IS THERE A CASE FOR SUBSIDIZING SPORTS STADIUMS?

Victor Matheson

INTRODUCTION

The case in favor of subsidizing large sports facilities is much harder to make than the one against. The peer-reviewed literature typically finds little or no evidence that the construction of new professional sports facilities results in significant increases in any type of measurable economic activity including personal income, wages, employment, tax revenues, or tourist spending (Coates & Humphreys, 2008). In addition, the privately funded consulting reports that frequently accompany stadium proposals, and which invariably tout large economic benefits from subsidized stadiums and arenas, have been shown to suffer from significant theoretical flaws that make their conclusions suspect at best, and simply false at worst (Crompton, 1995). In fact, some academic economists suggest, only partially in jest, that if one wants to know what the true economic impact of a stadium project will be, simply take whatever number the consultants project and then move the decimal point one place to the left.

However, in specific circumstances, it may be possible to justify some level of public subsidies for the construction of sports venues. This should not be interpreted to mean that the optimal level of public spending is the roughly two-thirds of average stadium construction costs that taxpayers paid for during the period from 1990 through 2008 or even the roughly one-third of stadium construction costs that taxpayers paid for on average since the Great Recession in 2008. Rather, the only claim being made here is that the optimal level of funding may be higher than zero percent.

STADIUMS AS PUBLIC GOODS

It is a standard axiom of welfare economics that free markets lead to optimal allocations and that any government intervention, such as subsidies for stadium construction, that interferes with the normal operation of the market is likely to lead to welfare losses to society as a whole. Equally standard, however, is that in cases of market failure, government intervention may result in Pareto improvements in societal outcomes. A solid case can be made that stadiums and professional sports franchises have a public good element to them and that stadiums and franchises may provide positive externalities to the local economy or to neighborhoods near the stadium.

A public good is a good that is both non-rivalrous and non-excludable in its consumption. While tickets to sporting events are obviously excludable, and a sold-out game is clearly rivalrous, other aspects of sports fandom fit the standard concept of a public good. Broadcast games on television are a classic example of a public good, and the more esoteric concept of simply "being a fan" also fits the definition. Fans of a team may gain value from being able to root for their team and talk about their team's successes and failures with friends and colleagues even if they don't directly spend any money buying tickets, merchandise, or pay-per-view

media. Because the team or league doesn't benefit from the value it provides to these fans, in a free market the product will be undersupplied. Government subsidization of an input to the production of the sports product through stadium subsidies may serve to bring the market output up to the socially efficient level.

Professional sports franchises can also serve as an amenity that can improve the quality of life for local residents who are not sports fans. The team can be a source of civic pride. For example, when more than 60 percent of Oklahoma City voters approved $120 million of public spending in order to renovate the city's Ford Center arena in the hopes (and eventual success) of luring an NBA franchise to the city, civic leaders said the vote was more about "becoming a 'Big League City'" rather than a road to any direct economic benefits (Seattle Times, 2008). There is little doubt that professional sports can serve to "put a city on the map," and a city such as Green Bay, Barcelona, or Manchester may get more national or international media mentions from their successful sports franchises than from all other sources combined.

Furthermore, while teams may be able to capture the use value of local sports fans through ticket sales, they are unlikely to be able to capture the option value of local residents. Option value is a common element of cost-benefit analysis that accounts for the value, or willingness to pay, a consumer places on having a sports entertainment option even if there is little or no likelihood that they will ever watch any games. The concept is often used in public policy decisionmaking in order to justify public spending on public goods such as parks or wilderness preserves. Sports teams clearly have some similar characteristics to these environmental resources.

Because components of value such as amenity value, civic pride, and option value are non-market values, special techniques are required to estimate their magnitude. Two of the most common methods used to identify non-market values are contingent valuation and hedonic pricing. The contingent valuation method (CVM) uses surveys designed to get consumers to reveal their valuation of non-market resources, and this methodology has been used for the presence of sports teams and events.

Johnson, Groothuis, and Whitehead (2001) surveyed Pittsburgh residents to find a total discounted non-use value of the Pittsburgh Penguins NHL team to the host metropolitan statistical area (MSA) of between $17.2 and $48.3 million. These figures are only a fraction of the total cost of the new $321 million arena the team eventually built in 2010, but they are also not zero. While amenity or non-use value could not justify a public subsidy for the complete cost of the facility, an economic case for the public paying for something between 5 percent and 15 percent of the facility could be made. Indeed, the survey results could justify about one-quarter of the roughly $130 million public contribution that was finally made towards the Penguins' arena. Other CVM studies of sports teams and facilities have found similar results and are summarized in Table 1. Studies of major sporting events such as the Olympics and World Cup have found similar positive "feel-good" effects. See, for example, Allmers and Maennig (2009).

The hedonic pricing method of valuation uses the observed prices of goods and services that are sold in markets to tease out the value of a non-market component. For example, to determine the value of a non-marketed commodity like air quality, one could compare the market price of a house in an area with high air quality to an otherwise identical house in a low air quality area and then infer that the observed difference in housing prices is the result of the otherwise non-measurable value of better air quality.

Carlino and Coulson (2004) use hedonic pricing to measure the housing costs in NFL cities to non-NFL cities. They find that home buyers are willing to pay 8 percent more for houses in NFL cities, which the authors attribute to the amenity value of NFL franchises. It should be noted that this study is not without its detractors and that Carlino and Coulson's results are not robust to variations in model specification

Table 1. Examples of CVM studies of sports teams.

Location	Sport	Non-use value ($ mil.)	Facility cost ($ mil.)	Public cost ($ mil.)	Source
Pittsburgh	NHL	$17.2-$48.3	$321	$130	Johnson, Groothuis, and Whitehead (2001)
Jacksonville	NFL	$36.5	$121	$121	Johnson, Mondello, and Whitehead (2007)
Jacksonville	NBA	$22.8	n.a.	n.a.	Johnson, Mondello, and Whitehead (2007)
Calgary	NHL	$24.1C	$500C (est.)	$225C (est.)	Johnson et al. (2012)
Edmonton	NHL	$24.6C	$591C	$304C	Johnson et al. (2012)
Minnesota	NFL	$440.4	$1,061	$498	Fenn and Crooker (2009)

Source: Facility costs from Baade and Matheson (2012) and various media sources.

(Coates, Humphreys, & Zimbalist, 2006). Findings by Feng and Humphreys (2012, 2018) that residential housing values rise near professional sports venues can also be explained by appealing to the amenity value of having a professional sports entertainment option nearby.

STADIUMS AS NEIGHBORHOOD DEVELOPMENT TOOLS

Stadiums and arenas can also serve as an anchor for local economic development. While the old construction model of a stadium as a "walled fortress surrounded by a moat of parking lots" clearly led to few neighborhood spillovers, modern arena construction has been much more successful at integrating stadiums into local, and recently more often than not, downtown neighborhoods (Baade, Matheson, & Nikolova, 2007). While the data clearly show that stadiums and arenas do not typically lead to citywide increases in economic activity, there is strong evidence of localized impacts. Tu (2005), Feng and Humphreys (2012, 2018), and Propheter (2018) all find significant increases in real estate prices near stadiums, and many stadium projects such as PetCo Stadium in San Diego (Rosentraub, 2014), Rogers Place in Edmonton (Staples, 2015), and Barclays Arena in Brooklyn, have seen significant commercial and residential real estate development in the area of the stadium following facility construction. Indeed, some stadium deals may be better thought of as real estate developments with a stadium thrown in as opposed to the other way around.

Of course, it is important to recognize that much of the real estate development that can accompany stadium construction may have occurred otherwise, and stadium subsidies may just be an expensive way to relocate economic activity from one area of the city to another. However, there could be real economic reasons to promote the economic health of one region of a city over another. First of all, well-designed stadiums built with an urban plan in mind may result in an agglomeration of entertainment businesses (Humphreys & Zhou, 2015). A concentrated entertainment district created by a stadium, such as San Diego's Gaslamp District or Denver's LoDo, may increase economic activity by creating a focused attraction for tourists and visitors from outside the city.

Second, there may be real public policy or urban planning reasons to value one area in a city over another. It is commonly argued that vibrant and active downtown areas produce "unique and valuable intangible benefits for their cities" (Johnson et al., 2012). An economically healthy downtown provides a local identity, promotes

the city's image, enhances civic pride, and serves as a melting pot for different races, ethnicities, and socio-economic classes (Rosentraub, 2008). If viable central business districts are more valuable to a metropolitan area's image and economic prospects than other locations in the area, it may make sense to spend public money to locate a stadium and its accompanying economic impact into a downtown location in order to boost that area even if income in the greater metropolitan region is unchanged.

POLITICAL ECONOMY

Along a similar vein, to the extent that stadiums simply relocate spending from one area to another, if these locations are in different government jurisdictions, it may be profitable for local governments to subsidize facility construction in order to shift the economic activity of the team from a neighboring town to their own. For example, the Dallas Cowboys and Texas Rangers are clearly teams enjoyed by fans throughout the region who would be willing to travel anywhere in the Dallas-Fort Worth metroplex to watch games. When Arlington, Texas subsidizes stadiums for these teams, they attract fans to Arlington who otherwise would have spent their time and money in other parts of the metropolitan area. While, again, regional economic activity is unchanged, Arlington's economy benefits at the expense of other cities and towns in the area.

Under this line of thought, it is clear that stadium subsidies reflect poor regional economic policy even as they may be good local economic policy. For this reason, lawmakers have occasionally banded together to prevent this sort of destructive cross-border competition for sports franchises, but this type of multi-jurisdictional decisionmaking is difficult to accomplish in practice (Suderman, 2018).

Stadium projects (as well as mega-events) are often also touted as methods to force politicians to undertake needed improvements in general infrastructure that are unable to generate sufficient political will without an external catalyst like a new sports facility. Following the Athens Olympics in 2004, Spyros Kapralos, president of the Hellenic Olympic Committee, noted, "... the Games did serve to upgrade a big portion of the infrastructure of the city and the country. Greece lives off tourism and after the Olympics, Athens got a new airport, new ring roads, new metro, new tram system, new trolleys, new buses, new telecommunications network, new power stations. The quality of life here improved immensely" (Smith, 2012).

Similarly, the city of Worcester, Massachusetts justified its planned $70 million expenditure on a new minor league baseball stadium in part on its ability to convince the state to put $35 million in transportation infrastructure improvements into the area around the proposed stadium. According to the Massachusetts' lieutenant governor, the commonwealth had "long wanted" to do a project to improve the intersection before the stadium, ranked as far and away the most dangerous intersection in the state for traffic accidents. However, only with the announcement of the stadium project did the Department of Transportation commit funding to the project (Croteau, 2018). Obviously, it would be better for local taxpayers to get the needed infrastructure improvements without the wasteful expense of hosting the Olympics or building a baseball stadium, but government activities are not always without friction, and using a stadium project to spur other more useful infrastructure projects may be a second-best solution.

IS ZERO REALLY ZERO?

Even under the most optimistic estimates, professional sports teams play a small role in the large, diverse economies in which they reside, and it is easy for the impact of sports to get lost in the natural variations of the local economy. Many studies of the

impact of professional sports facilities that find no statistically significant impact of sports on tangible economic variables are underpowered. This is particularly true of many of the older studies that relied on metropolitan area wide annual data (Coates & Humphreys, 1999). Even if a new stadium were to inject tens or hundreds of millions of dollars into the economy, given the fact most major league cities sport gross domestic products well in excess of $100 billion, searching for such a "small" figure is akin to looking for the proverbial needle in a haystack.

For example, Baade and Matheson's (2006) examination of the Super Bowl found that its impact on the host economies was not statistically different from zero. However, the authors also noted that given the sensitivity of their model, the Super Bowl would have to generate at least $300 million in benefits before they would pick it up as statistically significant. Any impact level below that, no matter how real the benefits were, could not be differentiated from the statistical noise.

More recent studies have attempted to solve this problem by looking at smaller geographic areas or shorter time frames, effectively making the haystack smaller (e.g., Baumann, Matheson, & Muroi, 2009), but even with improvements in measurement techniques it is still much more accurate to claim that the peer-reviewed literature generally doesn't find large economic benefits from building new stadiums as opposed to claiming that the literature proves that there are no benefits whatsoever.

CONCLUSIONS

It remains true that stadiums are typically poor public investments. Research in peer-reviewed journals finds little evidence that professional sporting franchises or events generate tangible new economic benefits for their cities. It would be exceedingly rare to find a sports facility project that would justify a public subsidy that would cover most of or all of the construction cost. However, the (absolutely true) claim that sports generate minimal economic benefits is not the same as claiming that sporting events, facilities, and franchises provide zero in net economic benefits for their host communities. And the same peer-reviewed literature that finds little evidence of tangible economic benefits in the form of increased income, wages, employment, and tax revenues also consistently finds positive public good benefits as measured by both contingent valuation and hedonic pricing methods.

Furthermore, even if stadiums do not increase net economic activity or citywide societal welfare at all, the evidence is fairly clear that they can generate significant neighborhood effects, and policymakers may have good reason to make a conscious decision to prefer one area over another. Therefore, it may be possible to justify some level of public subsidies for the construction of sports venues. It is again crucial to reiterate that this should not be interpreted to mean that the optimal level of public spending is anywhere near what taxpayers in North America (and many places in the rest of the world) have paid for stadiums and arenas over the past several decades. Simply, one can make a reasonable economic argument that the optimal level of sports facility funding may be higher than zero percent.

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FACILITY SUBSIDIES REDUX

Brad R. Humphreys

Professor Matheson (2018) argues that some aspects of professional sports teams constitute a public good. Following a local team, talking about the local team with friends and family, and the intangible "sense of community" and "world class city status" generated by high-profile sports teams clearly embody characteristics of a public good. The large CVM literature cited by Professor Matheson supports the idea that professional sports teams generate valuable intangible local benefits of at minimum tens of millions of dollars in large cities.

Matheson (2018) further observes, correctly, that public subsidization of a public good can generate Pareto improvements, since profit maximizing firms operating in competitive markets undersupply pure public goods. Unfortunately, the market for professional sports teams falls far short of the ideal assumptions that generate this prediction.

The market for professional sports teams in North America contains monopoly sports leagues that restrict the number and location of teams. As a matter of public policy, these leagues operate with explicit—in the case of Major League Baseball and the National Football League—and implicit special antitrust status granting leagues substantial, permanent monopoly power. This results in a restriction on the number of professional sports teams that would exist in a market with free entry.

Local governments can, and do, subsidize local professional sports teams. The special antitrust status granted leagues makes it extremely unlikely that additional teams will be supplied in response to these subsidies, unlike the theoretical case of pure public goods and competitive markets. This also substantially reduces the likelihood of any Pareto improving market response to these subsidies. Instead, these subsidies represent rent extraction from local taxpayers under the threat of team relocation (Humphreys & Zhou, 2015). Again, this occurs because the special antitrust status granted to professional sports leagues in the United States generates outside options for teams.

Absent the special antitrust status granted to professional sports leagues by policymakers, and ignoring the fact that policymakers appear to have no interest in