64,368,421	\$30,631,579
Los Angeles Clippers	727,462	\$102,000,000	\$52,668,803	\$49,331,197
Los Angeles Lakers	778,877	\$214,000,000	\$91,569,659	\$122,430,341
Memphis Grizzlies	600,687	\$92,000,000	\$67,162,338	\$24,837,662
Miami Heat	810,930	\$124,000,000	\$65,356,624	\$58,643,376
Milwaukee Bucks	631,910	\$92,000,000	\$69,353,506	\$22,646,494
Minnesota Timberwolves	624,960	\$95,000,000	\$44,899,891	\$50,100,109
New Jersey Nets	581,378	\$89,000,000	\$58,539,907	\$30,460,093
New Orleans Hornets	603,088	\$100,000,000	\$66,133,816	\$33,866,184
New York Knicks	808,879	\$226,000,000	\$58,102,438	\$167,897,562
Oklahoma City Thunder	744,068	\$118,000,000	\$57,954,586	\$60,045,414
Orlando Magic	777,852	\$108,000,000	\$89,139,596	\$18,860,404
Philadelphia 76ers	604,823	\$110,000,000	\$69,360,246	\$40,639,754
Phoenix Suns	720,249	\$147,000,000	\$65,452,079	\$81,547,921
Portland Trailblazers	840,924	\$127,000,000	\$68,419,112	\$58,580,888
Sacramento Kings	569,496	\$103,000,000	\$43,798,401	\$59,201,599
San Antonio Spurs	750,879	\$135,000,000	\$68,129,480	\$66,870,520
Toronto Raptors	679,208	\$138,000,000	\$67,596,462	\$70,403,538
Utah Jazz	799,982	\$121,000,000	\$75,785,355	\$45,214,645
Washington Wizards	688,466	\$107,000,000	\$60,066,811	\$46,933,189

Source: http://espn.go.com/nba/attendance/_/year/2011

Source: http://www.forbes.com/lists/2010/32/basketball-valuations-11_New-Orleans-Hornets_328959.html

Source: <http://content.usatoday.com/sportsdata/basketball/nba/salaries/team>

NOTES