

THE ECONOMIC IMPACT OF SPORTS STADIUMS: RECASTING THE ANALYSIS IN CONTEXT

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ABSTRACT: *Independent empirical analyses are often used to relate assertions that sports stadiums can serve as economic catalysts. Criticisms of recent stadium investments, however, are commonly based on studies conducted with data that is out of date. Current generation stadiums typically exhibit a different character and purpose than the multi-use, utilitarian facilities built in the 1960s and '70s. This study tests the importance of the new context within which stadiums are built by recasting a landmark study with current data. Nineteen metropolitan areas are included in a cross-section time-series analysis, representing every city that gained or lost an NFL or MLB team, or experienced a stadium construction for such a team between 1984 and 2001. These sports-related variables are found to be positively correlated with regional income share for eight of the nineteen metropolitan areas. A closer look at the findings suggests that context matters.*

Context
Since 1990 over \$10 billion in public funds have been allocated for the construction of major league sports facilities across urban America (Rapaport & Wilkerson, 2001). Throughout this boom, subsidized stadiums have often been promoted as economic development tools or key elements of urban revitalization strategies. The emergence of this trend sparked the interest of economists who responded with a host of empirical research, much of which cast doubt on the validity of the stadium as an economic catalyst (Baade, 1996; Baade & Dye, 1990; Coates & Humphreys, 1999; Noll & Zimbalist, 1997; Zimbalist, 1998; Zimmerman, 1997).

As public spending on sports facilities continues into the twenty-first century the surrounding debate has escalated, and empirical findings formerly confined to the pages of academic journals have found their way into the mainstream media. With this increased attention, the nuanced results of numerous individual analyses have become synthesized into a broad message suitable for mass consumption. The following summary statement by Siegfried and Zimbalist (2000) illustrates how the findings of economic research regarding stadium investments are typically depicted:

Few fields of empirical economic research offer virtual unanimity of findings. Yet, independent work on the economic impact of stadiums and arenas has uniformly

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found that there is no statistically significant positive correlation between sports facility construction and economic development (p. 98).

Research
Problem/
Question
to be
answered

Siegfried and Zimbalist declare the case closed, but this is a dangerous generalization that ignores the importance of context. Criticisms of recent stadium investments are often based on empirical analyses built on outdated data. Many of the stadiums built in recent years are constructed with a very different purpose than the multi-use, utilitarian facilities of the 1960s and 1970s. Sports facilities are now designed to serve as architectural symbols with tourist appeal and are often built into the urban fabric to facilitate synergy. This is in contrast to facilities of the previous generation, which were located near interstate exchanges to facilitate a quicker exit after the game.

This study offers new evidence that contradicts the general conclusion that sports facilities can have no significant positive impact on local economies. It begins with a review of two landmark empirical analyses that have contributed to this conclusion (Baade, 1996; Baade & Dye, 1990). New empirical research, derived from recasting the frequently cited study of Baade and Dye with current data, is reported. The findings of this research are supported by a closer examination of previously reported empirical analyses, which indicate that context plays a key role in determining the impact of sports development strategies.

Lit Review

THE EX POST FACTO STANDARD

While stadium promoters often use predictive input-output models to project a facility's economic impacts, the empirical research produced by economists and other critics is based on ex post facto evaluation. These studies typically use regression analysis and a combination of time-series and cross-section data to detect whether the presence of a sports team or facility significantly impacts statistics that represent the strength of a local economy.

Baade and Dye (1990) employed this approach in a study that has become a landmark reference for critics of stadium subsidies. Using two regression equations, the authors examine the effect of National Football League (NFL) teams, Major League Baseball (MLB) teams and new stadiums on metropolitan area income. The methodology is designed to provide a straightforward test of claims that sports-related spending and multiplier effects lead to increased area income. The analysis is based on data gathered from nine metropolitan areas (Cincinnati, Denver, Detroit, Kansas City, New Orleans, Pittsburgh, San Diego, Seattle, and Tampa) during the period of 1965 to 1983. Each of the metropolitan areas included in the sample either gained a new NFL or MLB team, or experienced the construction or renovation of a facility for an NFL or MLB team during the study period.

In the first equation, aggregate standard metropolitan statistical area (SMSA) income is regressed on three sports-related variables. These are dummy variables that indicate the presence of a new or renovated stadium, the presence of a football team, or the presence of a baseball team for each year in the time series. The dummy variables for football or baseball teams are omitted for cases in which there is no change in the presence of a team during the time period. SMSA population and a time trend variable are also included as control variables. The time trend variable is assigned a value of one for 1965 and increases to 19 for 1983.

The results this equation indicate a significant relationship between the sports-related variables and income levels for only one of the metropolitan areas. A new stadium in

conjunction with the presence of a new baseball team had a significant positive effect in Seattle. Baade and Dye also conducted an analysis of pooled data from all nine cities, which indicates a significant negative impact associated with the presence of a football team and a significant positive impact associated with the presence of a baseball. The authors draw few conclusions from these ambiguous results.

The second equation is designed to determine whether a metropolitan area gains a larger share of its region's income as a result of the presence of a sports team or stadium. The dependant variable for this equation is defined as SMSA income relative to regional income. The independent variables remain the same as those used in equation 1, except that population is replaced with SMSA population relative to regional population. Examining the statistics of each metropolitan area relative to its region provides an additional control for unspecified elements that could affect income levels.

Based on the findings of this model, Baade and Dye conclude that sports teams and facilities have a potentially negative impact on metropolitan area economies. The regression results indicate a significant negative correlation between the sports-related dummy variables and regional income share for five of the nine metropolitan areas. The stadium variable had a significant positive coefficient in New Orleans and Seattle, but the presence of a new stadium had a significant negative impact in Cincinnati, Detroit, Kansas City, and Seattle. The presence of a football team had a negative impact on regional income share in New Orleans. The pooled regression also shows a significant negative coefficient for the stadium variable. In all other instances the impact of teams or stadiums were not significant. Baade and Dye offer the following explanation of the negative impacts associated with the construction or renovation of stadiums:

Stadiums divert economic development toward labor-intensive, relatively low unskilled labor (low-wage) activities. To the extent that this developmental path diverges from less labor-intensive, more highly skilled (high-wage) activities characteristic of other economies within the region, it would be expected that the sports-minded area would experience a falling share of regional income (p. 12).

Baade conducted a similar analysis in 1996, again using time-series cross-section data. Forty-eight cities were examined over the period of 1958 through 1987. The sample included all cities that hosted a team from at least one of the four major sports, and 13 cities with no teams. A trend-adjusted measure of real per capita income was regressed on variables representing the number professional sports franchises and the number of new stadiums (less than 10 years old). As in Baade and Dye's earlier study, most of the results in this analysis were not statistically significant. The variable for number of teams was a statistically significant predictor of per capita income for only two cities: Baltimore, where it negatively affected per capita income, and Indianapolis, where a positive effect was found. The presence of a new stadium had a statistically significant negative impact on per capita income in Washington, DC, San Francisco, and St. Louis. For all other cities, and in the pooled regression, the team and stadium variables did not have a statistically significant impact on trend-adjusted per capita income.

RECASTING THE ANALYSIS

While these two studies are frequently cited to criticize stadium investments, they have been subject to criticism as well; the most notable of which is related to the time periods used in the analyses. Even in his 1996 study, the time series of Baade's analysis ended in 1987. This