

# Will Major League Sports Ever Come to Oklahoma?

Jonathan C. Comer<sup>1</sup> and Tracy H. Newsome<sup>2</sup>

<sup>1</sup>Department of Geography, Oklahoma State University, Stillwater, OK 74078

<sup>2</sup>Department of Geography, University of South Florida, Tampa, FL 33620

**This study analyzed the present and future viability of major league sports franchises in Oklahoma. In the 1997 National Hockey League (NHL) expansion, six finalist cities competed for four new franchises. Oklahoma City was one of two finalist cities that did not receive a team. This indicates that Oklahoma City still lacks some important qualities necessary for successfully competing for a new franchise. To identify and quantify these qualities, geographic and demographic characteristics of Oklahoma City and Tulsa were compared to new entrants into the major leagues. Using nearest neighbor methods, Central Place Theory concepts, and regression analysis, we examined why Oklahoma's largest cities still lack major league teams and evaluated future expansion prospects in all four leagues. This study focuses on Oklahoma City because of its recent failed NHL bid, though Tulsa is also considered. The results indicate several factors limiting Oklahoma's entry into major league sports: strong presence of existing teams in neighboring states, seven in Texas, five in Missouri, and four in Colorado; the nearness of competing cities; and a small urban population. However, given the rapid rate of league expansions in the 1990s, these factors may become less significant as the major leagues seek out new markets for new teams. ©1998 Oklahoma Academy of Science**

## INTRODUCTION

This study analyzed the geographic factors that to date have prevented Oklahoma City, and the State of Oklahoma in general, from entering the ranks of big league cities, those having top-level professional sports teams. Oklahoma City's 1997 attempt to secure a hockey team highlighted the necessary ingredients for winning an expansion franchise, which include television market size, general economic health, availability of facilities, and various locational factors. The first three factors listed received moderate press in the Oklahoma City and Tulsa media. We examined more explicitly geographic factors to better understand why Oklahoma City and Tulsa have not been considered viable locations for teams. This analysis focused on the relative location and the attractiveness of Oklahoma City and Tulsa, as the state's dominant metropolitan areas, to the major sports leagues in North America. We also addressed the state's likely future prospects for expansion activities beyond 2000 as the four leagues continue to respond to the seemingly insatiable demand for sports in the United States.

This paper compared the situations of Oklahoma City and Tulsa to cities that have successfully gained expansion sports franchises. Our specific goal was to identify geographic factors that would help explain why Oklahoma City has, in general, been overlooked by professional sports. Relocation activities were not evaluated for reasons explained later in this paper. Our analysis included two distinct but closely related concepts that offer appropriate ways of evaluating Oklahoma's current and future prospects in the United States professional sports environment. First, we used a form of nearest neighbor analysis to evaluate sports saturation levels with respect to major league sports teams in this part of the country.

Recognizing that distance to competitors is not a strictly limiting factor to expansion success, the second part of our analysis identified Oklahoma City's and Tulsa's places in the United States urban hierarchy. Drawing on Central Place Theory (CPT), this analysis quantified the general trend between city size and the presence of professional sports teams and allowed us to determine how far from the current norms these two cities lie.

Research on professional sports is a rel-

atively new area of inquiry. Today, due to the phenomenal rate at which new facilities are being built, the most significant trend in professional sports is stadium and arena construction (1). Since virtually all new stadiums and arenas are built with public funds, most academic work related to professional sports has focused on the economic impacts and costs of facilities and the increasing willingness of city governments to subsidize professional sports (2-5). Some work on the geographic patterns of facility construction has been initiated (6), but analytical research on the locational characteristics and preferences of professional sports in North America is an empty field. Therefore, to provide the context for our research and to understand the overall trends in professional team sports in the 1990s, we will first briefly review the recent patterns of league expansions and related activities.

**Professional Team Sports Leagues in the 1990s:** Major league team sports are experiencing a boom period in the 1990s. The four top-level team sports leagues in North America, the National Basketball Association (NBA), the National Football League (NFL), the National Hockey League (NHL), and Major League Baseball (MLB), have grown extensively, both in numbers of teams and in value (7). Expansion activity, which had been fairly dormant in the early 1980s, began picking up in the late 1980s and has continued unabated since. Between 1981 and 1987, no new franchises were granted. From 1988 to 1997, 15 expansion franchises came into existence, two each in baseball and football, five in hockey, and six in basketball. One hockey and two baseball teams will begin play in 1998, with three additional hockey teams being added by 2000. Cleveland has been promised an NFL expansion team in 1999. Thus, 22 teams will have been added to the major league ranks between 1988 and 2000, raising the total for all four leagues from 98 to 120 in that period.

The absence of an NFL team in Los Angeles notwithstanding, the upper levels of the American urban hierarchy are saturated with sports teams. The top 10 United States metropolitan areas accounted for 49 of the 103 United States teams that were in existence in 1997, and Canada's six largest cities accounted for all 10 Canadian teams. Because of this saturation, smaller metropolitan markets have become viable locations for major league sports teams (8) as the rising popularity of sports dictates increasing the supply of the product. The United States expansions since 1988 have increasingly occurred in third-or fourth-tier cities in the urban hierarchy, such as Nashville, Charlotte, and Jacksonville. Whether Oklahoma City or Tulsa fit this profile is discussed in more detail later. In general, though, excluding recent hockey expansions into Anaheim (part of the second-largest metropolitan area, Los Angeles) and San Jose (part of the fifth-largest metropolitan area, San Francisco), the 11 other cities that will have received expansion franchises between 1988 and 2000 have an average population rank of 25.5 in the United States (New York City is ranked first), based on 1990 metropolitan area populations (9).

Oklahoma City, the forty-second largest metropolitan area in 1990 (1996 population estimates place it forty-third), recently tried to become a big league city by pursuing an NHL expansion franchise in 1997 and was one of six finalist cities. Atlanta; Columbus, Ohio; Minneapolis-St. Paul; and Nashville were awarded franchises and will begin play between 1998 and 2000. Oklahoma City and Houston, the other two finalists, were not successful. The Oklahoma press indicated that Oklahoma City's small size, especially its television market, doomed its NHL bid (10). However, we feel that there were other factors at work as well. In particular, using comparisons to the cities that have been successful in obtaining teams both in the past and more recently, we have demonstrated that certain geographic factors in combination with city size contributed to Oklahoma City's failure to secure an NHL franchise. Because the rules regarding relocations are much more flexible and dependent on the needs of the present team owner than on league policy or planning, in this paper we have focused only on expansion franchises for all four leagues. Several methods highlight the geographic limitations that prevented Oklahoma City from getting an NHL

team in 1997 or being a viable contender in the other leagues. Individually, these limits may not explicitly factor into the leagues' decision making processes, but in aggregate they demonstrate that the State of Oklahoma does not yet possess the crucial features the four major leagues are looking for in new markets.

## METHODS

The research presented here focuses only on the United States urban landscape and its four top-level professional team sports leagues. Canada is excluded because its six largest cities contain all 10 of its teams, and its low population density limits the range of possible locations to only the very largest cities. This has become even more notable since 1995, as Canada's seventh and eighth largest cities, Winnipeg and Quebec, recently lost their NHL franchises to Phoenix and Denver, respectively. Thus, the distribution of professional sports has become even more concentrated in the largest cities in Canada, and this pattern seems unlikely to change. On the other hand, the United States has a much higher population density, a more extensive system of large metropolitan areas, and 103 of the 113 professional sports teams, as of 1997, in the four major leagues. American teams have always dominated the four leagues numerically, and all recent expansions, except in the NBA, have been in the United States.

All analyses are based on the final destination for relocating teams. Hence, statistics for the Carolina Hurricanes (NHL), who are currently playing in Greensboro, are based on Raleigh. Similarly, the Tennessee Oilers (NFL), who played in Memphis in 1997, are bound for Nashville.

In order to better understand why major league sports have not come to Oklahoma, we pursued two separate but related lines of investigation:

1. **Relative Location.** The nearness of existing teams in nearby cities acts as a damper on Oklahoma City and Tulsa's viability as host cities. Too many teams in nearby cities and states saturates the market for sports in an area; using nearest neighbor methods, we compared the saturation level of Oklahoma City and Tulsa to successful expansion cities.
2. **Place in the United States Urban Hierarchy.** Central Place Theory would suggest a strong relationship between a city's size and the number of teams it can support. Using regression analysis, we quantified this relationship to see whether Oklahoma City and Tulsa fit the current profile of major league cities.

These two geographic concepts are strongly related. Cities like Denver and Minneapolis grew and prospered in sparsely populated and relatively isolated areas because of the need for centralized service functions in their respective regions. This in turn made them viable, and generally successful, host cities for sports teams. However, relative location and place in the urban hierarchy do capture two distinct geographic characteristics of cities. Large Metropolitan Statistical Areas (MSAs) like Hartford and Providence are located in the shadows of New York City and Boston, and are unlikely to win expansion franchises in the future. Alternatively, a smaller city in isolation like Billings, Montana, probably lacks the necessary regional fan base to successfully support a team despite having no nearby competition. Thus, we felt it was important to evaluate separately in our analysis the effects of city size and relative location.

To better evaluate the presence of sports in neighboring markets and states, and how Oklahoma's relative location compares nationwide, a measure of saturation was examined on a league-by-league basis. One simple means of evaluating saturation involves identifying the nearest neighbor city that has a team in a league that Oklahoma City, or other expansion hopefuls, are pursuing. We were then able to compare Oklahoma City's and Tulsa's saturation levels to cities that successfully won expansion franchises. Using a distance matrix of highway mileages between major league cities, each city's nearest neighbor was identified on a league-by-league basis. Averaging these distances for all the cities in each of the four leagues provided a comparison of Oklahoma's saturation to the present sports environment.

To illustrate how Oklahoma's two largest metropolitan areas fit into the United States urban hierarchy and to quantify their potential as major league hosts, we correlated the city size and number of teams for those cities currently hosting major league sports franchises. The extent to which Oklahoma's cities deviate from the league norms regarding city size and the presence of teams indicates how different Oklahoma City and Tulsa are from the typical major league city. Using the 36 United States MSAs and Consolidated Metropolitan Statistical Areas (CMSAs) that hosted at least one of the 102 teams that existed in 1997 (excluding Green Bay), we ran several simple bivariate regressions between the number of teams in each metropolitan area, the dependent variable, and the city's size, the independent variable. The first two models were based on 1990 metropolitan area populations (9) because that was the date of the last census taken in the United States and the expansion activities that occurred up through the mid-1990s were likely based on the socioeconomic trends measured by that census. These two models were:

1. Model 1A - number of teams in 1997 versus the natural logarithm of 1990 population.
2. Model 2A - number of teams in 1997 versus the 1990 population rank.

The natural logarithm of the population was used instead of the raw population to linearize a mildly curved relationship between the variables; Bale (11) also found the need to exclude Green Bay and to use a log scale for population in similar research.

To evaluate how the upcoming expansions of 1998 through 2000 affect this relationship, another pair of regressions were run incorporating the planned expansions through 2000 that will add one more city, Columbus, and seven more teams to the ranks of the major leagues, raising the total to 37 observations (metropolitan areas) and 109 teams. To capture the dynamics of population change in the late 1990s, 1996 population estimates for the CMSAs and MSAs, based on 1990 definitions, were used (9). Though estimates cannot replace a full census, we felt it was important to capture the varying population growth rates of American cities in the late 1990s, so long as the estimates were based on, and consistent with, the 1990 metropolitan statistics and, ranks used in Models 1A and 2A. These two models were:

1. Model 1B - number of teams in 2000 versus the natural logarithm of 1996 estimated population.
2. Model 2B - number of teams in 2000 versus the 1996 estimated population rank.

## RESULTS and DISCUSSION

**Oklahoma's Relative Location:** An important aspect of Oklahoma's viability in supporting a major league sports team is its location relative to existing teams in nearby markets. Sixteen teams exist in six metropolitan areas in neighboring states - Dallas, Denver, Houston, Kansas City, San Antonio, and St. Louis. There is an almost even distribution among the four leagues, three NHL, four NBA, four NFL, and five MLB teams. This does not imply that Oklahomans make lengthy road trips to these cities, but rather indicates that the regional fan base and television pull of the nearby markets heavily overlap in Oklahoma, potentially inhibiting a strong sports market in the state.

This strong coverage in nearby cities and neighboring states could be seen by league offices as adequately fulfilling the need for professional sports in Oklahoma, and not being worth the risk of starting a new franchise. Directly, the leagues do not incur a financial risk in starting new franchises; the 1997 hockey expansion required an \$80 million payment to the NHL by each new franchise (12), to be split evenly among existing teams for the inconvenience of having their percentages of league profit-sharing revenues decreased. Indirectly, however, the leagues do risk long term profitability because new franchises usually require lengthy time periods to cultivate fans and become competitive and profitable. Additionally, the leagues must be careful not to over-saturate the market for sports, possibly leading to an overall decline in television viewership, game attendance, and merchandise sales. The nearest neighbor approach

used here allows us to measure saturation in this context and from a geographic perspective.

One issue associated with nearest neighbor analysis is the problem of edge effects, created here by coastal or international boundaries, in which activities are compressed up to the edge of the boundary. Due to these edge effects, the average nearest neighbor distances might be artificially inflated along the coast. However, these same edge effects help account for the higher population densities along the coasts, supporting the idea that smaller markets *in more densely populated areas* are most likely to gain franchises. In the context of our research problem, then, a coastal bias caused by edge effects is a meaningful characteristic of the socioeconomic environment that supports higher order activities like major league sports.

The average nearest neighbor distance for the current 27 NBA franchises in the United States is 353.7 km, the 26 MLB franchises is 407.8 km, the 30 NFL franchises is 464.9 km, and the 20 NHL franchises is 493.9 km. Based only on the nearest neighbor statistics, the recent Oklahoma City bid for an NHL expansion franchise appears to have had merit, both in lower saturation levels for existing hockey franchises in the United States as well as in the lower overall number of teams. In reviewing Oklahoma City's relative location, however, Dallas has a team in each of the four leagues and is only 335 km distant. Dallas exerts a strong influence on the Oklahoma market and should be a strong negative factor on Oklahoma City's chances to secure an expansion franchise. Tulsa's relative location appears to be only slightly more favorable. In terms of hockey and basketball competition, Dallas is its nearest neighbor at 536 km. Kansas City, 386 km distant, represents Tulsa's nearest competition in football and baseball.

However, Oklahoma City's nearness to Dallas is not, by itself, a limiting factor. The NBA has competing MSAs or CMSAs a mere 132 km apart, for example Sacramento and the San Francisco-Oakland-San Jose conurbation. The MLB has teams in Chicago and Milwaukee, only 148 km apart. In the NFL and the NHL, the closest competing CMSAs are New York City and Philadelphia, 175 km apart. However, all of these metropolitan areas are considerably larger than Oklahoma City or Tulsa and rank much higher in the United States urban hierarchy. Three of the four successful cities in the 1997 NHL expansion (Table 1) are more distant from their nearest neighbors than is Oklahoma City from Dallas. Thus, the leagues appear well aware of the need to keep their franchises spread out as much as possible to avoid an excessive overlap of the fan bases. Columbus' successful NHL bid, despite its nearness to Pittsburgh and Detroit, can even be understood in this light. The new Columbus franchise will be the only NHL team in the state, providing a built-in exclusive territory of the state's approximately 11 million people who show little allegiance to either the Penguins or the Red Wings, the only nearby NHL teams. Oklahoma, in comparison, has only 3.3 million people in a territory 70% larger than Ohio (13).

Interestingly, the 1998 MLB expansion into Tampa and Phoenix will slightly raise the average nearest neighbor distance in baseball, from 407.8 to 416.0 km. Similarly, the addition of the four NHL expansion teams by 2000 will raise the NHL average nearest neighbor distance from 493.9 to 499.1 km, indicating that the late 1990s league expansions have favored isolated and larger, under-served markets.

An important modifying effect of saturation is population density. The smallest nearest neighbor distances in the four leagues are either on the east coast, the west coast, or in

TABLE 1. Finalist cities in 1997 NHL expansion and for each, the nearest city with an existing NHL team.

Expansion Finalist	Nearest NHL Neighbor	Distance (km)
Columbus	Pittsburgh	301
Oklahoma City <sup>a</sup>	Dallas	335
Houston <sup>a</sup>	Dallas	396
Nashville	St. Louis	504
Atlanta	Raleigh	623
St. Paul	Chicago	658

a. Did not receive NHL expansion franchise in 1997.

the Great Lakes region - the primary population clusters in the United States and the locations of the highest overall population densities. The Great Plains and Mountain regions, alternatively, are the least populated, so a 150-160 km radius, a theoretical market boundary between Oklahoma City and Dallas, encompasses many fewer prospective sports fans and television viewers in the middle portion of the United States. One should expect the leagues to award more teams to locations with higher population densities, and this top-down hierarchical diffusion process can be clearly seen in the four leagues. Because over time the top levels of the urban hierarchy had become saturated with teams, though, the 1980s marked the beginning of a new era in American sports. Thus, more middle- and smaller-market cities have become viable as sports franchise hosts, as witnessed by recent expansions into the Carolinas, Nashville, Columbus, and Jacksonville. However, the extent to which Oklahoma City or Tulsa qualify as middle- or smaller-market metropolitan areas is an important one and is addressed next.

**Oklahoma City and Tulsa in the United States Urban Hierarchy:** The diffusion of major league professional sports from the top of the urban hierarchy to lower levels has been a notable trend in the 1980s and 1990s, bringing teams to smaller cities that rank in the 30s and even 40s in the United States urban hierarchy. Central Place Theory, first proposed by German economist Walter Christaller (14), describes the role of the city as a service center and predicts the location and spacing of cities based on the range of goods and services offered. Based on theoretically ideal hexagonal trade, or catchment, areas, the order of a place is defined as its relative ranking in the urban hierarchy. Larger cities are considered higher order because they offer more variety of goods as well as higher priced goods such as luxury car dealerships or professional sports teams that are not available in lower order places. Also, higher order places have larger catchment areas that draw consumers to retail and service outlets (15). A standard CPT model consists of a multitude of different order places simultaneously, all serving specific roles in the service economy depending on their size. Higher order hexagonal trade areas are subdivided by the hexagonal trade areas of continually smaller and smaller order places. From the geometry of the size and arrangement of hexagonal trade areas at each level of the hierarchy, the expected number and spacing of central places can be predicted, as can the ratio of the number of smaller to larger central places (16).

CPT is integral to understanding the distribution of top-level professional sports teams among American cities. Bale (11) applied CPT concepts to sports geography by adapting several of the classic features of the model to sports activities. The primary characteristics of his definitions are that higher order places offer a greater number of sports, have larger catchment areas, and are fewer and farther between than lower order places. Because top-level professional sports teams are so rare and require large catchment areas to provide the necessary fan support, sports teams in North America have historically been concentrated in the top levels of the central place hierarchy. Using a fairly typical categorization of United States cities into orders, New York City represents the only first-order place in the United States (17). It has the nation's largest catchment, or market area, in terms of population, and it also has the largest number of teams with nine, including the NHL New Jersey Devils. The six second-order places, Los Angeles, Chicago, San Francisco, Philadelphia, Boston, and Detroit, all host at least one team in each of the four leagues, and the 17 third-order places, ranging from Washington, D.C.-Baltimore as the largest to New Orleans as the smallest, have at least one team and usually two to four.

Through the 1980s, major league teams were heavily concentrated in the top three orders of the United States urban hierarchy, with a small number of teams in fourth-order places like Indianapolis and Buffalo. By the 1990s, it appears the saturation level of sports in the top three levels has been reached, and recent expansions have focused primarily on fourth-order places like Jacksonville, Charlotte, and Nashville. The current CPT hierarchy of ur-

ban places requires further refinement in light of the particular good being studied here, professional sports, a research direction we intend to pursue. However, basic concepts of CPT still apply. In particular, CPT predicts more cities at each successively lower order of the hierarchy. Thus, with one first-order place, six second-order places, and 17 third-order places, CPT concepts indicate that there should be at least 30 fourth-order places in the United States, if not more. This would extend the fourth-order list of cities well into the 50s and perhaps 60s in the United States urban hierarchy.

Based on 1990 metropolitan area populations (9) and planned expansions through 2000, Oklahoma City seems poised to be a front runner in future expansions. Only six metropolitan areas larger than Oklahoma City lack a team in any league today, and of these six only Norfolk is among the 30 largest metropolitan areas in the United States. Norfolk, however, is not a strong contender due to its lack of a focal point or national identity. Norfolk, officially the Norfolk- Virginia Beach-Newport News MSA, lacks a distinct core and consists of several other smaller cities that have historically focused on their own identity first and the greater metropolitan area second. Combined with a highly transient population due to the various naval facilities in the area, the nearness of the Washington, D.C. market, and the burgeoning Carolinas sports presence, the greater Norfolk area seems unlikely to successfully support a team.

Providence, Rochester, Greensboro, Memphis, and Hartford (which lost its NHL team to Raleigh in 1997) are also larger than Oklahoma City, lack any major league teams, and face similar constraints to winning expansion franchises. Only Memphis has a nearest neighbor (St. Louis, at 459 km) in the big leagues farther away than is Oklahoma City from Dallas. However, Memphis may have lost any future chances it had for professional sports with the low fan turnouts for the Tennessee Oilers in the Liberty Bowl during the 1997 NFL season and the fact that Nashville has now secured two sports franchises, the Oilers and an NHL expansion team. Memphis' and Norfolk's situations aside, the other four cities suffer even more severely from the East Coast saturation of teams, the nearest neighbors being between 64 and 164 km away, and despite higher population densities seem unlikely to attract the attention of the four leagues.

Of note, three markets smaller than Oklahoma City host major league teams. Two of these cities, Jacksonville and Raleigh, have gained teams only since 1995 and were mentioned earlier. The third city is Green Bay, which is not even ranked by Census publications and which has a metropolitan area population under 200,000 (9). The Green Bay Packers are community owned (7) and do not experience the same problems between owners and city leaders as do most other major league teams and cities. Thus, Green Bay can be considered an anachronism and immovable in the sports world today. With Raleigh having enticed an existing team to relocate, only Jacksonville rates as a city smaller than Oklahoma City that has been awarded an expansion franchise in the modern era, the 1960s to the present. However, despite having a population that places Oklahoma City among the fourth-order cities in the United States, neither Oklahoma City nor Tulsa (ranked fifty-eighth) fit the prototype of smaller market, fourth-order cities that are gaining expansion franchises as the following discussion of the regression analysis demonstrates.

The regression results using 1990 populations and the number of teams in 1997 are shown as Model 1A in Table 2. The negative intercept value in Model 1A makes sense because, long before the population reaches zero, the number of teams a city is expected to have has reached zero. Over 83% of the variation in the number of teams is explainable strictly by population. For Oklahoma City, this model produces an expected value for (number of) TEAMS of 0.758. This indicates that Oklahoma City is still somewhat below the necessary size to fit into the general trend of today's major league cities. Model 1A predicts only 0.111 teams for Tulsa.

The second regression model was constructed using 1990 population ranks instead

of population totals, as indicated in Model 2A in Table 2. This relationship is of course negative, since larger cities have lower ranks but more teams, and it is not as strong as Model 1A. The findings related to population ranks also do not bode well for Oklahoma City, as Model 2A predicts only 0.356 teams. Tulsa's prediction is a negative number of teams, -1.436, due to its extremely small size.

The third regression model used 1996 population estimates and the anticipated number of teams in each city in 2000, excluding possible relocations. Table 3 shows this new model, Model 1B, which compares closely with the original Model 1A and which predicts 0.851 teams for Oklahoma City. The new rank model, Model 2B, predicts Oklahoma City to have only 0.216 teams. Tulsa continues to fare poorly across both models, with Model 1B predicting only 0.187 teams and Model 2B again predicting a negative number, -1.656. The decline for both cities from Model 2A to Model 2B is primarily the result of both cities dropping one position in the 1996 estimate, to forty-third for Oklahoma City and to fifty-ninth for Tulsa. This drop results from Las Vegas' meteoric rise from the fifty-first to thirty-sixth ranked city over the period 1990-1996.

In the stronger modeling framework, populations instead of ranks, the predictions increase from Model 1A to Model 1B for both cities, demonstrating a trend in the major leagues toward smaller cities. The inclusion of the newly successful expansion cities improves Oklahoma City's prospects as a host city today and probably more so in the near future. As of 1998, Oklahoma City is just reaching the cusp of professional sports viability, and likely needs another decade or so to emerge as a front runner in future professional sports franchise expansions.

## CONCLUSIONS

This paper has highlighted several distinctly geographic factors that make Oklahoma relatively unattractive to the major professional team sports leagues in the United States. In particular, three features stood out. First, Oklahoma City, the best bet for an expansion team in Oklahoma, is too near another city, Dallas, that already has teams in each of the four major leagues. Oklahoma City's nearness to Dallas, 335 km, is below the average nearest neighbor distance for all four major leagues. Second, although proximity is not strictly a limiting factor, the low population densities in the Great Plains require larger catchment areas than on either coast for adequate support of professional sports teams. Dallas is a major, regional-level metropolis and dominates the Oklahoma City market in several ways, including professional sports, thereby reducing Oklahoma City's attractiveness to the

TABLE 2. Regression models and results for 1990 populations.

<b>Model 1A</b>			
TEAMS = $-28.745 + 2.142 \times \ln(\text{Pop90})$			
t-statistic <sup>a</sup> (-11.959) (13.155)			
F-statistic <sup>a</sup> = 173.058 $r^2 = 0.836$			
City	Pop90	ln(Pop90)	TEAMS
OK City	958,839	13.773	0.758
Tulsa	708,954	13.472	0.111
<b>Model 2A</b>			
TEAMS = $5.060 - 0.112 \times \text{Rank90}$			
t-statistic <sup>a</sup> (14.699) (-7.655)			
F-statistic <sup>a</sup> = 58.596 $r^2 = 0.633$			
City	Rank90	TEAMS	
OK City	42	0.356	
Tulsa	58	-1.436	

a. P-values are 0.000.

TABLE 3. Regression models and results for 1996 populations.

<b>Model 1B</b>			
TEAMS = $-29.007 + 2.157 \times \ln(\text{Pop96})$			
t-statistic <sup>a</sup> (-10.755) (11.851)			
F-statistic <sup>a</sup> = 140.456 $r^2 = 0.801$			
City	Pop96	ln(Pop96)	TEAMS
OK City	1,026,993	13.842	0.851
Tulsa	755,110	13.535	0.187
<b>Model 2B</b>			
TEAMS = $5.247 - 0.117 \times \text{Rank96}$			
t-statistic <sup>a</sup> (15.077) (-7.831)			
F-statistic <sup>a</sup> = 61.328 $r^2 = 0.637$			
City	Rank96	TEAMS	
OK City	43	0.216	
Tulsa	59	-1.656	

a. P-values are 0.000.



four leagues. Third, the present relationship between city size and number of teams indicates that both Oklahoma City and especially Tulsa are still too small compared to cities with existing teams. These three geographic characteristics, nearness to competing markets, low population density, and small population totals, have combined to block the entry of professional sports in Oklahoma in the 1990s. However, the growing trend toward smaller cities receiving expansion teams should keep Oklahoma City at the front of the competition until an expansion franchise is ultimately awarded.

Though beyond the scope of the analyses in this paper, there are at least two other important geographic aspects of Oklahoma City's possible emergence as a future expansion franchisee that need to be mentioned. First, the ability of Oklahoma City or Tulsa to demonstrate adequate support for team, and for a team in any league to draw regional fan support base, is a crucial factor in today's professional sports environment. Today's expansion franchises tend to target regional fan bases rather than relying solely on the metropolitan areas in which they are based. Team names consisting of state instead of city names are a good indicator of this regional approach. Examples from expansions since 1988 include the Carolina Panthers in the NFL; the Colorado Rockies, Florida Marlins, and Arizona Diamondbacks in the MLB; the Florida Panthers in the NHL; and the Minnesota Timberwolves in the NBA. Given the smaller sizes of Oklahoma City and Tulsa, any top-level professional sports teams in these cities will require the support of the entire state of Oklahoma to be successful. Very little work has been done on regional aspects of team support, and we intend to pursue this topic in future research.

Second, because of the necessity of demonstrating to the leagues that fan support will be strong, understanding regional patterns of sporting activities and cultural preferences can be a critical component for successfully winning an expansion franchise. Rooney and Pillsbury's compendium of American Sports (18) discusses and maps the major sports in the United States, but most significantly combines this material to construct 11 Sports Regions in the United States. Oklahoma falls into the Texas Southwest region, in which Rooney and Pillsbury proclaim "Make no mistake, this is football country." Other significant sports identified in Oklahoma were baseball, wrestling, golf, and tennis. In contrast, their summary of hockey activities noted the extreme concentration of players and teams centered in the Great Lakes region. Though hockey has spread to some Sunbelt cities with great success, Oklahoma has very little history in the sport and is far outside the core area of players, fans, and teams. Culturally and historically, hockey is a foreign sport to Oklahomans, and the recent NHL bid by Oklahoma City seemed a poor match for the state's traditional sporting interests.

Ultimately, Oklahoma will probably host a major league professional sports team within the next two decades. With steady expansion by all four leagues becoming the norm in the 1990s, smaller and smaller cities are winning expansion franchises due to the saturation of the upper levels of the United States urban hierarchy. However, this trend clearly needs to continue for Oklahoma City to become a strong-enough contender to win an expansion franchise. Major league sports could come to Oklahoma sooner, however, should Tulsa or Oklahoma City entice an existing team to relocate. Currently, smaller cities without teams often find themselves being used as bargaining chips by team owners using the threat of relocation to try to extract better deals from their host cities. Every so often, though, a team actually does pull up stakes and move. This could be Oklahoma's best chance at hosting a major league team in the very near future.

### ACKNOWLEDGMENTS

We thank Tom Wikle and the *POAS* reviewers for their comments on previous versions of this manuscript and Allen Finchum for allowing us to draw on his extensive knowledge of professional sports and sports facilities.

### REFERENCES

1. [Anonymous]. The stadium binge. USA Today 1996 Sept 6; Special Sect.

2. Baade RA. What explains the stadium construction boom. *Real Est Iss* 1996 Dec.; 21(3):5-11.
3. Baade RA, Dye RF. The impact of stadiums and professional sports on metropolitan area development. *Growth and Change* 1990 Spring; 21(2):1-14.
4. Baim DV. *The sports stadium as a municipal investment*. Westport (CN): Greenwood Press; 1994.
5. Rosentraub MS, Swindell D, Przybylski M, Mullins DR. Sport and downtown development strategy: if you build it, will jobs come? *J Urban Aff* 1994 Summer; 16(3):221-239.
6. Comer JC, Newsome TH. Recent patterns of professional sports facility construction in North America. *Sport Place Int* 1998. Forthcoming.
7. Quirk J, Fort RD. *Pay dirt: the business of professional team sports*. Princeton (NJ): Princeton University Press; 1992.
8. Euchner CC. *Playing the field: why sports teams move and cities fight to keep them*. Baltimore (MD): The Johns Hopkins University Press; 1993.
9. U.S. Bureau of the Census. *Statistical abstract of the United States*. 116th ed. Washington, DC: U.S. Government Printing Office; 1996.
10. [Anonymous]. TV market size costly for Oklahoma City. *Tulsa World* 1997 June 18.
11. Bale J. *Sports geography*. New York (NY): E&FN Spon; 1989.
12. [Anonymous]. NHL OK's expansion to 4 cities. *Tulsa World* 1997 June 16.
13. U.S. Bureau of the Census, Population Estimates Program, Population Division, Washington, DC. Release date: Dec 30, 1996.
14. Christaller W. *Central places in southern Germany*. Baskin CW, translator; Englewood Cliffs (NJ): Prentice-Hall; 1966. 230 p. Translation of: *Die zentralen orte in Süddeutschland*.
15. Hartshorn TA. *Interpreting the city: an urban geography*. 2nd ed. New York (NY): John Wiley & Sons; 1992.
16. Wheeler JO, Muller PO, Thrall GI, Fik TJ. *Economic geography*. 3rd ed. New York (NY): John Wiley & Sons; 1998.
17. Stutz FP, de Souza AR. *The world economy: resources, location, trade, and development*. 3rd ed. New York (NY): Macmillan College Publishing Company; 1998.
18. Rooney Jr. JR, Pillsbury R. *Atlas of American sport*. New York (NY): Macmillan Publishing Company; 1992.

Received: 1998 Jan 19; Accepted: 1998 May 06.