Major League Sports Stadiums and Economic Development

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It is very common for private major-league sports franchises to demand that their host cities contribute to the costs of providing new stadiums and to the costs of rehabbing older ones.
The table below provides some evidence of how far this has developed, as of 1999:

<table>
<thead>
<tr>
<th>Period</th>
<th>Number of Projects</th>
<th>% Public Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities</td>
<td>25</td>
<td>95</td>
</tr>
<tr>
<td>Rehabbed facilities</td>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>1980–1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities</td>
<td>14</td>
<td>79</td>
</tr>
<tr>
<td>Rehabbed facilities</td>
<td>9</td>
<td>99</td>
</tr>
<tr>
<td>1990–1998</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>Rehabbed facilities</td>
<td>13</td>
<td>79</td>
</tr>
<tr>
<td>1999+ planned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities</td>
<td>41</td>
<td>73</td>
</tr>
</tbody>
</table>

Source: Keating (1999).
Introduction (III)

And here is some additional data for the post-1990 period:

<table>
<thead>
<tr>
<th>% Public Participation</th>
<th>NFL</th>
<th>MLB</th>
<th>NBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1–50</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>51–74</td>
<td>5</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>75–90</td>
<td>7</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>91–99</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>9</td>
<td>5</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Baade and Matheson (2011).
So, for the post-1990 period up to 2011:

- 6 out of 81 projects (7%) were wholly private. (Interestingly, all these were basketball stadiums; does anyone know why?)
- 42 out of 81 projects (52%) involved more than 75% of the funds coming from the public sector
- 25 out of 81 projects (31%) were completely financed by the public sector.
Introduction (V)

We can ask at least two questions about this:

- Why are public officials so ready to commit a substantial fraction of their capital budgets to these projects? The answer appears to be partly political: requests for public participation are often accompanied by threats to move the team if the participation is not forthcoming, and losing a major-league sports team can jeopardize an elected official’s chances of re-election.

- Is there a justification for these large public investments? The typical answer is that having a major-league sports team in a city enhances a city’s economic well-being. And this is something that can be tested with data.
So we turn to the second question, whether major-league sports contributes to a city’s well-being.

It is important to bear in mind that the entire discussion is for major-league sports only.

The basic idea is simple: regress a measure of economic well-being on indicators of whether the area in question got a new major-league sports team, or whether it built or rehabbed a stadium.

Two models, both due originally to Baade, have dominated this literature.
Model 1 — Specification

- Dependent variable: Real (ie inflation-adjusted) metropolitan area (SMSA) aggregate personal income in a given year.
- Independent variables (for each year):
  - STAD : dummy variable, = 1 after the SMSA built or rehabbed a stadium
  - NFL : dummy variable, = 1 if the SMSA had an NFL football team
  - MLB : dummy variable, = 1 if the SMSA had a major-league baseball team
  - POP : SMSA population
  - TIME : time trend

The dummyns were omitted if there was no change in the status over this period (so, eg, for an SMSA that never had a football team, the regression specification would omit the NFL variable).
Model 1 - Estimation

- Model 1 was estimated by Baade and Dye (1990).
- Sample: 9 metropolitan areas (SMSAs) that had either built or rehabbed a stadium or gained a football or baseball team.
- Separate models (regressions) for each area; also pooled model that used all available data.
- The models adjusted for serial correlation of the errors — this is potentially a problem whenever we use time-series data — by first-differencing the data. (This causes us to lose one observation per regression).
- We discuss all results in terms of estimated coefficients significant at the 5% level.
Model 1 — Results

For the individual SMSA regressions (Baade and Dye, Table 2):

- **STAD**: Only in Seattle did the new/rehabbed stadium have any discernible non-zero effect on an SMSA’s aggregate personal income. That impact was positive.
- **NFL**: No SMSA showed a discernible non-zero impact on aggregate personal income from having a football team.
- **MLB**: No SMSA showed a discernible non-zero impact on aggregate personal income from having a baseball team.

For the pooled regression:

- None of the sports-related independent variables was statistically significant.
One problem with Model 1 concerns regional trends. Suppose personal income in the SMSA’s region is growing over time. Then we might think that the sports variables are relevant, even though they’re just partly picking up the trend.

What we’d really like to know is whether the sports variables lead to a change in the SMSA relative to its region.

Model 2 thus looks at real SMSA personal income as a proportion of real regional personal income. The regions are those defined by the Department of Commerce’s Bureau of economic Analysis: Far West, Great Lakes, Midwest, New England, Plains, Rocky Mountain, Southeast and Southwest.

The independent variables are the same as in Model 1, except that POP (population) is replaced by SMSA population divided by regional population.
Model 2 — Results (I)

Model 2 was estimated using the same sample and years as model 1.

For the individual SMSA’s (Baade and Dye, Table 3):

- **STAD**: In Detroit, Kansas City and Tampa Bay, having a new stadium slightly *decreased* the share of personal income relative to the region. In New Orleans and Seattle, the new stadium slightly increased the SMSA’s share of personal income.

- **NFL**: In New Orleans, the new football team had the effect of slightly decreasing the income share. However, the combined effect of STAD and NFL was slightly positive. In all other cities, having an NFL football team had no impact on the SMSA’s share of regional personal income.

- **MLB**: There was no discernible impact of having a major-league baseball team.
For the pooled model:

- Building or rehabbing a stadium had a statistically significant negative effect on an SMSA’s share of personal income. Neither NFL or MLB had any discernible effect.
Some Tentative Conclusions (I)

- Does municipal support for major-league sports have an impact on an SMSA’s aggregate well-being, as measured by personal income (model 1)?
  - Only, it appears, in Seattle (where the impact was positive).
  - Taking all the cities together, there was no measurable impact.

- Does it lead to a redistribution of regional personal income in favor of the sports city (model 2)?
  - Yes, for New Orleans and Seattle;
  - No, in Detroit, Kansas City and Tampa Bay.
  - Taking all the cities together, only stadium construction or rehab had any statistically significant effect, and that effect was negative.
Some Tentative Conclusions (II)

- It certainly appears that the large positive economic impacts claimed to follow rehabbing a stadium or gaining a major-league team are not generally present. Seattle, and to a much lesser extent, New Orleans, are exceptions.

- Baade and Dye:

  *The evidence presented here is that the presence of a new or renovated stadium has an uncertain impact on the levels of economic activity and possible a negative impact on local development relative to the region.*

- It therefore seems that a city should not count on major-league sports as a driver of economic development.
Further Results (I)

Baade (1996) extends the previous results in several ways:

- The time period is expanded to 1958–1997.
- The sample now includes as controls 13 cities that have no professional sports teams, as well as 35 major league cities.
- Instead of looking at aggregate personal income (model 1), he now looks at real personal income per capita. As a result, population no longer appears in the model.
- The STAD variable is now the number of stadiums less than 10 years old.
- One potential problem is that the previous research took no account of major-league sports teams other than football or baseball (e.g., basketball or hockey). The remedy this, the NFL and MLB variables are replaced with NSPORTS, the number of professional sports franchises in the city.
Further Results (II)

Focussing on the 35 cities with sports franchises:

- The number-of-teams variable was statistically significant for Indianapolis (positive impact) and Baltimore (negative impact). Baade attributes the Indianapolis success to the fact that Indianapolis included sports as a component of a larger development strategy.

- The stadium variable was never statistically significant in any of the sports cities. So building or rehabbing a major-league stadium cannot be shown to have contributed to local economic development.
Critique of the Models (I)

There have been a number of criticisms of Baade and Dye’s work in the literature.

- The most interesting criticism is that things have changed since their work.
- In particular, whereas in their sample stadiums tended to be located in relatively undeveloped suburban areas, more recently attempts have been made to integrate them into local development plans.
- For example, the vast stretches of parking lots surrounding the older stadiums are giving way to smaller lots, tying the stadium more closely to the community. (Think of our Nationwide Arena, for example).
As Chema puts it:

Baade has researched essentially non-urban facilities which were not intended to be economic development tools. The multi-use facilities that proliferated in the late 60s and early 70s were specifically designed to be apart from the city. The design characteristics give the impression of a fort rather than a marketplace. Moreover, during the period surveyed most new venues were located in suburban or rural locations.
By contrast, as Santo (2005) notes, “the recent wave of stadium construction has been marked by a migration of such facilities back to the urban core, with an emphasis on revitalization and tourist appeal.”

On the other hand, franchise owner tactics have changed too. There is now an attempt to make the stadiums complete entertainment centers: thus one can often buy a first-class meal in the stadium’s restaurants after the game, whereas in older stadiums you would tend to go out into the neighborhood for a meal. The impact of this is to limit the extent to which the stadium can generate multiplier effects in the surrounding community.
Examples

The next two slides show examples of the old-style and new-style stadium environments.

- The first slide shows FedEx Field in Washington DC. Note how far it is from the surrounding community, and the huge parking lot that surrounds the stadium. This is the old-style (suburban) model of stadium development.

- The next slide shows Camden Yards in Baltimore. Note how close the surrounding community is to the stadium, and how little land is devoted to parking lots. This is the new-style of stadium development.
Camden Yards, Baltimore (1992)
New Models

So given that things seem to have changed, let’s consider recent research by Santo (2005). He adopts the same basic strategy as Baade’s original models, but with a few changes.

- The dependent variables are real aggregate personal income (not income per capita) and the regional share of personal income (both like Baade and Dye’s original models). Measurement is now in $$2001.
- However, he distinguishes more carefully by sport. He has BSTAD indicating a new or renovated baseball stadium, and FSTAD for a new or renovated football stadium.
- The NFL and MLB variables (whether a city had a NFL or MLB team) are as in Baade. As with Baade, Santo includes a time trend variable.
New Results (I)

When the impact (dependent variable) was measured by SMSA aggregate personal income in the 19 sports cities in the sample (Model 1):

- **Adding/renovating a baseball stadium:**
  - had a statistically positive impact in Anaheim and Phoenix.
  - had a statistically significant negative impact in Baltimore and Chicago.
  - had no discernible impact anywhere else.

- **Adding/renovating a football stadium:**
  - had a significant positive impact in Baltimore and Jacksonville. (The net Baltimore impact of the two improvements (baseball + football) is overall slightly positive).
  - had a significant negative impact in Atlanta.
  - had no discernible impact anywhere else.
New Results (II)

- Adding a new baseball team:
  - had a significantly negative impact on personal income in Denver.
  - for the only other relevant city (Miami) there was no discernible non-zero impact.

- Adding a new NFL football team:
  - had a significantly negative impact in Houston.
  - had a significantly positive impact in Nashville.
  - everywhere else, no impact could be measured.
New Results (III)

When the impact (dependent variable) was measured by the SMSA’s share of regional personal income (Model 2):

- Building/renovating a baseball stadium increased the SMSA’s share of personal income in Atlanta, Denver, Seattle and Tampa. It reduced the SMSA share in Fort Worth/Arlington. No other impacts could be found.

- Building/renovating a football stadium increased the SMSA’s share of personal income in Jacksonville, Nashville, and Tampa. It reduced the SMSA share in Cleveland.

- Adding a baseball franchise never had any impact on the SMSA share of personal income.

- Adding a football team had a positive impact on the personal income share in Cleveland (though the overall net impact was still negative) and Anaheim. No other impacts could be seen.
New Results (IV)

Taking all the cities together (the pooled model):

- For SMSA personal income (Model 1), a new or renovated baseball stadium had a positive impact, but adding a new baseball team had a negative impact. The net (combined) result was negative.
- Adding or renovating a football stadium, or adding an NFL team had no discernible impact.
- For the SMSA’s share of regional personal income (Model 2), only adding or rehabbing a baseball stadium had a significant positive impact.
Some More Conclusions

- Santo’s results are certainly more positive for the impact of major-league sports than Baade’s.
- On the other hand, we still do not see the consistently large positive impacts that boosters often tell us to expect.
- Unanswered question: given the diversity of results, is there some way to predict *which* of the cities would have positive impacts? Is there some feature of the projects that tend to be associated with success (and perhaps others that tend to be associated with negative or zero impacts)? So far, we don’t know.
- Some questions remain: what about other major-league sports activities (basketball, hockey)?
- And of course, what about minor-league sports activities, such as our own Crew in Columbus? That has not been addressed at all. There is the possibility of some interesting further work here.
As Baade and Matheson note, even if one accepts that many of the developmental impacts have failed to materialize, this does not completely settle the question of the desirability of major-league sports.

There are still the quality-of-life aspects of the sports franchises: as they write:

*Sports are an entertainment option favored by many . . . sports serve as a municipal amenity that can create social capital and improve the quality of life. For example, the 2008 Olympics instilled a sense of pride in the Chinese people.*
Still, as they also note:

“If the presence of an NFL franchise, for example, is a vital cultural amenity for residents in the area, then the value of the franchise to local citizens should be reflected in a higher willingness to pay for living in a city with a team.”

They go on to note that studies of property values in sports vs other cities are mixed. Some find a sports premium (analogous to the accessibility premium we looked at earlier) in housing markets; others find it, but say that it dissipates rapidly with distance to the stadium; and some find that the presence of a stadium actually lowers housing values (prices).

Clearly there is room for more work here. In addition, one could easily extend the framework to evaluate the impact of other kinds of facilities, for example the casinos recently introduced in Ohio.
Some Lessons for Planners (I)

Baade and Dye (1988) lay out the following suggestions for planners contemplating adding or rehabbing a major-league sports facility in their city, in order to maximize the chances of a positive impact:

- There should be at least two large-crowd dates per year for every $1m of debt that the city assumes (but this could vary depending on the financial arrangements with the franchise owner).
- Try to design stadiums for multi-sport use. But be careful: sight-lines for different sports can be quite different.
- Incorporate ancillary development (eg hotels, public transportation) into an overall plan.
- Try to keep spectators’ travel within the city boundaries, eg by designing nearby commercial space to be safe and convenient. This is essential to counterbalance the tendency of suburbanites to leave the stadium neighborhood right after the game.
Some Lessons for Planners (II)

- Do not use the suburban–stadium model (ie the model of an out-of-the-city stadium surrounded by large parking lots). Channeling the fans through carefully planned commercial corridors could help maximize secondary economic activity.

- Develop a strategy to counter the monopoly power of sports leagues and player unions. For example, ensure that the municipality has some say in pricing. “One radical solution would be sponsoring legislation to enable cities to adopt a professional sports franchise if they so choose”.

- Encourage private participation in stadium construction and operation through whatever means possible: if teams commit their own money to the project, they are less likely to relocate.

- Be clear about the nature of any intangible benefits that are expected to accrue (see Quality of Life, above).
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