

# Professional Sports Markets and the Success of Organizations

By Jill Ferris

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Core 100: Sports and the Scientific Method

Professor Segall

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Professional sports reign supreme in the United States. Teams from the four major professional sports leagues in North America – Major League Baseball (MLB), National Basketball Association (NBA), National Football League (NFL) and National Hockey League (NHL) – make their homes in an array of U.S. and Canadian cities from New York to Seattle. Some of these teams have been established in their present location for decades, while others are newer expansion franchises or were relocated to their present home. As these professional sports leagues continue to develop, new expansion teams are highly coveted and their locations are carefully decided upon. For each expansion slot, more than a half dozen cities might compete to offer the infant team a home. As various locations bid on expansion teams, the size of the potential market is often considered as a factor to determine a team's ultimate success. For leagues, success is determined financially, but for the majority of Americans – the fans – success is defined by winning.

Is there a relationship between the size of a franchise's market and its success as a team? Analyzing both Census and playoff data for a thirty year sample, it seems that overall there is a moderate correlation between the two, though looking at the data in five-year increments, this correlation is not always present.

## **Background**

Professional sports are an extremely profitable business in the United States. As Wilbert M. Leonard, II lists, “major revenue streams [for professional sports] include the sale of media rights (television and radio), ticket sales (including luxury boxes), concessions, parking, the sale of club emblems to merchandise their products, and the

sale of player contracts.”<sup>1</sup> Leagues hope to continue to draw profits by tapping into cities with large markets for professional sports, especially in regards to broadcasting.

For cities, the prospect of a professional sports team is very enticing. Common perception holds that professional sports teams create jobs and draw business to the local economy. Research has shown, though, that “the number of sports teams in a city has no statistical relationship to changes in employment.”<sup>2</sup> Despite little evidence of a notable impact on business development in host cities, in the past few decades many cities have invested large sums of public money in arenas and stadiums as incentive for the “hometown team” to remain in the hometown.<sup>3</sup> While economically professional sports teams do not have the purported impact on a city, according to Swindell and Rosentraub, they do have a positive impact on the fan base and quality of life.

In recent years, professional sports leagues have attempted to expand into markets previously untouched. In many instances, this means seeking a city with a ripe broadcasting market, though revenue-sharing measures in the NFL made such a market less enticing for the league, leaving Los Angeles – the second largest media market in the U.S. – without a professional football team in the 1990s.<sup>4</sup>

Professional sports leagues have also been expanding into untapped social markets. A 1991 MLB franchise expansion was granted to Miami, a location “regarded as

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<sup>1</sup> Wilbert M. Leonard, II, “A comparative study of expenditure, revenue, and franchise...” *Journal of Sport Behavior* 21, no. 3 (1998): 265. *Academic Search Premier, EBSCOhost* (accessed February 27, 2006).

<sup>2</sup> Ian Hudson, “Bright Lights, Big City: Do Professional Sports Teams Increase Employment?” *Journal of Urban Affairs* 21, no. 4 (1999): 397. *Academic Search Premier, EBSCOhost* (accessed February 27, 2006).

<sup>3</sup> David Swindell and Mark S. Rosentraub, “Who Benefits from the Presence of Professional Sports Teams?: The Implications for Public Funding of Stadiums and Arenas.” *Public Administration Review* 58, no. 1 (1998): 11-20. *Business Source Premier, EBSCOhost* (accessed March 7, 2006).

<sup>4</sup> Edward Robinson, “It’s Where You Play That Counts.” *Fortune* 136, no. 2 (1997): 54-57. *Business Source Premier, EBSCOhost* (accessed March 7, 2006).

the cultural center of both south Florida and the Caribbean.”<sup>5</sup> Owner H. Wayne Huizenga’s initial marketing strategy hoped to “capture the millions of baseball fans in Latin America.”<sup>6</sup> Around the same time, the NBA heard bids from several Canadian groups for expansion teams north of traditional league borders. “From the NBA perspective, the invasion of Canada is part of basketball’s manifest destiny,” Bob Levin wrote in a 1993 article for *Maclean’s*. In a study conducted prior to the granting of a Canadian NBA franchise, 28 percent of teens in the northern nation reported that they closely followed the NBA.<sup>7</sup> For the National Basketball Association, such expansion into Canada’s successful sports market was extremely attractive.

“This city [Houston, Texas] is so hungry to have pro football back,”<sup>8</sup> former Houston Oilers quarterback Gifford Nielsen was quoted as saying in a 2002 *USA Today* article about Houston’s new football franchise, the Texans. Senior vice-president of the organization Steve Patterson also commented, “Not having a football team here would be like not having a hockey team in Toronto.”<sup>9</sup>

While there are no set league guidelines as to how new franchise teams are to be awarded, the professional sports leagues look for similar criteria and weigh bids from prospective owners in making their decision. As the NFL prepared to announce two new franchise teams in 1992, a league spokesperson commented on criteria sought in a new host city:

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<sup>5</sup> “Dreams of fields.” *Economist* 319, no. 7711 (1991): 22-30. *Academic Search Premier, EBSCOhost* (accessed March 3, 2006).

<sup>6</sup> Jason Zweig and Joel Milliman. “Yanqui go to home.” *Forbes* 147, no. 12 (1992): 128. *Academic Search Premier, EBSCOhost* (accessed March 3, 2006).

<sup>7</sup> Bob Levin, “Hoops in Hogstown.” *Maclean’s* 106, no. 39 (1993): 11. *Academic Search Premier, EBSCOhost* (accessed March 3, 2006).

<sup>8</sup> Jarrett Bell, “Houston is back in the game.” *USA Today*, 1 August 2002, sec. C. *Academic Search Premier, EBSCOhost* (accessed March 1, 2006).

<sup>9</sup> *Ibid.*

A franchise candidate should start with a population of at least 1.6 million people, a per capita income near the U.S. average, and a healthy economy, according to NFL spokesman Greg Aiello. Cities should have fans who are willing to buy season tickets at several hundred dollars apiece, corporations ready to lease \$40,000-plus luxury “skyboxes,” and a lucrative TV market that is guaranteed to keep the NFL wealthy.<sup>10</sup>

In 1991 when Major League Baseball offered two expansion teams in the National League, both franchises “came down on the side of the cities whose investors had the deepest pockets: Miami, backed by the video-rental fortune of Wayne Huizenga, and Denver, bolstered by (among others) Coors beer.” Both were required demonstrate their wealth by paying a required \$95 million simply for consideration, in addition to \$20 million for team development.<sup>11</sup> Similarly, it was estimated that cost for a Canadian basketball franchise in the early 1990s would land somewhere around \$125 million, up from the \$40 million paid by Orlando and Minnesota in 1989.<sup>12</sup> Leagues are able to require such great costs to ensure that the new owners will support the organization, while at the same time feeding the wealth of the league.

The desire for the very few expansion teams awarded by the four professional sports leagues makes the process extremely contentious. “This was a roll of the dice...Houston was the right community, and the stars were aligned,”<sup>13</sup> Patterson said of Houston’s successful bid for a new team. The process is so controversial that the U.S.

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<sup>10</sup> L. Zelenko, “Mid-size cities blitz NFL for new franchise.” *American Demographics* 14, no. 1 (1992): 9. *Academic Search Premier, EBSCOhost* (accessed March 1, 2006).

<sup>11</sup> “Dreams of fields.”

<sup>12</sup> “Loonie tunes.” *Maclean’s* 106, no. 39 (1993): 11. *Academic Search Premier, EBSCOhost* (accessed March 3, 2006).

<sup>13</sup> Jarrett Bell, “Houston is back in the game.”

government has even gotten involved, attempting several times – especially in the 1980s – to pass legislation about the relocation of sports franchises.<sup>14</sup> According to a 1996 bill approved by the House Judiciary Committee, a city that lost a professional sports team to relocation would have three years to find a qualified investor, after which the league would have 12 months to offer the city a new franchise.<sup>15</sup> Though, as of yet, these resolutions have not become law, there is a strong impetus to legislate the process of professional sports franchising. Many of the Congressional sponsors of such legislation were from districts impacted by the process, either experiencing a loss of a team or hoping to gain a new franchise.

As it stands, many localities try to entice the professional sports leagues to grant them a team by making the city as attractive as possible. In addition to fronting millions of dollars to prove financial viability, cities vying for a professional sports franchise must also present an appealing market profile. As Charlotte, North Carolina and Memphis, Tennessee applied for NFL franchises in 1992, candidates combined the regions surrounding their respective markets into more attractive “mega-regions” in an effort to win one of two expansion teams.<sup>16</sup>

Finally, the presence of a ready sport-specific stadium is also highly attractive to professional sport leagues as they award highly coveted franchises. In the spirit of the famed Kevin Costner film “Field of Dreams,” cities have gambled on building a stadium in the hopes of winning a team.<sup>17</sup> As stadium economics play an increasing importance in

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<sup>14</sup> “Professional Sports Relocation Search,” *THOMAS Bills, Resolutions*, Library of Congress, 2006, <<http://thomas.loc.gov/cgi-bin/thomas>> (9 March 2006)

<sup>15</sup> Lisa Clagett Weintraub, “Panel approves preference in granting sports teams.” *Congressional Quarterly Weekly Report* 54, no. 17 (1996): 1169. *Academic Search Premier, EBSCOhost* (accessed March 3, 2006).

<sup>16</sup> L. Zelenko, “Mid-size cities blitz NFL for new franchise.”

<sup>17</sup> “Dream of fields.”

professional sports – teams increase their revenue which is then invested in players – the lure of a newer, more lucrative stadium also increases. Such stadiums are also enticing for established team owners to consider moving their franchise: the financial success of stadiums makes “owners are willing to pull up stakes, alienate devoted fans, and move clear across the country for a new stadium.”<sup>18</sup>

## Definitions, Methods and Limitations

This research looks at the success of teams based on market size, examining all teams from the four main professional sports leagues from 1975 to 2004. For the purposes of this study, a successful team is defined as a team earning a berth in the playoffs. Information on playoff appearances was compiled from a number of sources, namely the websites of the four major professional leagues.<sup>19</sup>

Markets, in the meantime, were defined by population of Metropolitan Statistical Areas (MSA) as defined by the U.S. Census Bureau as a location with “a large population nucleus together with adjacent communities that have a high degree of economic and social integration.”<sup>20</sup> It is assumed that a professional sports team is marketed to an area that extends beyond city and county limits, thus making the MSA a desirable classification as it includes both the city and its surrounding “feeder” communities. For many cities this is rather straightforward, however for some other MSAs such as Los Angeles, the population centers around two nuclei. As a result, teams based in other locations such as Anaheim are included as part of the Los Angeles MSA. This statistical

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<sup>18</sup> Edward Robinson, “It’s Where You Play That Counts.”

<sup>19</sup> Information about teams and playoff appearances was obtained from <http://nba.com>, <http://nhl.com>, <http://mlb.com>, <http://nfl.com>, <http://www.whowins.com>, <http://www.hickoksports.com/>, <http://www.sportingnews.com/archives/stanleycup/>, and <http://baseballreference.com/>. As the needed data was not centrally located, it took several weeks to compile a complete set of information.

<sup>20</sup> <http://www.census.gov/prod/cen1990/cph2/cph-2-1-1.pdf>

classification was new to the 1990 Census, so to accommodate this I used the Census Bureau's breakdown of MSAs by county and compiled data from earlier census counts to obtain figures for comparison.

For this study, data was broken up into five-year increments: 1975-79, 1980-84, 1985-89, 1990-94, 1995-99 and 2000-04 to allow for changes in population. Though in three of the leagues the seasons extend from one year into the next, data is included in the block appropriate to the year in which playoffs were held (ex: in the 1994-95 NFL season, playoffs were held in 1995 and are thus included in the 1995 data). Additionally, while the Census is taken every ten years in the United States, the Census Bureau releases yearly population estimates which the data for 1975, 1985 and 1995 are based upon.

Relocation and league expansion posed a challenge to my research as such changes often did not fall neatly within the six blocks of time that I established to analyze the playoff data. Instead, teams were created or relocated midway through an established time block, such as the Buffalo Braves (NBA) which played their last season in Buffalo in 1978. To accommodate these teams, population data was normalized. Each year that a franchise played in a city counts as a separate "team." [Table 1.] Population for each MSA is then multiplied by 5 (as data is broken into five-year increments) and divided by the Total Teams of that city to provide an average Population per Team (PPT). (For cities with less than five Total Teams per five-year increment, the formula was modified as Population per Team is equal to MSA population.)

**Table 1.**

<b>Team Name</b>	<b>Years in Houston</b>	<b>Total Teams 1995-99</b>
Houston Astros (MLB)	1965 to Present	5
Houston Rockets (NBA)	1971/72 to Present	5
Houston Oilers (NFL)	1960 to 1997	3
	<b>Total</b>	<b>13</b>



One of this study's limitations is that it does not include information about Canadian teams. Though several hockey, baseball and basketball franchises are located in Canada, the study relies heavily on U.S. Census data. Canada also conducts a census of its population, though it is held every five years, the most recent of which is underway right now in 2006.<sup>21</sup> As a result of the challenge of the Census data covering different spans of time, this study only focuses on franchises located in the United States.

Once the data was collected, the teams were divided into three groups based on Population per Team: small, medium and large markets. Taking into account population changes over time and the tendency for PPT to increase in more of an exponential manner, these groupings were made upon what seem to be natural points of division. Most delineations were made between cities with at least a 50,000 and 100,000 person difference in PPT for small to medium markets and medium to large markets, respectively.

To compare the data in an attempt to determine if a correlation exists between market size and team success, 2x2 tables were created. Within each five-year increment, success (making the playoffs) was compared to small and large markets. Additionally, data from the five-year increment 2x2 tables was compiled into a 2x2 table representing all of the data from the 30-year sample. An odds-ratio was also computed for each 2x2 table.

## Results

The results of this study are rather interesting, as shown in the data and 2x2 tables included in the Appendix. Overall, the odds of earning a playoff berth is 1.341 times

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<sup>21</sup> <http://www12.statcan.ca/english/census01/Info/history.cfm>.

higher as a large market team than the odds of earning a playoff berth as a small market team. While this does not demonstrate a particularly strong correlation, it does seem rather significant that small market teams are approximately 34% less likely to succeed in reaching the playoffs than a large market team.

The results of the individual five-year increments seem to be more telling, however. In both the 1975-79 and 1985-89 groups, the odds of a large market team reaching the playoffs are more than two times higher than the odds of a small market team achieving the same success. In the 1995-99 bracket, however, the odds ratio is .9897, suggesting that no strong correlation exists. The results by time bracket are thus so varied that the overall correlation seems less significant, though it is possible that the significance of the relationship between market size and appearing in the playoffs has changed over time.

Thus while a correlation does appear to exist between large market teams and playoff appearances, it is not an extremely strong correlation. Additionally, the individual increments suggest that at certain periods of time, especially earlier in the sample, show a higher correlation whereas at in later increments there is little to no statistical relationship shown.

These results are interesting as it seems to be a fair assessment that there is fundamentally some relationship between the two variables, however the variability over time suggests a changing relationship. Thus it is possible that there may be a more significant relationship between two more closely related variables, such as success and team budget which tend to be higher in larger markets. Further research into these other possibilities should be conducted, as should further research into different caveats of the

market size-success relationship that this study neglects such as Canadian populations and a historical analysis of such information. It also ignores the success of medium-sized market teams. Additionally, by changing the definitions of success and dividing large market and small market teams differently, different results might be obtained. In the meantime, as leagues seek to expand or relocate existing teams, those centered in larger population markets may be more successful than those in smaller markets.

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**Appendix 1: 1975-79**

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	0	5	168900	168900
Atlanta	Georgia	20	2	18	1762043	440510.75
Kansas City	Kansas	16	5	11	1420300	443843.75
Buffalo	New York	14	6	8	1313000	468928.5714
New Orleans	Louisiana	10	0	10	1217100	608550
St. Louis	Missouri	15	2	13	1900600	633533.3333
Phoenix	Arizona	10	2	8	1337700	668850
Minneapolis	Minnesota	15	4	11	2098200	699400
Denver	Colorado	11	5	6	1544700	702136.3636
San Diego	California	11	1	10	1616900	734954.5455
Milwaukee	Wisconsin	10	1	9	1569200	784600
Cincinnati	Ohio	10	4	6	1680600	840300
Houston	Texas	15	4	11	2572700	857566.6667
Cleveland	Ohio	17	1	16	3012300	885970.5882
Pittsburgh	Pennsylvania	15	9	6	2724600	908200
Seattle	Washington	11	4	7	2112300	960136.3636
Washington	D.C.	25	10	15	4811900	962380
San Antonio	Texas	3	2	1	1005700	1005700
San Francisco	California	25	6	19	5048300	1009660
Indianapolis	Indiana	3	0	3	1280500	1280500
Detroit	Michigan	20	2	18	5306600	1326650
Dallas	Texas	10	5	5	2676400	1338200
Portland	Oregon	5	2	3	1397500	1397500
Philadelphia	Pennsylvania	20	13	7	5686300	1421575
Tampa Bay	Florida	3	1	2	1425900	1425900
Boston	Massachusetts	20	10	10	6092540	1523135
Chicago	Illinois	25	7	18	8052500	1610500
Los Angeles	California	25	12	13	10539900	2107980
Miami	Florida	5	2	3	2362500	2362500
New York	New York	38	10	28	19359000	2547236.842
	2x2 Table	Playoffs	No Playoffs			
	Small-Market	28	109		Odds Ratio	0.441513761
	Large Market	64	110			

**Appendix 2:1980-84**

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	1	4	175280	175280
Buffalo	New York	15	5	10	1242826	414275.3333
Kansas City	Kansas	15	3	12	1449380	483126.6667
Phoenix	Arizona	15	4	11	1600093	533364.3333
San Diego	California	15	4	11	1861846	620615.3333
St. Louis	Missouri	15	6	9	1961260	653753.3333
Denver	Colorado	13	3	10	1741899	669961.1538
Atlanta	Georgia	16	4	12	2233236	697886.25
Minneapolis	Minnesota	15	6	9	2198190	732730
Milwaukee	Wisconsin	10	6	4	1570152	785076
Seattle	Washington	15	4	11	2408749	802916.3333
Cincinnati	Ohio	10	2	8	1726431	863215.5
Pittsburgh	Pennsylvania	15	3	12	2682098	894032.6667
Salt Lake City	Utah	5	1	4	910222	910222
Cleveland	Ohio	15	2	13	2938277	979425.6667
Washington	D.C.	24	6	18	4981785	1037871.875
Houston	Texas	15	4	11	3118480	1039493.333
Dallas	Texas	14	5	9	3046136	1087905.714
San Antonio	Texas	5	3	2	1088881	1088881
San Francisco	California	23	5	18	5367900	1166934.783
New Orleans	Louisiana	5	0	5	1304212	1304212
Indianapolis	Indiana	5	0	5	1305911	1305911
Detroit	Michigan	20	3	17	5293161	1323290.25
Philadelphia	Pennsylvania	20	10	10	5649031	1412257.75
Hartford	Connecticut	5	0	5	1539096	1539096
Portland	Oregon	5	1	4	1583518	1583518
Tampa Bay	Florida	5	2	3	1613600	1613600
Chicago	Illinois	25	6	19	8114861	1622972.2
Boston	Massachusetts	20	8	12	6731199	1682799.75
Los Angeles	California	28	14	14	11497549	2053133.75
New York	New York	42	18	24	18985915	2260227.976
Miami	Florida	5	4	1	2643766	2643766
	2x2 Table	Playoffs	No Playoffs			
	Small-Market	46	103		Odds Ratio	0.805236834
	Large Market	66	119			

## Appendix 3: 1985-89

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	0	5	183,201	183201
Indianapolis	Indiana	10	1	9	431590	215795
Buffalo	New York	10	4	6	1,191,856	595928
Phoenix	Arizona	15	1	14	1931978	643992.6667
New Orleans	Louisiana	10	1	9	1349897	674948.5
Kansas City	Kansas	11	2	9	1504461	683845.9091
St. Louis	Missouri	14	6	8	2016795	720283.9286
Minneapolis	Minnesota	15	4	11	2333985	777995
Milwaukee	Wisconsin	10	4	6	1559631	779815.5
Atlanta	Georgia	15	3	12	2,577,191	859063.6667
Pittsburgh	Pennsylvania	15	2	13	2588694	862898
Seattle	Washington	15	4	11	2608907	869635.6667
Cincinnati	Ohio	10	1	9	1755018	877509
Cleveland	Ohio	15	5	10	2880458	960152.6667
Denver	Colorado	10	6	4	1943038	971519
Salt Lake City	Utah	5	2	3	1019419	1019419
Charlotte	North Carolina	1	0	1	1,057,505	1057505
San Diego	California	10	0	10	2,126,090	1063045
Houston	Texas	15	6	9	3607794	1202598
Dallas	Texas	15	3	12	3641222	1213740.667
San Antonio	Texas	5	0	5	1242308	1242308
Sacramento	California	4	0	4	1250764	1250764
Detroit	Michigan	20	8	12	5108411	1277102.75
Washington	D.C.	20	6	14	5393717	1348429.25
Philadelphia	Pennsylvania	20	8	12	5724236	1431059
San Francisco	California	20	11	9	5821131	1455282.75
Boston	Massachusetts	20	11	9	6,317,460	1579365
Hartford	Connecticut	5	4	1	1,587,643	1587643
Chicago	Illinois	25	11	14	8,129,629	1625925.8
Portland	Oregon	5	1	4	1642011	1642011
Los Angeles	California	35	16	19	12,855,582	1836511.714
Tampa Bay	Florida	5	0	5	1,877,018	1877018
New York	New York	45	15	30	19439187	2159909.667
Miami	Florida	6	1	5	2909829	2424857.5
	2x2 Table	Playoffs	No Playoffs			
	Small-Market	33	122		Odds Ratio	0.392857143
	Large Market	84	122			



## Appendix 4: 1990-94

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	2	3	195,281	195281
Buffalo	New York	10	9	1	1,190,154	595077
Minneapolis	Minnesota	19	7	12	2,548,237	670588.6842
Indianapolis	Indiana	10	1	9	1,385,411	692705.5
Phoenix	Arizona	15	4	11	2,245,805	748601.6667
Kansas City	Kansas	10	5	5	1,587,103	793551.5
Pittsburgh	Pennsylvania	15	10	5	2,395,152	798384
Milwaukee	Wisconsin	10	0	10	1,609,745	804872.5
Denver	Colorado	12	3	9	1,986,386	827660.8333
Cincinnati	Ohio	10	2	8	1,822,180	911090
Cleveland	Ohio	15	3	12	2,861,936	953978.6667
Atlanta	Georgia	15	5	10	2,977,823	992607.6667
Seattle	Washington	15	2	13	2,993,065	997688.3333
Salt Lake City	Utah	5	3	2	1,076,605	1076605
Hartford	Connecticut	5	3	2	1,158,404	1158404
Charlotte	North Carolina	5	1	4	1,167,983	1167983
Miami	Florida	13	3	10	3,204,726	1232586.923
Orlando	Florida	5	0	5	1,239,115	1239115
St. Louis	Missouri	10	5	5	2,496,138	1248069
Houston	Texas	15	7	8	3,753,179	1251059.667
Dallas	Texas	16	5	11	4,057,610	1268003.125
New Orleans	Louisiana	5	3	2	1,284,096	1284096
Detroit	Michigan	20	9	11	5,192,185	1298046.25
San Antonio	Texas	5	2	3	1,327,378	1327378
Boston	Massachusetts	20	9	11	5,458,193	1364548.25
San Francisco	California	23	8	15	6,289,919	1367373.696
Philadelphia	Pennsylvania	20	5	15	5,899,602	1474900.5
Tampa Bay	Florida	7	0	7	2,075,572	1482551.429
Sacramento	California	5	0	5	1,520,816	1520816
Chicago	Illinois	25	14	11	8,255,572	1651114.4
Washington	D.C.	20	8	12	6,748,028	1687007
Portland	Oregon	5	3	2	1,806,100	1806100
Los Angeles	California	40	9	31	14,593,669	1824208.625
New York	New York	45	19	26	19,575,426	2175047.333
San Diego	California	5	0	5	2,513,216	2513216
	2x2 Table	Playoffs	No Playoffs			
	Small-Market	41	65		Odds Ratio	1.239787798
	Large Market	58	114			

**Appendix 5: 1995-99**

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	4	1	210,126	210126
Nashville	Tennessee	10	1	9	1,092,171	546085.5
Denver	Colorado	19	8	11	2,226,451	585908.1579
Buffalo	New York	10	8	2	1,180,896	590448
Charlotte	North Carolina	9	2	7	1,286,363	714646.1111
Indianapolis	Indiana	10	6	4	1,474,431	737215.5
Phoenix	Arizona	17	6	11	2,661,324	782742.3529
Pittsburgh	Pennsylvania	15	8	7	2,386,039	795346.3333
Milwaukee	Wisconsin	10	0	10	1,644,072	822036
Kansas City	Kansas	10	2	8	1,674,045	837022.5
Miami	Florida	20	8	12	3,481,715	870428.75
Tampa Bay	Florida	12	3	9	2,175,213	906338.75
St. Louis	Missouri	14	7	7	2,542,492	908032.8571
Minneapolis	Minnesota	15	4	11	2,725,644	908548
Cincinnati	Ohio	10	1	9	1,906,557	953278.5
Cleveland	Ohio	15	5	10	2,913,287	971095.6667
Jacksonville	Florida	4	4	0	980,737	980737
Rayleigh	North Carolina	2	1	1	992,792	992792
Memphis	Tennessee	1	0	1	1,064,149	1064149
Seattle	Washington	15	6	9	3,262,707	1087569
San Francisco	California	29	8	21	6,547,788	1128928.966
Hartford	Connecticut	3	0	3	1,143,093	1143093
Atlanta	Georgia	15	10	5	3,430,377	1143459
Salt Lake City	Utah	5	4	1	1,207,544	1207544
New Orleans	Louisiana	5	0	5	1,310,655	1310655
San Diego	California	10	3	7	2,641,561	1320780.5
Detroit	Michigan	20	8	12	5,379,527	1344881.75
Boston	Massachusetts	20	10	10	5,523,172	1380793
Orlando	Florida	5	2	3	1,389,986	1389986
San Antonio	Texas	5	4	1	1,455,758	1455758
Dallas	Texas	15	8	7	4,447,101	1482367
Arlington	Texas	5	3	2	1,488,292	1488292
Philadelphia	Pennsylvania	20	8	12	5,974,857	1493714.25
Washington	D.C.	23	6	17	7,081,953	1539555
Houston	Texas	13	6	7	4,150,131	1596204.231
Sacramento	California	5	0	5	1,629,941	1629941
Chicago	Illinois	25	8	17	8,636,916	1727383.2
Portland	Oregon	5	1	4	2,025,264	2025264
New York	New York	45	20	25	19,852,073	2205785.889
Los Angeles	California	32	9	23	15,259,292	2384264.375
	2x2 Table	Playoffs	No Playoffs			
	Small-Market	67	109		Odds Ratio	1.010431067
	Large Market	73	120			

**Appendix 6: 2000-04**

City	State	Total Teams	Total Playoffs	No Playoffs	Population	Population Per Team
Greenbay	Wisconsin	5	4	1	282,599	282599
Denver	Colorado	20	9	11	2,464,890	616222.5
Buffalo	New York	10	2	8	1,252,870	626435
Nashville	Tennessee	10	4	6	1,386,986	693493
Tampa Bay	Florida	15	5	10	2,395,997	798665.6667
Phoenix	Arizona	20	6	14	3,251,876	812969
Pittsburgh	Pennsylvania	15	5	10	2,523,884	841294.6667
Milwaukee	Wisconsin	10	3	7	1,691,294	845647
Minneapolis	Minnesota	19	8	11	3,285,046	864485.7895
St. Louis	Missouri	15	13	2	2,757,596	919198.6667
Indianapolis	Indiana	10	7	3	1,849,750	924875
Kansas City	Kansas	10	1	9	1,908,039	954019.5
New Orleans	Louisiana	7	3	4	1,359,634	971167.1429
Cleveland	Ohio	15	2	13	2,946,894	982298
Cincinnati	Ohio	10	0	10	2,055,174	1027587
Jacksonville	Florida	5	0	5	1,122,750	1122750
Atlanta	Georgia	20	7	13	4,583,927	1145981.75
San Francisco	California	30	16	14	7,114,984	1185830.667
Charlotte	North Carolina	8	3	5	1,908,511	1192819.375
Seattle	Washington	15	4	11	3,614,199	1204733
Memphis	Tennessee	5	1	4	1,205,204	1205204
Miami	Florida	20	6	14	5,007,564	1251891
Washington	D.C.	30	6	24	7,603,314	1267219
Rayleigh	North Carolina	5	2	3	1,321,630	1321630
Detroit	Michigan	20	8	12	5,366,154	1341538.5
Dallas	Texas	20	9	11	5,413,219	1353304.75
San Diego	California	10	1	9	2,813,833	1406916.5
Boston	Massachusetts	20	11	9	5,729,912	1432478
Philadelphia	Pennsylvania	20	13	7	5,839,997	1459999.25
Salt Lake City	Utah	5	2	3	1,475,563	1475563
Orlando	Florida	5	1	4	1,709,936	1709936
San Antonio	Texas	5	4	1	1,711,703	1711703
Columbus	Ohio	5	0	5	1,841,593	1841593
Chicago	Illinois	25	4	21	9,333,801	1866760.2
Portland	Oregon	5	2	3	1,927,881	1927881
Sacramento	California	5	4	1	1,942,548	1942548
Houston	Texas	12	3	9	4,840,989	2017078.75
New York	New York	45	24	21	21,404,951	2378327.889
Los Angeles	California	30	12	18	16,438,558	2739759.667

2x2 Table	Playoffs	No Playoffs		
Small-Market	46	78	Odds Ratio	0.90645774
Large Market	54	83		

**Appendix 7: 2x2 Tables and Odds Ratios.**

1975-79	2x2 Table	Playoffs	No Playoffs
	Large Market	64	110
	Small-Market	28	109
	Odds Ratio	2.264935	
1980-84	2x2 Table	Playoffs	No Playoffs
	Large Market	66	119
	Small-Market	46	103
	Odds Ratio	1.241871	
1985-89	2x2 Table	Playoffs	No Playoffs
	Large Market	84	122
	Small-Market	33	122
	Odds Ratio	2.545455	
1990-94	2x2 Table	Playoffs	No Playoffs
	Large Market	58	114
	Small-Market	41	65
	Odds Ratio	0.80659	
1995-99	2x2 Table	Playoffs	No Playoffs
	Large Market	73	120
	Small-Market	67	109
	Odds Ratio	0.989677	
2000-04	2x2 Table	Playoffs	No Playoffs
	Large Market	54	83
	Small-Market	46	78
	Odds Ratio	1.103195	
Total	2x2 Table	Playoffs	No Playoffs
	Large Market	399	668
	Small-Market	261	586
	Odds Ratio	1.341076	