THE EMPLOYMENT 
EFFECT OF TEAMS AND 
SPORTS FACILITIES

ROBERT A. BAADE AND 
ALLEN R. SANDERSON

As the preceding chapters have indicated, a growing concern of state and local governments in the United States is whether to subsidize professional sports teams and their playing facilities. Those who support such subsidies believe that teams and stadiums spur economic development and thus should be considered investments. A useful exercise, then, would be to determine whether building a new stadium, or otherwise subsidizing professional sports, actually does stimulate job growth beyond what could be expected from an alternative use of public and private funds. A number of recent studies concerned with the economic impact of professional sports show a clear trend toward a moderation of projected benefits. The growing tendency to exercise restraint in projecting such benefits may reflect, in part, the view that budget constraints impose limits on leisure spending. This more conservative approach is particularly evident in the distinction some now make between “gross” and “net” economic impact, as can be seen in a report commissioned by King County to determine the impact of the Seattle Mariners on the economies of King County, the city of Seattle, and the state of Washington. The distinction has more than trivial implications. The authors of the King County report, Conway and Associates, estimated that in a gross sense the Mariners created 2,249 jobs, while at the state level the “new money” attributable to professional sports was responsible for about 427 jobs, or approximately one-fifth of the gross estimate.

Although less dramatic, the implications of the distinction at the county and city levels remain substantial. The figures for 1993, Conway reported, were 1,805 gross jobs for King County and 1,555 for Seattle, 685 net jobs for the county and 577 for the city. Clearly, new spending dissipates as the area of analysis expands. In the case of Mariner fans, what those residing in Olympia spend at games in Seattle represents new spending in Seattle but little in the way of a change in net spending in the state.

From a practical and policymaking perspective, the debate about job creation could be resolved in large part if impact assessments consistently used net as opposed to gross figures. The experience of a cross section of cities in the United States during the past quarter century shows scant evidence that professional sports create a significant number of new jobs. The primary reason for the excessive optimism of many appraisals of this job creation potential is their assumption that an increase in sport-generated revenues necessarily corresponds to an expansion of the local economy. The fact is that the demand for labor derives from the demand for goods and services. If professional sports do not correlate with an increase in net new spending, jobs will not be created. Our empirical analysis indicates that spending on spectator sports is largely offset by reductions in other forms of leisure spending by consumers and other fiscal commitments by governmental entities. As a consequence, sports account for negligible increases in net new spending and new jobs. This assertion and the evidence presented here reflect elementary budgetary constraints, which in turn affect the spending of individuals, families, and state and local governments.

However, the number of jobs created is not the sole factor to indicate the employment effect of professional sports. Two others also merit attention: the types of jobs sports subsidies generate, and the costs involved in creating jobs through such subsidies. These three factors are the central concern of this chapter.

ISSUES RELATED TO ESTIMATING JOB CREATION

Estimates of the impact of professional sports teams and stadiums on local and regional employment vary widely. In rationalizing public sub-
sidies for a National Football League franchise, team owners in Jacksonville, Florida, asserted that their team would pump $130 million a year into the Jacksonville economy and create 3,000 jobs. Those advocating a subsidy for a new NFL franchise in Baltimore (the former Cleveland Browns) estimated 1,394 new jobs. Others have been far less optimistic. If sports creates jobs at all, states a recent report, the impact is likely to be one-tenth as large as that estimated by boosters in Jacksonville. In part, these radically divergent views on economic impact and job creation may reflect important structural differences in the cities analyzed. They may also reflect some differences in objective economic reality. But it is not only economic conditions or contexts that differ: perceptions about the workings of the economies analyzed differ as well.

In an analysis of economic contexts for sports subsidies, several conditions assume critical importance. First, the extent to which such subsidies create jobs varies with the degree to which the metropolitan or regional economy is operating near its productive capacity. In the same vein, the level of unemployment in those labor markets most affected by an expanding professional sports industry will determine the number of jobs created. Expansionary pressures in a fully employed economy realign economic activity unless resources expand to meet the increased demand for them (see chapter 2).

Second, potential economic benefits and stimuli for a local labor market will be dampened considerably if expenditures migrate beyond the immediate area. In professional sports, money that goes to owners, players, coaches, team executives and broadcasts is overwhelmingly spent beyond the geographic area in which the teams play and the fans reside. In other words, most of the money in sports is earned by people in national rather than local or regional labor markets.

Third, many of the new stadiums and arenas being built are replacement facilities. Replacing infrastructure for sports does not lead to an expansion of the local economy but rather maintains economic activity at or near its former level once the construction phase of the new facility project ends. Employment estimates provided as a rationale for replacing an “obsolete” structure with a new facility should not be interpreted as jobs gained but rather as jobs not lost. To a large extent, a new stadium or arena simply relocates the workplace while leaving the work force largely unaltered. In addition, one should distinguish between the total current employment at an existing facility and the net incremental effect due to a new stadium. Furthermore, both depend on whether a city expects a team to leave an area if an owner’s demand for new construction or renovation is unmet.

Fourth, a stadium that hosts games for a regionally isolated franchise—for example, Major League Baseball’s Colorado Rockies in Denver—will likely attract fans from greater distances than a franchise in a saturated sports market, such as the northeastern United States. All else being equal, the isolated sports franchise will boost the local economy more than the franchise competing for fans in a regional market with an abundance of teams, since the sports product is more likely to be exported beyond the borders of the metropolis.

A related point here is that job creation will depend on the extent to which net increases in expenditures originate from outside the immediate geographic or political area. If movies and restaurants are good substitutes for each other within a city, increased consumer spending on one may come at the expense of the other. If significant numbers of consumers of either activity are drawn from outside the city, a net increase in spending is possible for a narrowly defined area. Hence net job creation resulting from professional sports could hinge on the fan base that resides in the central city versus the suburbs (or beyond) or may even occasionally cross a state boundary, as in the case of the St. Louis Cardinals and Rams, the Washington Redskins, and the several New York-area franchises.

Fifth, stadiums integrated into a commercial, residential development improve the prospects for stadium-inspired economic growth. Many sports facilities constructed in the post–World War II era, beginning with County Stadium in Milwaukee and Memorial Stadium in Baltimore, accommodated the preference for automobile transportation and population shifts within an urban area from the central city to the suburbs. Surrounding a stadium with a sea of asphalt or concrete eases entry and egress of automotive traffic, but mitigates the spillover of stadium pedestrian traffic into other commercial sites in the city, particularly in the stadium’s environs. New sports facilities in downtown Cleveland, Baltimore, and Denver have departed from automobile-inspired designs and locations. The early evidence indicates that these more synergistic urban stadium plans may promote neighborhood economic development beyond that experienced by facilities shaped by automotive imperatives. (An alternative explanation for a rediscovery of central cities is that suburban political entities have weighed the costs and benefits and then rejected the advances of teams: the Chicago White Sox and Chicago Bears are two recent examples in which owners explicitly sought subur-
ban locations but could not obtain the necessary financial commitments and then turned back to the city of Chicago and the state of Illinois.)

A few other factors may affect employment: the "occupancy rate" or hours of operation (a football stadium is only used 10 days, or maybe 50 hours a year, whereas a baseball park may be used 80 days or 300 hours a year, and a mall perhaps 360 days or about 3,000 hours); differences between utilization for repetitive events (such as regular season games) versus less frequent occurrences (such as playoff games, an All-Star game or Super Bowl, or even a periodic political convention); the distinction between a burst of activity during, say, the construction and postconstruction phases versus steady-state operations; and short-term versus long-term effects, such as increased attendance that may accompany a new team or new facility (or a team that is performing better on the field or court than usual) for a few years until the "novelty effect" wears off and interest returns to more normal levels.

Contextual differences suggest that stadium and team economic contributions are best measured individually, but some general principles do apply and can help account for the differences in the estimated and real economic contributions of professional sports to local and regional economies. The first point to note is that the methodology used to assess economic impact will in part be task-oriented, and that is why approaches vary in past assessments. In the most general sense, the methodology will depend on whether one's objective is to provide economic estimates (prospective analysis) or evidence on past experience (retrospective analysis). Those who advocate the use of public funds for sports infrastructure conduct prospective analysis. They justify such public financing through promises of substantial increases in area output, income, jobs, and tax revenues. The most sophisticated of these prospective models have a general equilibrium character and are supply-based, input-output structures.\(^8\)

Given the number of stadiums being built, their cost, and the equity issues involved, a growing number of public finance scholars are turning their attention to the economic impact of these projects. Some have begun questioning the accuracy of the projections.\(^9\) In general, independent scholarship has concluded that studies claiming substantial contributions to the local and regional economies from professional sports systematically exaggerate the real contribution.\(^10\)

Problems exist on both the demand and supply sides. On the supply side, even when subsidy advocates employ the methods of Regional Eco-

nomic Models Incorporated (REMI) in their analysis, they often ignore certain constraints that clearly impair the growth potential of any large, public project. The balanced-budget constraint confronted by local and state government, for example, compels trade-offs that mitigate the economic impact of facilities for professional sports.\(^11\) This and other resource constraints—especially in private capital and labor markets—must be taken into account if the impact of professional sports is to be measured more precisely.\(^12\) In other words, a gross measure of the economic growth induced by sports is not appropriate justification for a subsidy: the proper standard for gauging its economic contribution is a net measure of growth.

The distinction between net and gross measures assumes critical importance on the demand side as well. Individuals and families have limited leisure budgets, defined in both terms of time and money. Money spent on watching professional sports events is money not spent on other leisure activities. In practice, many subsidy supporters have neglected, in some instances ignored, this substitution effect, with the result that estimates of the benefits to having a team or the costs of losing one are in many cases biased. To estimate how much Major League Baseball's host cities lost during the players' 1994 strike, for example, it is not enough simply to count lost ticket and concession revenues at the ballpark and reduced sales at sports bars and other firms in the immediate area. The fact is, fans may have changed the locus of their recreational spending without measurably reducing the total. Indeed, reports that Hollywood enjoyed its best September ever during the players' strike indicates that leisure spending was not reduced but rather reallocated. Recent research confirms this expected result: "The strike had little, if any, economic impact on host cities. Retail trade appeared to be almost completely unaffected by the strike... The relationship between a city's economic performance before and during the strike essentially was no different for cities that hosted teams and those that did not."\(^13\) The strike may well have determined to some extent where people drank beer in Chicago and Boston during August and September of 1994, but it almost certainly had little or no impact on the total amount of beer consumed in those cities.

Measures of the contribution of professional sports to local and regional economies may be biased in yet another respect. Because the benefits of professional sports are dispersed across much of the population, it is difficult to measure the benefits to an individual spectator.
More amenable to measurement, since it was more concentrated, is the
cost to those who lost a job or considerable income during the 1994 strike.
In reality, it is easier to estimate the economic effects for the small
number of people who experience a large gain or loss than it is to cal-
culate the effects of the far larger group of people who experience only
a very small effect, either as spectators or as owners and employees of
the myriad of businesses that are substitutes or complements for sporting
events. Many analysts are unable to resist the temptation to measure that
which is easiest to measure and to ignore the rest, even though the latter
may be far more important in the aggregate. (This is akin to calculating
the losers versus winners with the removal of tariff protection: it is easier
to find those whose jobs have been eliminated—and their sizable losses
make their case more compelling for the media—than it is to add up the
marginal gains for thousands of consumers who benefit from lower prices
and a wider selection.)

From the perspective of the metropolitan area as a whole, economic
activity increases if the professional sports services are exported or pro-
vide a substitute for services that would otherwise be imported. Further-
more, if the professional sports industry expands at the expense of other
industries as a consequence of resource constraints, there is no reason
to expect contracting industries to be any less prone to export than
professional sports.

The demand for goods and services produced within a metropolis or
a region can also be affected by changes in the distribution of income.
This certainly applies to an expansion of professional sports, an industry
characterized by a highly skewed distribution of income. The major part
of the revenues from professional sports go to players, coaches, and top
administrators (diehard fans are the other principal beneficiary), whereas
only a small part goes to vendors, ticket takers, parking lot attendants,
and other service workers. Also, as already mentioned, to the extent that
owners and players do not live in the host city and repatriate their earn-
ings to their primary residences or invest their returns beyond the area
in which the team is located, the expansion of the professional sports
industry may actually precipitate a net outflow of funds from the met-
ropolitan or regional economy.

In sum, current research has thus far failed to construct a model
adequate to the task of accurately predicting the economic contribution
of professional sports. (Alternatively, it may be that the modelers have
not yet found the motivation to apply themselves adequately to the task
of projecting the contribution of sports to the local or regional economy.)
The purpose of this discussion is not to compensate for the deficiencies
of prospective analysis and to offer an all-encompassing model, but rather
to use retrospective analysis to provide a mechanism through which the
economic promises of subsidy advocates can be filtered. The first step to
that end is to consider the promises that have been made to date.

Profiling Jobs Created by Professional Sports

According to all the available evidence, the jobs generated by profes-
sional sports activities are concentrated in the nonmanufacturing sector:
both gross and net estimates suggest the concentration may be as high
as 98 percent. More specifically, almost all such jobs can be placed
under "trade" and "services," in accordance with Standard Industrial
Classification (SIC) conventions. Furthermore, professional sports activ-
ities are seasonal, and each event is completed during what constitutes a
portion of a workday; most jobs in professional sports therefore qualify
as part-time and seasonal work. Their concentration in the nonmanufac-
turing sectors would apply to the largest, most diverse metropolitan
economies. Needless to say, this concentration should not be used to
indict professional sports or to imply that cities should not provide jobs
of this nature, but it does help explain why professional sports do not
induce the same magnitude of economic activity as some alternative uses
of the public funds earmarked for stadium construction (such as subsi-
dizing an industrial park).

It seems that the only mechanism through which sports would contrib-
ute to job creation in the manufacturing sector would be if they served
as a magnet for enterprises engaged in manufacturing. Although this
claim is sometimes made by subsidy advocates, no evidence has yet been
found to support it.

The nonmanufacturing sectors of the U.S. economy certainly include
many highly skilled, highly paid workers. However, most service and
trade employment within the professional sports industry is in the part-
time, low-wage end of those sectors. This situation has important impli-
cations for net new spending and overall job creation that occurs indi-
rectly as a consequence of professional sports activities. If most of the
proceeds from sports spending are concentrated in the hands of owners, players, and the top administrators of professional sports organizations, it is conceivable that the sports industry has a negative impact on job creation. This could occur if the leisure industry in a city developed a greater professional sports orientation, and if the highly compensated individuals in the sports industry resided in the host city only part of the time and invested their earnings and profits elsewhere. In such cases, leisure spending does not remain in the city, but is deflected to those places in which players and owners reside. It is possible that locally owned leisure establishments could be replaced by professional sports enterprises whose income is distributed toward absentee owners and players. If professional sports induces a net decrease in spending that occurs through a growing current account deficit with the world beyond the metropolis, jobs could in theory be lost. The point, of course, is that there is no assurance that an expansion of the professional sports sector creates jobs. Anything is possible. The compensation of major league baseball players and selected stadium workers for 1994 illustrates this and some of the other points just discussed (table 3-1). Note that most of the part-time, stadium-related jobs are held by people who are moonlighting; thus this work is not their primary source of income.

Table 3-1. Compensation for Major League Baseball Players and Stadium Workers, Milwaukee, 1994

<table>
<thead>
<tr>
<th>Compensation</th>
<th>Players</th>
<th>Grounds crew</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay</td>
<td>$1.2 million on average per year for all Major League baseball players</td>
<td>$4.85 to $5.56 per hour</td>
<td>$5.40 to $6.38 per hour</td>
</tr>
<tr>
<td>Pension</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Health insurance</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Uniforms</td>
<td>Supplied</td>
<td>Supplied a</td>
<td>Charged to worker</td>
</tr>
<tr>
<td>Food</td>
<td>Free postgame buffet</td>
<td>Discounts on brats and hot dogs</td>
<td>Discounts on brats and hot dogs</td>
</tr>
</tbody>
</table>


a. Grounds crew members each pay a $25 deposit for uniforms.

The Cost of Job Creation through Professional Sports

Few issues are more controversial in state and local government politics than subsidies for private enterprise. Alabama, for one, was widely criticized inside and outside the state for bidding $300 million in 1993 to secure the first Mercedes-Benz AG auto plant in the United States. The plant was expected to accommodate 1,500 workers, and therefore the subsidy averaged out to $200,000 per job created.16 A recent review of this case and other states' incentives to lure corporations noted that, on a per job basis, Alabama paid far more than neighboring states paid for other automobile plants. In addition, the Mercedes deal is now expected to generate only a fraction of the statewide jobs projected originally, and Alabama's commitment is about 20 percent higher than originally estimated.17 According to Governor James Edgar of Illinois, reckless state competition for private enterprise has encouraged states to adopt voluntary guidelines to "de-escalate the bidding wars that have too often penalized existing business and squandered precious resources."18 In July 1990 the Arizona state legislature authorized the use of more than $240 million to finance the construction of a retractable dome stadium for use by the Arizona Diamondbacks, a Major League Baseball expansion franchise. The Arizona Office of Sports Development commissioned a study by Deloitte & Touche to estimate the economic impact of the franchise. In the stadium's operational phase, the state was expected to gain 340 full-time equivalent jobs.19 On a base of $240 million, taxpayers in the state of Arizona are paying approximately $705,800 for each job created.20

From a purely economic perspective, as an investment the much criticized Alabama subsidy would be rated better than the one in Arizona. This would be true not only because the initial outlay per job was substantially less, but also because most of the jobs created through Alabama's investment would be qualitatively better.

To turn to a national example, it has been estimated that the Local Public Works Capital Development and Investment Act of 1976 (LPW I) and the Local Public Works Capital Employment Act of 1977 (LPW II) created direct and indirect jobs at an average cost of $37,000 for a person-year.21 If the nominal cost of creating those jobs doubled between 1980 and 1996 (that is, adjusting for inflation), the average cost per person-year would be $74,000. By any economic standard, the cost of creating
jobs through professional sports is substantial, defined both in terms of current outlay and the present value of the returns through job creation.

A Model for Estimating Professional Sports Job Creation

Ideally, to estimate the capacity of professional sports to create jobs, a model should include the myriad of independent variables that influence city growth. In theory, a well-conceived and crafted construct would isolate the stadium and team variables, to allow one to estimate their separate impacts. Arguably, no urban growth models have yet been conceived with all the necessary data that would allow for an unbiased, consistent estimate of a stadium’s or team’s impact on a city’s economy. No existing model, and probably no model that is practicable, can isolate stadium and team effects for all the cities that have built a new stadium and attracted, kept, or lost a major league team during the past four decades.22

Data limitations and the relative insignificance of professional sports in a large, diverse metropolitan economy argues for a model-building strategy that compensates for, or somehow circumvents, these deficiencies. For the purposes of this study, equation (3-1) is used to estimate jobs created by professional sports teams to include the construction of their facilities.

\[
CE_{it}/SE_{it} = \beta_0 + \beta_1 CRPCY_{it}/SRPCPY_{it} \\
+ \beta_2 CAWW_{it}/SAWW_{it} + \beta_3 CPOP_{it}/SPOP_{it} \\
+ \beta_4 NT_{it} + \beta_5 NS_{it} + \beta_6 TREN\text{T} + \epsilon_{it}
\]

(3-1)

where \(CE_{it}/SE_{it}\) = city \(i\)'s share of state employment in the amusement and recreation industry (SIC 79) or the commercial sports industry (SIC 794) at time \(t\); \(CRPCY_{it}/SRPCPY_{it}\) = ratio of city \(i\)'s real per capita personal income to the state \(j\)'s at time \(t\); \(CPOP_{it}/SPOP_{it}\) = city \(i\)'s share of state population at time \(t\); \(CAWW_{it}/SAWW_{it}\) = ratio of average hours worked per week in the durable goods sector in the city relative to the state at time \(t\); \(NT_{it}\) = number of professional sports teams in city \(i\) at time \(t\); \(NS_{it}\) = number of new stadiums in city \(i\) at time \(t\); \(TREN\text{T}\) = a variable assigned a value of one for the first observation and numbered consecutively for each observation thereafter; and \(\epsilon_{it}\) = stochastic error.

This model addresses the economic insignificance of professional sports to a large, diverse metropolitan economy by focusing attention on the sector of the economy most likely to be affected by changes in the professional sports industry: amusement and recreation (SIC 79).23 In particular, if a city’s teams manage their facilities, a change in the number of teams hosted by the city is far more likely to surface in statistics for key economic indicators recorded in SIC 79.24 Employment is one statistic generally reported by the SIC category at the two-digit level.

How does this model account for the net financial flows that result from professional sports activities that, in turn, determine job creation? As alluded to earlier, many economic impact studies tacitly assume that spending in conjunction with sports spectating represents spending that would not otherwise occur. This notion underlies the use of gross as opposed to net measures of spending changes induced by professional sports. Such an assumption is not entirely realistic. Spectating is but one option with regard to the use of leisure time and money. If aggregate spending does not increase with a city’s acquisition of a new stadium or professional sports franchise, it may well be because sports expenditures supplant spending on other leisure pursuits. If leisure spending substitutions by citizens of a municipality are complete, professional sports will induce economic growth only if they attract money from outside the city (exportation of sports services) or keep money inside the city previously spent outside the city’s walls (import substitution).

Equation (3-1) is designed to provide evidence on the extent to which professional sports increase the spending and income in the metropolitan statistical area (MSA; the term “city” and MSA are used synonymously throughout this analysis; see note 22) by improving its balance of trade position with the outside world. It was also designed to dispense with the need to specify each variable that may be important in determining city economic growth. More specifically, it factors out rather than making explicit those elements that shape the business cycle or define economic trends for a city and the state in which it is located. Since professional sports affect the host MSA’s economy relatively more intensively than is true for the state’s economy (the leisure substitution effect is more complete the larger the area analyzed), it is one element that distinguishes the city’s economic performance from that of the state. This design ensures that the contribution of professional sports is not netted out of the financial flows for a metropolitan area.
Several other conventions relating to the model’s specification should be mentioned. First, the length of time a stadium or arena could be considered new was drawn from earlier research about the duration of a stadium’s "novelty effect." In baseball, the novelty of a new stadium was assumed to last somewhere between seven and eleven years. As for purposes of this analysis, a stadium was considered new if it existed less than ten years old, that is, if the "number of new stadiums" variable (NYT) increased by one for each additional ten years from the opening of the stadium. The novelty effect in this analysis was expected to last only one year for each additional ten years, as is assumed in previous analyses of stadium effects. The procedure used to estimate the regression equations was the same as that used in the past. The authors did not expect this result to be surprising.
Table 3-4. Job Creation Estimates for Cities Exhibiting Statistically
Significant, Positive Coefficients, Selected Years

<table>
<thead>
<tr>
<th>City</th>
<th>Number of jobs in SIC 79 for year of event(a)</th>
<th>Job creation coefficient(b)</th>
<th>Jobs created(c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver</td>
<td>3,838</td>
<td>.0347</td>
<td>133</td>
</tr>
<tr>
<td>1960 (Broncos)(e)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1967 (Nuggets)(d)</td>
<td>4,645</td>
<td>.0347</td>
<td>101</td>
</tr>
<tr>
<td>Kansas City(f)</td>
<td>6,636</td>
<td>.04</td>
<td>265</td>
</tr>
<tr>
<td>1960 (Chiefs)(e)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969 (Royals)(e)</td>
<td>8,903</td>
<td>.04</td>
<td>356</td>
</tr>
<tr>
<td>San Diego</td>
<td>42,801</td>
<td>.003</td>
<td>128</td>
</tr>
<tr>
<td>1960 (Chargers)(f)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969 (Padres)(f)</td>
<td>52,072</td>
<td>.003</td>
<td>158</td>
</tr>
</tbody>
</table>

\(a\) Source: Authors' calculations.
\(b\) Coefficients as presented in Table 3-2.
\(c\) Jobs created can be calculated on the basis of the year the team actually began to play in the city since the coefficient that we have estimated is based on historical data.
\(d\) Coefficients from Table 3-2.
\(e\) County Business Patterns identifies "paid employees for pay period," and it is this statistic that we use for calculating our jobs created estimates. "Paid employees" does not distinguish between full- and part-time employment. The figures recorded in this table, therefore, are not to be construed as full-time equivalents.
\(f\) leisure-time employment. The figures recorded in this table, therefore, are not to be construed as full-time equivalents.

facility. Of the 155 changes in the professional sports industry among the thirty-five major-league cities during the thirty-year period from 1958 through 1987, only 11 of the changes combined a new team with a new stadium. In considering the number of changes for metropolitan areas individually, cities typically experienced three or four changes during the sample period for this study, 1958 through 1993.

Fourth, statistics were constructed from Bureau of Labor Statistics, County Business Patterns (various years). In constructing the data set, we took care to ensure consistency. Any scholar who has used metropolitan statistics over time is aware that the Department of Commerce changes its definition of a metropolitan area fairly frequently, as well as its SIC classification of various goods. All changes in SIC classifications were considered to ensure a uniform data set.

Fifth, although the model specifies a "leisure-time" variable (CAW\(W_i\)/SAW\(W_i\)), in the empirical analysis, the coefficient for the variable was reported only in the case of Kansas City, since the leisure variable improved the explanatory power of the equation only for that MSA. The empirical record represented by tables 3-3 and 3-4 reflects
the fact that a better fit was most often achieved when the leisure variable was excluded. This does not suggest that the leisure variable does not add anything to the analysis, but rather indicates that there are fewer observations on leisure availability by city, and the inclusion of the variable usually does not compensate for the observations lost when it was included. Kansas City was the sole exception in this regard. It should also be noted that consistent data for average hours worked per week were available for the durable goods industry only. Thus data for this industry were used as a proxy for leisure time for the city and state economies.

Empirical Results and Analysis

Tables 3-2 and 3-3 record the results for the regressions run using equation (3-1) for the ten MSAs that constitute our sample for the period 1958 through 1993 (see appendix table 3A-1). Because some data are unavailable, there are 27 degrees of freedom for all cities except Kansas City. In the case of Kansas City, there were 10 degrees of freedom. This data set and empirical results are what we used to estimate the role professional sports play in determining employment in the “amusement and recreation” industry (SIC 79) and “commercial sports industry” (SIC 794).

Recall that the dependent variable for equation (3-1) was defined as the MSA’s share of the state value for employment in either the amusement and recreation (SIC 79) or commercial sports industry (SIC 794). The dependent variable was specified in this way on the expectation that those same factors that account for trends in the leisure industry in both cities and states (such as demographic changes or the business cycle) separately from the independent variables specified would in part be “factored out.” For example, a general downward trend in economic activity for the state imitated exactly by the city would leave the city-state ratio of overall economic activity unaltered. If leisure spending traced general economic activity for both the state and city, the ratio of city-state leisure spending would be unaffected by changes in general business conditions. That is, the effect of the business cycle would be accounted for, and there would be no need to specify those variables that determine changes in business conditions.

We had some initial expectations with regard to the signs of the coefficients for the independent variables specified in the equation. We expected a city’s share of state amusement and recreation or leisure spending to vary directly with the ratio of city to state real per capita income (an income effect). Our a priori expectations were confirmed only 50 percent of the time.

With respect to the leisure variable, we had no expectations since this variable implicitly incorporates an income and substitution effect. If residents of a particular city work longer hours than the residents of the state in which the city is located, there is presumably less leisure time to consume but more money available for leisure consumption. At least in the case of Kansas City, the income effect apparently dominates the substitution effect. We expected to find that the more the state’s population is concentrated in an MSA, the greater will be the concentration of state amusement and recreation (commercial sports) jobs in that city, all else equal. In a majority of cases, the population coefficient was positive.

If professional sports induces job growth, we expected a city’s share of state jobs in the amusement and recreation industry (commercial sports industry) to increase with the addition of a professional sports team or the operation of a new facility. This expectation echoes the theory alluded to earlier. Professional sports must export its services to the rest of the state (region), create an import-substitution industry, or in some other way increase aggregate spending to induce an economically significant addition to the city’s economy. Of the twenty sports variable coefficients in tables 3-2 and 3-3 (βs and βs), nine emerged as statistically significant. Of those nine, only five exhibited a positive sign.

The relative infrequency of positive coefficients for either the team or stadium variables prompts two general observations. First, adding a professional sports team or stadium to a city’s economy appears to realign leisure spending rather than adding to it and is therefore neutral with regard to job creation. Second, the fan base supporting professional sports appears to be insufficiently “foreign” to the city to contribute significantly to metropolitan economic activity. The exportation of the services of the teams or stadiums or the import substitution created is generally insufficient to induce job growth that is measurably different from zero.29

The presence of only one positive, statistically significant coefficient for the team variable in table 3-3 requires further explanation, given the
portion of the commercial sports sector constituted by professional sports. One interpretation of these results is that in some cases the substitutions in leisure spending induced by changing a city’s professional sports landscape may in large measure occur in the commercial sports sector. Research indicates that individuals and families budget a certain amount of time and money for commercial sports activities and therefore substitute spending across teams and seasons within a city.\textsuperscript{30}

The presence of statistically insignificant or negative coefficients in table 3-2 should not be surprising. It is plausible that the realignment of leisure spending is such that no net jobs are created or that jobs are lost. To cite but one possible argument, the $\beta_4$ (number of teams) or $\beta_5$ (number of new stadiums) coefficients could be positive or negative depending on how labor-intensive and export-prone the expanding professional sports industry in a particular MSA is in relation to the contracting enterprises that constitute the leisure industry. Therefore, the negative coefficient for the stadium variable for Pittsburgh (table 3-2) or the negative team variable for Seattle (table 3-2) may imply that the stadium or team uses labor less intensively per dollar spent on its activities than the leisure activities for which it substitutes. Or, it could imply that the contracting leisure industries exported more of their product than does the expanding professional sports industry. An alternative explanation for the negative stadium coefficient in Pittsburgh is that leisure time spent at Three Rivers Stadium translated into fewer dollars (and fewer jobs) than the leisure activities for which the stadium substitutes, including those at the stadium replaced by Three Rivers Stadium.\textsuperscript{31}

Furthermore, the health of the MSA’s economy may well determine the sign and size of the stadium coefficient. For example, a fully employed MSA may well compel a more complete substitution of employment within the amusement and recreation industry than an economy characterized by slack demand for labor. Indeed, there is not even a guarantee that the construction of the sports facility will enhance the MSA’s economy. During the construction phase of the project, it may be that in-migration of construction labor is necessary to build the facility if the MSA is at or near full employment. In such instances, funds that MSA residents provide for stadium construction may well be repatriated by the migrating labor to their residences, some of which may be outside the MSA. In this scenario the balanced-budget multiplier may well be significantly less than one (see note 12).

The information recorded in tables 3-2 and 3-3 indicates that of the four positive, statistically significant coefficients for the number of teams and new stadiums, three were significant at the 5 percent level, while only one was significant at the 1 percent level. Of the five negative, statistically significant coefficients for the number of teams and new stadiums, four were significant at the 1 percent level, while only one was significant at the 5 percent level. In all, only 10 percent of the coefficients (2.5 percent at the 1 percent level of significance) indicated a positive correlation between number of teams or new stadiums and employment in either the amusement and recreation industry (SIC 79) or the commercial sports industry (SIC 794). By contrast, 12.5 percent of the coefficients (10 percent at the 1 percent level of significance) indicated a negative correlation between number of teams or new stadiums and employment in SIC 79 or SIC 794.

Table 3-4 summarizes our estimates of job creation for those cities in which there was a statistically significant, positive coefficient for either the team or stadium variable. The largest positive, statistically significant $\beta_4$ coefficient (number of teams) for the amusement and recreation industry was for Kansas City. Indeed, it is noteworthy that statistically significant, positive team coefficients were found only in cities west of the Mississippi. It may be that western cities in the United States are more geographically isolated in a sports sense (no other team is present within several hundred miles) and are therefore more likely to have a regional following. In other words, these cities are more likely to export their sports services and thus add to aggregate spending in the city. If we multiply the Kansas City $\beta_4$ coefficient by the number of amusement and recreation jobs in the state of Missouri, the Kansas City Chiefs added 265 jobs to the Kansas City economy when the Chiefs began play in that city in 1962 (the Chiefs played in Dallas in 1960 and 1961). The Royals, on the other hand, contributed 356 jobs to the Kansas City economy when they initiated play in 1969. Using an analogous procedure, we estimated that sports teams in San Diego and Denver accounted for less than 200 jobs each when they started out. These results conform to the projections for job creation based on net as opposed to gross spending changes initiated by sports. (We attempted to locate economic impact studies for the Chiefs and Royals that projected job creation from the adoption of the teams; unfortunately, we were unable to secure or even determine if formal economic impact studies were performed.) Recall,
however, that these estimates are calculated for only the statistically significant cases in which sports exert a positive impact. Such cases are atypical. It is also important to note that we are measuring metropolitan job creation, which may well come at the expense of jobs elsewhere in the state or adjacent areas in neighboring states.

To help put a stadium's job creation potential in sharper profile, consider how many jobs a $250 million investment (the public sector's contribution for the new stadium for the Arizona Diamondbacks) in the stock market could support assuming a real return of 8 percent, or $20 million, a year. If we assume that average annual wages plus benefits equal $40,000 ($25,000), the stock market investment would support 500 (800) people. These job creation figures exceed by a substantial amount those estimated in conjunction with investments in stadiums.

Conclusions and Policy Implications

The usual justification for public subsidies for professional sports is that teams and stadiums induce economic expansion, increase spending, create jobs and provide other positive externalities. This view can be challenged on both quantitative and qualitative grounds. For jobs to be created within a metropolis, professional sports would have to either induce an increase in aggregate spending on city goods and services or induce spending shifts toward industries with a more labor-intensive character. In general, the results of this study do not support a positive correlation between professional sports and job creation. This finding suggests that professional sports realign economic activity within a city's leisure industry rather than adding to it.

Furthermore, there is evidence to indicate that creating jobs through subsidies for sports is inefficient and costly. In addition, the jobs created can be characterized as low-paying, and the present value of the return on a city's investment is likely to be quite low in comparison with investment alternatives such as a subvention for the location of an industrial park or department store. An important distinction between a city vying for one of these enterprises and one negotiating to attract or retain a sports franchise, perhaps through a commitment to construct a new playing facility for it, is that professional sports leagues are cartels, and as such they have the power to limit the supply of teams. This tilts the financial leverage to the team or league and is yet another reason why the benefits of a team or stadium are so low for the metropolitan areas involved. In other words, the expected returns have been captured by the cartel in the form of the concessions they demand. (An automobile assembly plant, such as the Mercedes plant cited earlier in the chapter, falls in the middle of the competition-cartel spectrum, and thus a city's financial exposure will be greater for an auto plant than a department store but less than for a professional sports franchise.) Only a change in the fundamental structure of our professional sports industries can level the economic playing field for cities.

Not only can a sports cartel extract most of the potential benefits from a city in the form of subvention concessions, with the end result being a low rate of return on the city's investment and few net jobs, as we have demonstrated, but also the interaction of these cartels across leagues may reduce potential gains even further or turn them into losses. For example, the fact that the NFL and MLB support team demands for separate instead of shared playing facilities—or even require this as a condition for awarding an expansion franchise—means that cities with both football and baseball teams now must have two stadiums, each used a small fraction of the potential "commercial year." This also reduces the effective "half-life" of any stadium by employing additional interleague pressures for the latest technological or revenue-generating features. (The cartel also dangles the prospect of a future All-Star game or Super Bowl, complete with an impact study showing the millions of dollars to be gained by the host community, as a further enticement to cooperate.) In addition, unlike a service station that can be converted into a dry cleaning establishment or convenience store if demand conditions change, a football or baseball stadium has few alternative commercial uses, which makes a team's threat to leave town more credible. Cost overruns that have to be absorbed by the city instead of the franchise, or financial exposure if ticket sales or attendance goals are not met, or other such problems are all too common features of most sports facility contractual arrangements. All of these factors combine to put cities at a tremendous disadvantage in their quest for economic development when they have to square off against a professional sports team and the parent cartel, and against the "parents" in a related league as well. Only a change in the fundamental structure of our professional sports industries can level the economic playing field for cities.

Our results suggest that professional sports have been oversold by professional sports boosters as a catalyst for economic development. Re-
gional economic models, even the sophisticated models constructed by Regional Economic Models Incorporated, are potentially misleading if those estimating the impact of professional sports do not conduct their analysis through general rather than partial equilibrium systems. Cities should be aware that the professional sports industry is relatively small and that the associated substitutions in leisure spending can mute an impact identified in a partial equilibrium framework. As a consequence, cities should be wary of committing substantial portions of their capital budgets to building stadiums and otherwise subsidizing professional sports in the expectation of strong income and job growth. Professional sports are not a major catalyst for economic development.

Appendix

Table 3A-1. Ten Sample Cities with Their Counties

<table>
<thead>
<tr>
<th>City</th>
<th>Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cincinnati</td>
<td>Clermont, Ohio; Hamilton, Ohio; Warren, Ohio; Boone, Kentucky; Campbell, Kentucky; Kenton, Kentucky; Dearborn, Indiana.</td>
</tr>
<tr>
<td>Denver</td>
<td>Adams, Colorado; Arapahoe, Colorado; Denver, Colorado; Douglas, Colorado; Jefferson, Colorado; Boulder, Colorado; Clear Creek, Colorado; Gilpin, Colorado.</td>
</tr>
<tr>
<td>Detroit</td>
<td>Lapeer, Michigan; Livingston, Michigan; Macomb, Michigan; Oakland, Michigan; St. Clair, Michigan; Wayne, Michigan.</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Cass, Missouri; Clay, Missouri; Jackson, Missouri; Platte, Missouri; Ray, Missouri; Johnson, Kansas; Wyandotte, Kansas.</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>Anoka, Minnesota; Carver, Minnesota; Chisago, Minnesota; Dakota, Minnesota; Hennepin, Minnesota; Isanti, Minnesota; Ramsey, Minnesota; Scott, Minnesota; Washington, Minnesota; Wright, Minnesota.</td>
</tr>
<tr>
<td>New Orleans</td>
<td>Jefferson, Louisiana; Orleans, Louisiana; St. Bernard, Louisiana; St. Tammany, Louisiana.</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>Allegheny, Pennsylvania; Washington, Pennsylvania; Westmoreland, Pennsylvania; Beaver, Pennsylvania.</td>
</tr>
<tr>
<td>San Diego</td>
<td>San Diego, California.</td>
</tr>
<tr>
<td>Seattle</td>
<td>King, Washington; Snohomish, Washington; Pierce, Washington.</td>
</tr>
<tr>
<td>Tampa Bay</td>
<td>Hillsborough, Florida; Pasco, Florida; Pinellas, Florida.</td>
</tr>
</tbody>
</table>

Table 3A-2. Length of Novelty Effect for Ten Sample Cities

<table>
<thead>
<tr>
<th>City</th>
<th>Length of novelty (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cincinnati</td>
<td>8</td>
</tr>
<tr>
<td>Denver</td>
<td>7</td>
</tr>
<tr>
<td>Detroit</td>
<td>7</td>
</tr>
<tr>
<td>Kansas City</td>
<td>8</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>7</td>
</tr>
<tr>
<td>New Orleans</td>
<td>7</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>10</td>
</tr>
<tr>
<td>San Diego</td>
<td>10</td>
</tr>
<tr>
<td>Seattle</td>
<td>7</td>
</tr>
<tr>
<td>Tampa Bay</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Authors' calculations.  

Notes

1. Other arguments may include the production of positive externalities, such as reductions in crime or increases in civic pride or unity, or increased tax revenues derived from a higher sales volume. The externality argument is beyond the scope of this chapter, though it should be noted that it is virtually never mentioned by proponents of sports subsidies as a principal reason for their position, but almost as a "yes, but ..." response to criticisms that such subsidies are poor financial investments. With regard to the claim for increased retail sales and tax revenue, it is implicitly discussed here in the remarks on employment that would theoretically generate sales and taxes.


7. In this regard, a sports stadium, especially a football-only facility, could actually retard economic development in the immediate area because it is closed so much of the time. Complementary commercial activity would be unlikely to gravitate to an "anchor" with such limited hours of operation.

8. The state-of-the-art models used by subsidy advocates have been provided by Regional Economic Models Incorporated (REMI). REMI is located in Amherst, Massachusetts.

9. More than half of the cities that have professional sports stadiums are planning, or have started to build, new facilities or have plans for renovating current stadiums and arenas. See Kerry Johnson and Mark Belko, "Super Stadiums: Bait of Burden," Pittsburgh Post-Gazette, October 29, 1993, p. A1. The cost to taxpayers of facilities constructed so far


12. Many economic impact studies use what amounts to a "government expenditure" multiplier to estimate the economic impact. When taxes are used in estimating the economic impact during the construction phase of the project, a "balanced-budget" multiplier, or something close to it, should be used since the stadium-inspired tax increase reduces consumer spending. Theoretically, the size of the multiplier during both the construction and operational phase of the stadium will be determined by the sum of the spending increases (injections) and decreases (leakages) triggered by the facility.


20. Since a sales tax is being used to subsidize the sports infrastructure for the MLB Arizona Diamondbacks, some of the expense will be borne by people outside Arizona. That does not change the fact that Arizona citizens are paying an extraordinary amount of money for each job created from this investment in professional sports.


22. "City" as used here refers to the metropolitan statistical area (MSA). Detroit, for example, is the Detroit MSA and not the city of Detroit; the city of Detroit represents a part of the Detroit MSA.

23. A principal reason for concentrating on this one sector instead of the aggregate metropolitan economy is that a sports franchise is, in terms of employment or retail sales revenues, a relatively small business, on a par with a medium-size department store in the central city. Full-time employment for all twenty-eight MLB teams is less than 2,000, including 700 players. And baseball spending is about 30 cents for every $1,000 of GDP. See Allen R. Sanderson, "Bottom-Line Drive," *University of Chicago Magazine*, June 1995.

24. The *Standard Industrial Classification Manual*, 1987 (p. 381), specifies that "stadiums and athletic fields are included only if the operator is actually engaged in the promotion of athletic events. Establishments primarily engaged in operating stadiums and athletic fields are classified in Real Estate, Industry Group 651." However, the trend at present and in the relatively recent past has been toward teams managing the facility in which they play because it is profitable for them to do so. Furthermore, the Tax Reform Act of 1986 creates an incentive for cities to offer more favorable leases for teams to qualify for tax-exempt bonds for financing stadium construction (the 10 percent rules). See Zimmerman, "Tax-Exempt Bonds." One aspect of a more favorable lease is to allow the team to function as the stadium operator.


26. Accepting a novelty effect of this duration means that it is impossible to include several of the newest arenas in our analysis, and some critics might argue that Camden Yards, Jacobs Field, Coors Field, and the TWA Dome for the St. Louis Rams constitute a new generation of stadiums that, unlike others noted in this study, will have sizable impacts on those metropolitan areas. Two points are worth acting: First, inasmuch as a large body of literature, now including our analysis, points overwhelmingly to the insignificance of sports franchises and stadiums in terms of being catalysts for economic development, the burden of proof that there is another set of experiences for which this is not the case clearly lies with those who make that claim. Second, there is some evidence that the novelty effect may be shortening, not lengthening: 1996 baseball attendance at Skydome, the Bullpark at Arlington, and the New Comiskey Park (three of the newer stadiums) is off in relation to MLB as a whole. When New Comiskey Park opened in 1991, attendance that year averaged 36,677 (capacity of 44,700). Despite a strong team on the field, including a pennant-winning team in 1993 and one that was leading its division on August 11, 1994, when the players' strike ended the season, White Sox attendance has fallen every year since the new park opened. Per-game attendance in 1996 was 42 percent lower than in 1991.

27. The leisure variable identified in this analysis was one of many possible specifications that could have been used. Unemployment in the MSA might have been another, but such a statistic does not provide as good a proxy, in our opinion, for the work/leisure choices or disposable incomes that we surmise correlate with the demand for professional sports entertainment. Since the variable added to the explanatory power of the equation only in the case of Kansas City, it may well be that there are better ways of representing leisure, or that leisure availability varies across MSAs and states insufficiently to influence the value of the dependent variables. It is our sense that the latter interpretation applies.

28. In selecting cities for the sample, we sought to meet certain criteria. First the city had to host a team in one of the four major professional sports: baseball, basketball,
football, or hockey. Second, the timing of the stadium construction or the adoption of a team had to allow for a sufficient number of observations before and after the change in the professional sports industry in the metropolis to permit an evaluation of how the economic landscape changed as a consequence. Third, a sufficient amount of data by county and SIC 75 and 794 had to exist to permit valid statistical analysis. Fourth, it was hoped that the metropolises that met the first three criteria would constitute a reasonable geographic cross section of major urban centers in the United States. It should also be noted that since our aim was to determine how professional sports contributed to job growth in various cities, we saw no need to pool the observations for all metropolises represented in the sample and run a pooled regression.

29. We made no attempt to distinguish the job creation induced by the various professional sports or to differentiate the economic impact of the first stadium/arena built by an MSA from that of the second, third, fourth, and beyond. A greater incidence of statistically significant results would have compelled a more systematic analysis in this regard. Further research did not appear to be promising in light of the substantial substitution effect that appeared to underlie our empirical results. We have no reason to suspect that the substitution effect will not mitigate the economic impact of new arenas or stadiums for any of the sports, no matter how many facilities exist in the MSA. However, we would not discourage others from extending our research in the ways implied here.

30. Noll, "Attendance and Price Setting"; Baade and Dye, "The Impact of Stadiums and Professional Sports." Although beyond the scope of this paper, a complementary area for analysis would be to look for a similar impact within an urban area if patrons of the arts, when faced with a new subscription series or museum option, make similar trade-offs between theater, ballet, symphony, and opera tickets and an exciting exhibition at one museum. This could even occur across entertainment/recreation boundaries: recent evidence shows that January 1996 was the lowest attendance month ever recorded by Phoenix area art and cultural museums, a period in which Phoenix was the host city for Super Bowl XXX. In January 1994 attendance at the Phoenix Art Museum was 13,415; in January 1995 it increased to 15,842; but during January 1996, the month in which Super Bowl XXX and related activities to that game took place, attendance was only 7,551. In January 1997 attendance was 20,031. For the Heard Museum, renowned for its historical and cultural exhibits on the Southwest, attendance for January 1994, 1995, 1996, and 1997 was 14,297, 17,249, 14,044, and 16,109, respectively. (Data furnished to the authors by these museums.)

31. A word of caution is advisable at this point. Data on commercial sports are inconsistently provided. In some years for some counties, data are not disclosed, and the Department of Commerce notes on occasion that the sensitive nature of the data precludes disclosure. We can only speculate as to what that means, but for the scholar attempting to develop a uniform data set, it makes the data, and results derived therefrom, suspect.