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Are the Public Subsidies of Professional Sports Stadiums Worth the Cost of Building Them?

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Introduction

Professional sports are a critical and influential aspect of America's culture. They are a central part of the fabric of our society and capture the attention of millions on an almost daily basis. Virtually every day, thousands of fans pack into stadiums and arenas across the country to cheer on their favorite team no matter the season or the sport. For example, each Major League Baseball team plays 81 games at home and average over 28,000 patrons per game across the league.[1] In almost every case, the venues where these teams play exist as a result of the investments made by each host community.[2] These communities provide funding to construct ever more modern palaces for the local professional teams to exhibit their talents and for local supporters to cheer them on.

Today it is almost a given that a host city or metropolitan area will subsidize some or all of the construction and infrastructure costs associated with the creation of a new facility. On an almost annual basis we hear that Team X needs a new facility to compete for the revenue generated by a more modern park or arena and is demanding that the political jurisdiction or jurisdictions where the team resides bite the bullet to finance the project. If the community refuses the request, Team X may begin to shop for a new location, forcing its current home community to either agree to the financing or risk losing the team to a rival town. Because of this, sports teams now have incredible leverage over their host cities with respect to facilities. In the National Football League

[1] "U.S. Major Sports: Average Attendance 2018." Statista. Accessed April 22, 2019.

[2] See figure 3 in Appendix for a table showing the data available on the breakdown of public financing for sport stadiums

(NFL) for example, the Oakland Raiders, one of the League's legendary franchises, is headed to Las Vegas because the city of Oakland and Alameda County, California were unable to meet the team's demands for a new sports complex.[3] Down in the southern end of the state, San Diego refused to subsidize a new stadium for the NFL's Chargers and after reaching an impasse the team decided to set up shop in Los Angeles where it will share a new, publicly supported stadium with the Los Angeles Rams who had departed St. Louis over the same issue.[4]

It appears that many communities have either accepted the economic arguments of new facility advocates--that the new venue will bring significant financial advantages and thus justify the large public expenditures required for their construction--and/or have concluded that there will be unacceptable political costs if they deny their teams the new arenas and stadiums they request—especially if their team moves elsewhere. No matter the reason, in most cases major league professional franchises have, in recent years, successfully persuaded local political decision makers to underwrite a large portion of the costs associated with new facilities.

But it was not always this way. Eighty years ago, virtually all of these stadiums were privately financed and stadium subsidies were non-existent. In fact, many sports teams in the mid-20th century played on fields named after the team's owners who had built the

[3] Ratto, Ray, Dalton Johnson, and Ali Thanawalla. "Raiders Leaving Oakland Because Not Enough Interest in Them Staying." NBCS Bay Area. March 22, 2017

[4] Barragan, Bianca. "The Chargers Are Moving to LA and Will Share the Rams' Future Inglewood Stadium." Curbed LA. January 13, 2017.

team and parks. Hence, we had Philadelphia's Connie Mack Stadium (named after Philadelphia A's owner Connie Mack), Chicago's Comiskey Park (named after Chicago White Sox owner Charles Comiskey) and Washington, DC's Griffith Stadium (named after Washington Senators owner Calvin Griffith).

The rare exceptions were venues whose construction was undertaken for a variety of socially justifiable reasons unconnected to the economic benefits of the local team. The Los Angeles Memorial Coliseum is one of these exceptions. It was constructed as a memorial to World War I veterans and as the potential hub for a future Olympiad which it became in 1932 and again in 1984.[5]

By 1950, though, the era of sports team owners financing most of the costs of facility construction were coming to an end. Things began to change in 1951, when Major League Baseball Commissioner Ford Frick announced that cities would have to subsidize construction of new stadiums because teams were failing to generate sufficient revenue to cover the costs of stadium construction and maintenance and still generate a profit.[6] Since then, most new or renovated sports venues have had at least a portion of their costs subsidized. Today, these sport franchises produce incredible revenues from their ticket sales, merchandizing, and the sale of the rights to broadcast games each year. Average team value across the four major sports have sky rocketed with even the smallest revenue

[5] "Los Angeles Memorial Coliseum: An L.A. Icon." Discover Los Angeles. March 14, 2019.
[6] Fort, Rodney D. (2011). Sports Economics. Boston: Prentice Hall. pp. 408, 409.

franchises earning hundreds of millions of dollars per year.[7] For example, the average value of a NFL team has increased by 1.4 billion dollars since 2012.[8] Yet, even as the economics of sports franchises improve there has been no corresponding movement to require teams to bear a greater share of the cost of building and maintaining their venues.

The rationale used to justify the community financing of venues is the economic benefits which flow to the jurisdictions providing the support. But does this revenue come back to benefit the cities who put millions of taxpayer dollars into these stadiums? Proponents of these subsidies cite many benefits that accompany these billion-dollar stadiums. Mentioned first is the number of jobs created during the construction phase of these facilities and the infrastructure to support them, along with the jobs created to operate the venues once they are open to seat, feed and attend to the needs of the patrons. However, it must be noted that these construction jobs are temporary and many of the operations jobs are both seasonal and part time, with few ushers, concession stand employees and janitors working 40 hour weeks.

Another touted advantage of these stadiums is their ability to generate economic development, like restaurants and housing in the areas near the venues. In many instances this has been the case—especially where the new facility has been located in a neighborhood that was previously underdeveloped or lacking much economic

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[7] "Major Sports Leagues Average Team/franchise Value 2007-2019 | Statistic." Statista.
[8] Ibid.

development, such as when the Washington Nationals moved into the previously barren Navy Yard section of Washington, DC.[9]

While this argument has some merit, a fair discussion requires consideration of the associated costs that are incurred when a new venue is constructed. For example, what are the social costs associated with the dislocations that the sports venue and surrounding development could have on the people who were already living in these areas? The construction of the Nationals' Stadium has led to significant improvement in the economics of areas adjacent to the park, with major high-rise apartments being built as well as new bars and restaurants, but the demographics of the area have changed dramatically. Before the park was built the Navy Yard area was mostly populated by low income families. A large portion of those families have been forced to move to other impoverished areas in the District of Columbia or nearby jurisdictions, which has overburdened those neighborhoods. This displacement has associated costs and one could contend that they must be factored in`to any attempt to assess the true economic value of publicly funded sports venues. Costs like community displacement are difficult to assess (as it is near impossible to track why or how someone is displaced), and it could be argued that the influx of new residents to the area surrounding the sports venue offsets the displacement of others who have to relocate on a one to one basis. However, there are some social costs that can be evaluated which have not been examined in previous

[9] "Nationals Park, Once Doubted as an Engine of Growth, Lived up to Its Promise. But at What Cost?" The Washington Post.

research on these subjects. In particular, there has not been significant research done on the impact that new stadiums have on crime.

The goal of this paper is to undertake a study of some of the implications of a new professional sports stadium on the overall health of the city in which it is built. It will examine some of the financial and societal impacts of these facilities in order to provide more insight for communities who, in the future, will be deciding whether to invest in such venues. My goal is not to replicate the considerable research which has already been conducted on a multitude of economic criteria and the impact on them of new facility construction. Instead I will take a narrowly focused look at four economic measures—unemployment rate, per capita income, median household income and median family income. I will examine this economic data at the host city level to determine if there are significant correlations between the construction of new sports facilities and improvement in the aforementioned economic measures. I will also focus on a topic which has not previously been examined--the impact on crime rates following the building of a new sports facility. In doing so I hope to shed light on factors that have previously been overlooked in stadium investment decisions, primarily that the construction of a new stadium has a negative impact on crime within the city.

This paper will start with a discussion of the most relevant studies previously done on publicly subsidized stadiums. Next I will discuss the selection of data including the cities chosen and the variables measured. Following that I will enumerate the regressions run

and their results. Once the results are outlined, I will seek to interpret and discuss those results as well as any new insights that come from this study.

Background

In recent decades there have been multiple research studies done on the impact of sports stadiums. What follows is a short discussion of the most relevant and compelling of these research efforts. I will outline some of the main findings and, where appropriate, the limitations of such work.

Noll and Zimbalist

Noll and Zimbalist's book, *Sports, Jobs, and Taxes: The Economic Impact of Sports Teams and Stadiums* written in 1997, sought to examine the economic impact of new stadiums and the presence of a sports franchise on the local economy. Their approach measures the economic benefits and costs of a professional stadium, the source of bargaining power that teams have to obtain subsidies from local government, and the relationship between sports and local employment. These effects are primarily evaluated by using in depth case studies of sports facilities in major cities like Chicago and San Francisco. The conclusions reached in their book suggest that these facilities do not produce much local economic growth and employment and that the magnitude of the net subsidy generally exceeds the financial benefits of a new stadium. To this point, Noll has said "NFL stadiums do not generate significant local economic growth, and the incremental tax revenue is not sufficient to cover any significant financial contribution by the city."[10] The writers assert that these sports facilities don't attract new tourists or industry and that much of the money spent

[10] Parker, Clifton. "Sports Stadiums Don't Spur Economic Growth, Stanford Expert Says." Stanford News. April 09, 2016

inside a stadium is a substitute for other local recreational spending, such as movies and restaurants.

While these results are quite telling, there are several factors that need to be appreciated in studying the conclusions reached by the authors. First, the data is more than 20 years old. In addition, the cities examined in the study, excluding San Francisco, have not been ones in which any new stadiums have been built, which raises the questions of relevance to current economic calculations. Their research also primarily focused on the economic impacts of these stadiums as opposed to other social impacts like their effects on crime.

Siegfried and Zimbalist

Siegfried and Zimbalist also attempted to answer the question of what impact the creation of a new sports stadium has on the community in which it resides and whether this impact justifies the public subsidy provided. Their academic approach to answering this is to compare local economic performance of areas with and without stadiums, arenas, and teams, controlling for other variables that affect local economic conditions. Siegfried and Zimbalist reach similar results to virtually all other economic studies conducted before theirs--that the economic impact of new stadiums and arenas have no statistically significant positive correlation to economic development (Baade and Dye, 1990; Baim, 1992; Rosentraub, 1994; Baade, 1996; Noll and Zimbalist, 1997; Waldon, 1997; Coates and Humphreys, 1999). These studies use variables like personal income growth and per capita income at the metropolitan area level in time series studies to

determine that there is no perceptible net increase in economic growth connected to the creation of a new stadium.

This determination is, of course, the opposite of what promotional studies done by consulting firms for sports franchises and other advocates of these new stadiums suggest. In addition, Siegfried and Zimbalist conclude that a new stadium or arena does not spark the kind of economic development stadium promoters contend.[11] They cite three reasons for this; the substitution effect, extensive leakages; and the likely negative effect on local government budgets.

The substitution effect means that sports teams may rearrange the economic and spending activity in an urban area, but they are unlikely to add much new money to it. This refers to the fact that individuals in a certain geographic area are simply redirecting their discretionary spending from one set of beneficiaries to another. Rather than buying movie or concert tickets they are buying game tickets. They are not increasing their total outlays—only changing where they direct them. Leakage refers to how much of the additional revenue generated from the new stadium that ends up being distributed among the players and owners, gets spent in the community around the stadium versus in other areas. Because players (and even owners) often live a majority of the year somewhere other than the community where their teams perform due to personal preferences and/or

[11] The research analysis done by Crompton (1995) looks in depth at the different methodologies used by consulting groups to determine the net benefits of a new stadium. He specifically highlights the faults in these methodologies and how they can result in high benefits that aren't really there.

tax implications, they do not necessarily invest a large share of their assets in the local area. Hence, a large share of the income generated by a new facility "leaks" out of the community and is spent or invested elsewhere. The Siegfried and Zimbalist research concludes with the determination that the budgetary impact of these new stadiums are negative because these sports facilities are not expected to generate enough local government revenue to offset the public expenditures put into the stadium. They suggest that infrastructure maintenance, environmental remediation, incremental sanitation and security expense, probable cost overruns, and subsequent facility enhancement are likely to generate a substantial budgetary hole in the municipal, county and/or state accounts which finance them and that teams don't generate enough additional net output to fill this gap.

The Siegfried and Zimbalist study offers great insight into the true economic impact a publicly subsidized stadium has on the city where it is built, but also has some shortcomings. Unfortunately, Siegfried and Zimbalist's data collected in the year 2000, is largely outdated, like Noll and Zimbalist' findings (based on pre-1997 date), and this data cannot measure the changes that the Great Recession had on the sports stadium market. In addition, this study only focuses on the economic impacts of a publicly subsidized stadium. Like other previous efforts, it does not consider other social costs such as impact on crime.

Wolla Study

The thrust of the research undertaken by Scott Wolla of the Federal Reserve of St. Louis is to review and comment on prior studies of taxpayer-funded subsidies spent for the creation of multi-million/billion dollar stadiums. He concludes that while building sports stadiums has an impact on local economies in the form of job creation and new development around the stadium, these subsidies are most likely going to cost taxpayers more than any local economic benefits generated from the creation of the new facility. The economists whose studies Wolla explores, primarily Noll and Zimbalist (1997), believe that there is a major failure to recognize the opportunity costs that arise when this taxpayer money is put into a stadium. The argument made by Wolla is that "Governments can choose to spend taxpayer money on a variety of things: roads, bridges, airports, police, education, environmental improvements, parks, and walking paths"[12] all of which bring positive benefits to local society. This is essentially the same substitution argument made by other researchers and previously discussed. The economists cited by Wolla also believe that consumers who are willing to spend money on sporting events are also likely to spend that same money on other forms of entertainment, whether it's movies, restaurants, or concerts, which can create similar local benefits. These economists referenced by Wolla contend that rather than subsidizing sports stadiums, governments could finance other projects, such as infrastructure or education, that have the potential to increase productivity and promote economic growth as well as generating other external

[12] Wolla, Scott "The Economics of Subsidizing Sports Stadiums," *Page One Economics*®, Federal Reserve of St. Louis. May 2017

benefits like job creation and better public education. The implication of this research is that stadium funding, due to scarce resources, crowds out these other types of government expenditures which the economists cited believe would have a more positive impact on communities.[13]

This article offers insight into the general conclusions of economists who have explored the stadium question and stresses the shortsightedness of choosing to subsidize a sports facility over other projects that have the potential to be more beneficial to the community that is providing the resources for the facility. However, Wolla's work fails to offer much in terms of concrete evidence to back the assertion that the economic benefits generated by a stadium are lower relative to other government funded projects.

Coates and Humphries Study

In 1999, Coates and Humphries conducted what is probably the most thorough study on the impact of stadium construction on economic development. Their work focuses, in particular, on personal income within cities that have a publicly subsidized sports stadium. This research looked to expand on all studies before it. It primarily sought to build on the research done by Baade and Dye (1990) in several significant ways. First, the authors expanded the number of metropolitan areas to include all that have a professional football, baseball, or basketball franchise. Second, they expanded upon the sports environment variables defined in Baade and Dye (1990) to include franchise entry

[13] Paulas, Rick. "Sports Stadiums Are a Bad Deal for Cities." The Atlantic. November 21, 2018.

and exit, stadium construction and capacity, and the presence of a football, baseball, or basketball franchise. Finally, they attempted to correct for an econometric problem found in previous literature by avoiding the inclusion of both metropolitan population and time trend in their regressions, as these variables are highly correlated and don't adequately capture the effects on income. This study found the presence of major sports franchises to have no significant impact on the growth rate of per capita personal income in the metropolitan area. In addition, their results suggest that the impact of the defined sports environment on the level of real income per capita is negative. This is the opposite of what proponents of sports development projects suggest and is very telling about the true economic consequences of these new stadiums.

Similar to Zimbalist and Noll's research, the Coates and Humphries research is limited due to the age of the data. In addition, the data only focuses on economic impacts at the metropolitan level. This presents a potential problem. Exclusively looking at the impact of new sports venues on the metropolitan area is likely to mask the effect of these stadiums on the specific city in which they are located. For example, the metro area of Washington-Arlington-Alexandria includes cities from multiple states. Similarly, the metro area of Los Angeles-Long Beach-Santa Ana spans over 4,500 square miles, while the city of LA is only about 500 square miles.

This presents the potential to significantly skew research results because in some cases it is the city, not the metropolitan area that is financing the new sports venue. Meanwhile, some--and potentially a substantial amount--of the benefits derived from the

new sports facility are enjoyed by communities other than the one financing the venture. For example, star players whose incomes are, in part, increased as a result of the new venue may live in a distant suburb of the city where the new venue is located. This suburb, not the area where the arena resides, benefits in whole or part from the economic benefits created by the new arena.

Coates Updated Study

Dennis Coates created a "15 years later" analysis looking at all cities with professional sports stadiums. This added an additional 17 years to the data from the Coates and Humphries study, extending it through 2011. In addition, Coates added hockey and soccer franchises to the data while also including all standard metropolitan statistical areas rather than those that specifically house franchises in the major professional leagues. The analysis also adds two new dependent variables: wage and salary disbursements and wages per job. The findings are similar to those found in Coates and Humphries (1999). Few variables used were statistically significant and those that were, to a large extent, move in the opposite direction from that which proponents of publicly subsidized stadiums suggest. Thus the primary conclusion is that sports franchises and new stadium construction, at best only account for less than a five percent positive impact on the economy; with most of these estimates account for below one percent, or even having a negative effect. These results confirm what was found in Coates and Humphries (1999)--the conclusion that there are likely better policies for local governments to pursue to create economic growth than stadiums. As with the other

previous studies, Coates fails to explore whether there are other societal costs, such as changes in crime rates that accompany the construction of new sports venues.

Data Selection

In conducting this analysis, my research considers a number of factors that were either not included in previous studies or were inadequately addressed. They include a focus on the primary city where the venue was located rather than a broader geography such as metropolitan area. In addition, I examined data derived from both the period leading up to the Great Recession and the period after, to take into account possible implications of that event. It is possible that the recession had a major impact on the construction of stadiums in terms of how many were built or how they were financed. In addition, having this time frame for each city will normalize economic variables that were negatively affected across the country by the recession. Third, and importantly, I explored the impact of the new venues on the crime rate in the cities where the facilities are located. Previous studies have not explored such negative factors and their costs to a community. Finally, in addition to studying the economic trends in communities with sports arenas I also examined major cities with no professional sports teams. Previous studies have only focused on the before and after impact of new facilities. They have not asked whether having one or more sports teams enhances the economy of a community versus not having any at all.

Before selecting any variables, I first gathered all of the information available on both the cost and funding of recently built stadiums. Utilizing information gathered from the Brookings Institute and Marquette University Sports Law Facility Reports, I identified the costs of all stadiums that have been built since 2000. When available, I also added public funding used and any tax-exempt municipal bonds issued to finance the

construction. All of this is broken down in figure 3 of the appendix. This figure shows that there is a large amount of public funding used to finance these stadiums, mainly the usage of tax-exempt municipal bonds. These bonds are tax free at the federal level as well as potentially at the state and city level, thus potentially removing funds from the local budget to address issues like crime.

What follows is a more detailed explanation of the data selection criteria used in the research.

City selection

When determining which sports to include, I decided to focus on the big four professional sports followed in the United States (the National Football League (NFL), Major League Baseball (MLB), the National Basketball Association (NBA), and the National Hockey League (NHL)). Thus, my research includes all cities that have an NFL, MLB, NBA, or NHL stadium. An important thing to note is that 11 cities that have an NBA and NHL franchise share the same arena, thus any changes to the arena effects both franchises. After including all of these cities, this study has chosen to also examine a group of cities that have never had a major professional franchise or stadium. These cities were chosen because they had relatively similar population sizes to the average of cities with sports teams. This group is used as a control/counterfactual group, controlling for nationwide impacts of the Great Recession on city health and as a comparator to cities with sports franchises and venues.

The group of identified cities are broken down into three groups. The first group consists of cities that have a professional sports team, but where there hasn't been a new stadium constructed since 2005 whether or not the costs of these older facilities have been fully paid off. The second group is the test group, with cities that have had at least one new sport stadium built after 2005.[14] All of these locations are marked geographically on the map displayed in figure 2 within the appendix. The final group is the control group, with cities that have never had a professional sport team.[15]

Time frame selection

The time frame chosen for this paper is from 2006 – 2017, and there are multiple reasons for this.

First, I wanted to make sure that the time frame included a period before the Great Recession as well as multiple years after. This is designed to help control for the global effect of the recession by giving a full picture of the data from before, during, and after the recession. On this point, this time frame avoids picking up the business cycle. If you only look from 2000 to 2006 for example, there would be declining unemployment virtually uniform across all cities. Because of the recession, there is a possibility that the

[14] The breakdown of the costs and financing of the test city stadiums are located in Figure 4 of the appendix.

[15] The specific information about sport stadiums construction dates and their breakdown of funding is from the Marquette University Sports Law Sports Facility Reports. Once all cities with a sports franchise were identified, I created the control group based on the remaining cities with the highest populations in order to get cities with the most similar population size.

parallel trends assumption implicit in difference in difference studies is violated. However, the inclusion of control cities helps to mitigate this concern.

Another reason for this selection is the difficulty of finding data for each variable predating 2006. While it is fairly simple to find decades of data for the unemployment rate and population, other data is not as accessible. For example, the earliest data on Median household income, real per capita income, and median family income only goes back to 2006 at the city level.

Variable selection

This research focuses on the overall impact that a professional sports stadium has on the city it is in. Because of this, it was decided to choose variables that provide multiple aspects of a city's overall economic health. I chose to focus on three major characteristics of cities: economic stability, labor market strength, and crime. All of the selected variables' summary statistics are located in figure 1 in the appendix. Each variable's mean is broken down by the three different city categories described above.

To measure economic stability, I examined historical inflation adjusted median household income, historical real per capita income in dollars, and historical inflation adjusted median family income. Household income is the combined gross income of all members of a household who are 15 years or older. Real per capita income is a measure of the amount of money earned per person in a certain area. Family income, is a household that consists of two or more people (one of whom is the householder) related

by birth, marriage, or adoption residing in the same housing unit. Including all three of these measures of income is essential because they each tell a part of the story to determine the living condition and quality of life within each city. While all three of these variables are correlated to some degree as they measure personal income, there are distinct differences between them. Household income considers the incomes of all people ages 15 years or older occupying the same housing unit, regardless of relation. A single person occupying a dwelling by himself is also considered a household. Family income, by contrast, considers only households occupied by two or more people related by birth, marriage or adoption. Per capita income measures the average income earned by each person in a given area. Therefore, two income earners in the same family or household are counted separately when measuring per capita income.[16]

To determine any impact on the labor market, the main variable examined is unemployment rate. This rate is the portion of the labor force, currently jobless, expressed as a percentage. To be counted in the unemployment rate, an individual must not only have to be without a job, but also to have actively looked for work in the previous four weeks. This is the major limitation of this measurement as it does not account for discouraged workers, or adults who have looked for a job in the last year, but not in the last four weeks before the Bureau of Labor Statistics conducts its monthly survey of households. This rate is also a gauge of the economy's growth rate, based on the assumption that lowering unemployment means an economic expansion. An

[16] The data on income comes from the Department of Numbers website, which contextualizes publicly available data, via the US Census American Community Survey on income, GDP and unemployment

important thing to note is that this rate is a lagging indicator, meaning that it measures the effect of an economic event. For example, the effects of recession won't be seen in the unemployment rate until after the recession has already started.

In addition to standard economic analysis, my study also focused on changes in the crime rate in cities with new sports venues. To look at citywide crime, the first major variable to consider is the crime index. This index takes into account all murders, rapes, robberies, assaults burglaries, thefts, auto thefts and arsons in a city and creates a composite number relative to the population of the city. This rate also counts serious and violent crimes more heavily and is adjusted for the number of visitors and daily workers commuting into a city. In addition, it is important to include each of the individual variables that make up the crime index to see if one is more affected in the years after a stadium is built than others.[17] Finally, I studied the number of police officers and civilians within each city police department to determine whether any changes took place in police force size post stadium construction. Police departments report their annual employment totals to the FBI's Uniform Crime Reporting program.

[17] All of these crime variables are reported to the U.S. Department of Justice and city-data.com nicely condenses them by city.

Results

1. Theory behind regressions chosen

The nature of this research leads to the use of panel data, containing observations of multiple variables over multiple periods of time for each city. Utilizing fixed effects modeling, I have removed any variation across cities that are constant in time. Because of this, I will only be using the time series portion of the panel data variance. In addition, panel data provides more observations that increase the degrees of freedom and sample variability for the regressions relative to running a regression for each city individually. There is a cost to this, because getting an increase in the sample size means that only the average treatment effects are estimated. Thus it will be difficult to get precise estimates of any heterogeneous effects associated with a new stadium. Panel data also generates more accurate predictions for individual outcomes by pooling the data rather than generating predictions of individual outcomes using the data on the individual in question. This is the case because I looked at the average effects across the fourteen different cities that built a new stadium.

Before running any regressions, it was essential to create a new dummy variable that showcases all of the years after a stadium is built in city group"2", the category of cities which have built a sports facility since 2006. This variable is labeled as the Post Stadium Construction Period within the following tables.

2. Main results from Regressions

The first regression run looked at the unemployment rate, all income variables and the crime index as dependent variables and city population as the independent variable. This regression also shows the change in the dependent variables in the years after a stadium is built. All of the economic variables as well as unemployment were not statistically significant. This result is consistent with the data and conclusions reached in the previous studies referenced. It is also clearly contrary to the assertions which are usually the central argument made in support of publicly financed sports venues.

This analysis estimated the following regression specification:

$$\text{unemployment rate} = \boldsymbol{\alpha} + \boldsymbol{\beta}_1 \text{population}_{ct} + \boldsymbol{\beta}_2 \text{after\_built}_{ct}$$

where c denotes the city and t denotes the year. The variable after_built is equal to one for every year after a stadium was built within the test cities. This regression was duplicated with only the dependent variable changing between unemployment rate, crime index, median household income, real per capita income, and median family income

The only significant result which emerged from this regression analysis is that the crime index increased in cities with a new stadium in the years after the new stadium was built. Table 1 highlights this with a coefficient of 39.3 that is significant at a 95% confidence interval. As previously noted, this is a factor that has not been previously discussed in studies on the issue. While most economists agree that new stadiums don't significantly impact the economy of the community where they are located, none of those cited here have expanded beyond economic impact to determine the overall effects of a

stadium on the city where it resides. As such, these earlier efforts have exclusively focused on an economic analysis that examined whether a new sports venue created a net economic benefit based on standard economic indices. While some of the previous work speculated about the opportunity costs of stadium investments, none focused on the non-economic costs that a community incurred in the period after construction. The impact on local crime found in this analysis is a new and important factor worth consideration in future discussions regarding public funding of sports facilities. It is unclear why this increase in crime occurs, but I will look at possible explanations in the following section.

Table 1

VARIABLES	(1) Unemployment	(2) Crime Index	(3) Median Household Income	(4) Real Per Capita Income	(5) Median Family Income
City Population in 100k	0.000946	14.902657***	624.869383**	190.203669	502.407219*
	(0.001)	(5.645)	(278.179)	(191.510)	(289.735)
Post Stadium Construction Period	0.000359	39.339960**	-2396.388689	-291.873749	-2777.126624
	(0.002)	(15.916)	(2,273.850)	(1,291.879)	(2,668.188)
Observations	634	553	636	636	636
R-squared	0.885	0.924	0.847	0.222	0.861

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

To look further into the specific causes of the increase in crime in these cities, I used data from *City-Data* to evaluate the breakdown of crime showcased in table 2. As this table indicates, the increase in robberies are significant at a 99% confidence interval. In addition, burglaries and auto theft increased with a confidence interval of 95%. The definition of a robbery is theft accomplished by violence or the threat of it, while

burglaries refer to entering a building or home illegally with the intent of stealing, and auto theft refers simply to a car being stolen.

Table 2 - Crime total with Post stadium construction period

VARIABLES	(1) Murders	(2) Rapes	(3) Robberies	(4) Assaults	(5) Burglaries	(6) Theft	(7) Auto Theft
City Population in 100k	-1.194197**	1.611660	15.979599***	6.581310	38.972871***	22.217527	56.493826***
	(0.479)	(1.040)	(6.172)	(9.929)	(14.244)	(33.095)	(16.543)
Post Stadium Construction Period = 1	-0.501825	3.370100	45.560657***	35.210607*	77.693021**	-90.717569	89.874507**
	(0.928)	(2.772)	(17.131)	(19.933)	(36.153)	(140.362)	(41.015)
Observations	550	550	550	550	550	550	550
R-squared	0.895	0.810	0.908	0.903	0.918	0.870	0.860

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In addition to looking at the significant coefficients, I have divided each variable's estimates by their respective mean to determine the impact on each variable from before the stadium is built to after. As the figure below shows, the largest impacts on variables correlate with the ones that are statistically significant in the regressions. The largest impacts are on auto theft and robberies.

Variables	Coefficient Estimate/Mean of Variable
Auto Theft	0.141033101
Robberies	0.12535243
Crime Index	0.073657091
Burglaries	0.071366502
Assaults	0.067525258
Rapes	0.067426971
Unemployment Rate	0.005836203
Real Per Capita Income	-0.008991568
Theft	-0.028581386
Murders	-0.033477318
Median Family Income	-0.036809985
Median Household Income	-0.038627323

While ascertaining the possibilities as to why these crime rates increase following the building of a new sports facility is beyond the scope of this research, one possible explanation—changes in the size of the local law enforcement personnel—lends itself to objective measurement. To that end, I examined the total number of police officers within each city and ran a regression to see how they changed in the years after a new stadium was built. The logic behind this is to see if the sudden rise in crime in these areas can be explained by a lack of increased enforcement. The results were very interesting. As table 3 shows, none of the crime variables regressed with officers as the independent variable are significant except for robberies, which somehow increases with more officers in a city post new stadium construction. The rest of the results from table 3 indicate that the changes in all of these crime variables, with the exception of robberies, are not

explained by the change in number of officers.[18] It remains for future researchers to explore the reasons for these crime rate changes in more detail, specifically how robberies increase with more officers present.

Table 3	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Murders	Rapes	Robberies	Assaults	Burglaries	Theft	Auto Theft
Officers	-0.001663**	0.000899	-0.008923	0.006245	0.021347	-0.031887	0.042602
	(0.001)	(0.002)	(0.010)	(0.018)	(0.027)	(0.069)	(0.035)
Post Stadium Construction Period = 1	-0.038408	2.726767	38.944487**	32.617772	62.130754*	-100.175888	67.471165
	(0.892)	(2.684)	(16.738)	(20.205)	(35.734)	(132.972)	(41.269)
Observations	550	550	550	550	550	550	550
R-squared	0.894	0.810	0.907	0.903	0.917	0.870	0.856

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[18] In addition, I ran these same regressions with officers as the dependent variable and recorded very similar results. The only significant variable was again murders saying murders decrease with an increase in police officers.

Discussion

The results of this study, allow us to reach several general conclusions regarding the construction of new sports facilities and their impact on the communities that underwrite the cost of such ventures. This section will discuss these results in more detail.

The average per game attendance of all four major sports are as follows; 67,000 for NFL, 28,800 for MLB, 17,800 for NBA, and 17,400 for NHL.[19] These are thousands of fans packing into stands virtually every day of the year between all sports. In almost every case, these customers--as well as the players, coaches and officials connected to the teams--are the beneficiaries of taxpayers who have provided some or all of the investments required to build the facilities and supporting infrastructure that make these events possible. Since 2006, 22 new sports facilities have been built and over 90% have received taxpayer funded support or tax-exempted municipal bonds.[20]

In virtually every instance the team and its advocates have argued that the benefits to the community from the new sports venue more than justified the public expenditures required to fund the project. As previously mentioned, advocates tout the construction-related jobs that would be created during the developmental phase of the operation as well as the "permanent" jobs connected to the operation of the facility that would result after its completion. In addition, proponents point to the economic impact of a new

[19] "U.S. Major Sports: Average Attendance 2018." Statista. Accessed April 22, 2019. https://www.statista.com/statistics/207458/per-game-attendance-of-major-us-sports-leagues/.

[20] See figure 3 in the appendix for a further breakdown

facility on the areas surrounding the structure. In most cases, advocates have already formed alliances with developers and financial institutions to build shopping, entertainment and residential properties in the immediate vicinity of the new sports complex. Citizens are not only promised a brand new state-of-the-art sports facility they are also told that the neighborhood and the entire community will be transformed by the project. It is little wonder therefore that in case after case, communities have been willing to pay the price for these projects. Political leaders are seldom happier than when they are breaking ground, cutting ribbon and throwing out the first pitch at a new ballpark. The price tag for these expenditures, while high, is generally spread out over long periods of time and by the point when the public begins to realize that the promised benefits have not been realized, the early advocates are often long gone.

The question is whether the high price paid for sports facilities really produces a net economic gain for the host community and also whether there are hidden costs incurred as a result of these public expenditures? The analysis conducted as part of this study, which mirrors the results of the various previous work done on these issues, would seem to strongly suggest that the economic benefits are minimal at best, while there is likely to be an increase in crime after the new facility opens.

There are multiple key conclusions drawn from the results. First, the study failed to identify any significant correlation between the building of a new sports facility and either a reduction in unemployment or an increase in real per capita income, median household income or median family income in the cities where the new venue was built.

Based on the regression analyses conducted in this study there is no verifiable evidence that the building of a sports facility results in a net economic benefit for the host city in terms of unemployment rates or per capita income. These findings are consistent with those conducted in earlier studies and the fact that this study narrowed the focus of the investigation to the actual city where the new complex was built (versus a larger geographic space such as the metropolitan areas) did not produce a different result. Hence both the earlier studies of metropolitan areas and this study which focused on cities in which the sports complex was built reach the same conclusions—that the building of a new sports facility does not produce a significant economic advantage.

A second finding of this study suggests that while a city might derive great pride and enjoyment from hosting a major league sports team, the fact that it hosts one or more such teams does not translate into greater economic benefits than would be the case if it were the home to no major league franchise. While it is the case that the sports teams have chosen where they want to play, cities who have not been selected to host teams (and therefore not build facilities) do not appear to be worse off with regard to the economic measures used in this study than cities which house major league organizations. As noted, our control group of cities without major league sports franchises did not experience statistically significant different outcomes in terms of the economic indicators we examined, than those cities which hosted teams. This was the case when I compared non-sports cities with both cities that had teams and new facilities and cities with teams but without new sports venues. That the absence of a professional

major league sports team does not undermine a city's economy would likely come as a surprise to many. While there is undoubtedly some prestige attached to having a pro sports team in town, the analysis conducted here suggests that such psychological benefits do not translate into economic ones for the communities where pro sports reside-- at least with respect to the four economic factors measured in this study.

Another conclusion drawn from the research is that previous studies of the impact of building new sports facilities have failed to take into account certain social costs, most specifically the impact on the city crime rates and the rate of certain types of crime. When examined, it appears that there is a strong demonstrable connection between the building of new sports facilities and an increase in auto theft, robberies and burglaries in the cities where the new venue is constructed. While determining the exact reason for these increases is beyond the scope of this paper, it is possible to speculate as to possible reasons for these developments and what further research might be conducted to answer the question.

Such discussion must begin with an appreciation of the displacement that occurs when a neighborhood, or section of a city, is transformed into a bustling sports complex accompanied by the business and residential development that surrounds it. The people who lived in the newly developed area and many of the businesses which operated there are likely forced to relocate. It seems certain that some of the former inhabitants of the transformed area would have difficulty finding affordable alternative housing. It likewise seems probable that some of those who worked in the businesses that operated in the area

would encounter difficulty securing new jobs or find it impossible to travel to the site where their employer relocates. A study of what percentage of crimes that take place following the building of a sports complex are committed by people who once resided or worked near that location would, therefore, be relevant to determining whether the new facility had directly triggered the increase in crime.

Another possible explanation relates to the concentration of people and vehicles occupying space within the vicinity of a new facility. Most new sports venues draw large numbers of attendees regardless of how well the team playing in them performs during the team's first 4 years in the new stadium. Ron Kamara, an economics scholar at Washington University in St. Louis, says that a new stadium boosts attendance by about 10,000 fans a game for the first year and decreases to a couple thousand fans per game by year four.[21] People want to see the much hyped arena and in the initial years after it opens these facilities enjoy large audiences. These crowded arenas and stadiums and adjacent parking areas are a clear target for criminals who are drawn to a concentration of cars, cash and distracted individuals. Therefore, it would also be interesting to explore what percentage of the increased level of criminal activity takes place in the immediate vicinity of the new sports facility. Similarly, it would be useful to also investigate whether the rise in these crime rates has taken place during the time that sports events are happening in the new facilities, which might indicate that perpetrators wait until a

[21] Kamara, Ron. "Do New Stadiums Increase Attendance". Washington University of St. Louis

disproportionate amount of law enforcement assets are focused in the area near events leaving other parts of the city less protected immediately before, during and immediately after events.

Conclusion

Since the late 1950's/early 1960's, most major cities across America that host major league level professional sports teams have been confronted with the question of whether to use scarce public resources to defray some or all of the cost to build the sports facilities that team owners have requested. With the growth in popularity of major sports, there is even greater pressure on these communities to subsidize sports facilities both to placate local fans—who also make up a considerable portion of the electorate—and because proponents of these new facilities argue that the impact of such developments will have a very positive impact on the local economy.

During the past 50—60 years city after city has coughed up the dollars to help make the new sports venue a reality. In some cases they have helped build multiple facilities and in some instances more than one new facility for the same sports franchise.[22] During each of these public debates, team owners and new facility backers argue that the city will reap significant financial rewards if they make the requested investment.

But is that really the case? In this paper I have summarized that virtually every study conducted on the impact of new sports facilities suggests that the promised economic benefits do not materialize and that these public funds could potentially have had more impact if used for others purposes.

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[22] An example of this would be Pittsburgh. In 2001, there was state funding provided to both the Steelers and Pirates so that both teams could construct new stadiums. Barnes, Tom. "Plan B Approved: Play Ball!" PG News. 1998

In addition to exploring the results of previous research, this paper undertook a fresh analysis of the economic impact of new sports venues on the cities in which they are located measured on four criteria: unemployment rates, median family income; median household income and per capita income. Using regression analyses I found support for the work of previous researchers. My results indicate that these new venues did not have a statistically significant impact on the criteria examined. Importantly, I found that cities with new stadiums did not outperform either cities with older sports facilities or cities of similar size who did not have any major league level sports teams.

What my research did reveal was a significant correlation between the building of a new sports facility and an increase in the incidence of auto theft, robberies and burglaries in the cities in which the new facilities were built. In that previous studies on the impact of the "new stadiums" focused exclusively on economic criteria, these findings seem significant. They indicate that in calculating the costs and benefits of making public expenditures to build sports facilities it is important to take into consideration social costs that have an indirect impact on the financial equations that a city should consider.

The results generated by this research argue that, in the future, communities should take into account crime and other social costs as they analyze the merits of investing in new sports complexes and that a failure to consider these factors could constitute a serious dereliction on the parts of the public officials who are ultimately responsible for new facility investment decision making. Moreover, both this research and previous

studies of the economic effects of new sports facilities, strongly indicate that public entities considering funding new facilities do a more in depth independent study of the likely economic consequences of their prospective investments before moving forward.

Appendix:

Figure 1

Summary Statistics

	Last Stadium built before 2006 Mean	Last Stadium built after 2006 Mean	Never had a Stadium Mean
Unemployment Rate	0.0638 (0.0313)	0.0639 (0.0242)	0.0544 (0.0168)
Crime Index	552.1 (179.4)	573.1 (197.3)	462.6 (191.0)
Murders	16.09 (13.61)	15.31 (10.49)	12.66 (10.42)
Rapes	53.75 (24.91)	43.18 (27.15)	49.84 (30.71)
Robberies	389.5 (202.2)	422.0 (164.3)	256.9 (158.5)
Assaults	537.6 (273.8)	565.4 (255.9)	447.6 (229.0)
Burglaries	1167.6 (519.1)	1095.5 (492.4)	936.0 (548.5)
Theft	3133.5 (1133.6)	3289.4 (1031.6)	3133.2 (856.8)
Auto Theft	693.8 (352.4)	694.4 (383.2)	475.6 (287.2)
Real Per Capita Income in dollars	31858.2 (3871.2)	33485.5 (6530.7)	32560.8 (22064.4)
Adjusted Median Family Income	75100.1 (9920.0)	78060.4 (16255.1)	73317.9 (12989.0)
Adjusted Median Household Income	61073.1 (8186.3)	65346.0 (13334.8)	60407.3 (10129.6)
City Population in 100k	9.698 (8.318)	10.95 (20.33)	3.806 (2.068)
Total Law Enforcement	3442.2 (3346.4)	5709.3 (13204.0)	994.2 (441.5)
Officers	2754.3 (2813.9)	4168.9 (9055.9)	783.0 (318.9)
Civilians	687.9 (929.9)	1540.4 (4178.1)	211.1 (143.0)
Observations	312	168	156

mean coefficients; sd in parentheses
="* p<0.05 ** p<0.01 *** p<0.001"

Figure 2: Map of all cities that constructed a new stadium during the sample period

Cities: Atlanta, Dallas, Glendale, Indianapolis, Las Vegas, Miami, Minneapolis, New York, Orlando, Pittsburgh, Sacramento, San Francisco, St. Louis, Washington DC

Figure 3:

								Division of Public Funding		
City	Stadium	Team	League	Year complete	Year of Bond Issuance	Total Cost of Stadium in millions	Tax-exempt municipal bonds issued in millions	City	County	State
Atlanta	Sun Trust Park	Atlanta Braves	MLB	2017		$ 672.00			$397.00	
Cincinnati	Great American Ball Park	Cincinnati Reds	MLB	2003	2000	$ 418.00	$ 386.00			
Detroit	Comerica Park	Detroit Tigers	MLB	2000	1997	$ 412.00	$ 127.00	$ 85.00	$100.00	
Houston	Minute Maid Park	Houston Astros	MLB	2000	1998	$ 344.00	$ 229.00	$180.00	$ 33.00	
Miami	Marlins Park	Miami Marlins	MLB	2012	2009	$ 654.00	$ 347.00	$ 15.00	$359.00	
Miami	Marlins Park	Miami Marlins	MLB		2010		$ 147.00			
Milwaukee	Miller Park	Milwaukee Brewers	MLB	2001	1996	$ 535.00	$ 221.00	$ 18.00	$328.00	$ 36.00
Milwaukee	Miller Park	Milwaukee Brewers	MLB		1997		$ 86.00			
Milwaukee	Miller Park	Milwaukee Brewers	MLB		1999		$ 60.00			
Minnesota	Target Field	Minnesota Twins	MLB	2010	2007	$ 591.00	$ 171.00		$392.00	
Minnesota	Target Field	Minnesota Twins	MLB		2008	n/a	$ 211.00			
New York	Citi Field	New York Mets	MLB	2009	2006	$ 817.00	$ 643.00	$ 90.00		$ 75.00
New York	Citi Field	New York Mets	MLB		2009		$ 91.00			
New York	Yankee Stadium	New York Yankees	MLB	2009	2006	$ 2,538.00	$ 1,107.00	$480.00		
New York	Yankee Stadium	New York Yankees	MLB		2007	n/a	$ 271.00			
New York	Yankee Stadium	New York Yankees	MLB		2009	n/a	$ 286.00			
Philadelphia	Citizens Bank Park	Philadelphia Phillies	MLB	2004	2001	$ 574.00	$ 214.00	$304.00		$170.00
Pittsburgh	PNC Park	Pittsburgh Pirates	MLB	2001	1999	$ 350.00	$ 125.00			$300.00
San diego	Petco Park	San Diego Padres	MLB	2004	2002	$ 572.00	$ 223.00	$138.90		
San Fransisco	AT&T Park	San Francisco Giants	MLB	2000	n/a	$ 491.00	$ -			
St. Louis	Busch Stadium	St. Louis Cardinals	MLB	2006	n/a	$ 429.00	$ -		$ 45.00	
Washinton	Nationals Park	Washington Nationals	MLB	2008	2006	$ 846.00	$ 446.00	$610.80		
Charlotte	Spectrum Center	Charlotte Hornets	NBA	2005	2003	$ 321.00	$ 229.00	$198.00		
Houston	Toyota Center	Houston Rockets	NBA	2003	2001	$ 302.00	$ 304.00	$ 20.00	$182.00	
Memphis	FedExForum	Memphis Grizzlies	NBA	2004	2002	$ 313.00	$ 296.00	$202.00	$ 12.00	$ 20.00
Miami	American Airlines Arena	Miami Heat	NBA	2000	n/a	$ 293.00	$ -		$125.67	
Milwaukee	Fiserv Forum	Milwaukee Bucks	NBA	2018		$ 534.00		$ 47.00		$203.00
Oklahoma City	Chesapeake Energy Arena	Oklahoma City Thunder	NBA	2002	n/a	$ 117.00	$ -	$ 89.00		
Oklahoma City	Chesapeake Energy Arena	Oklahoma City Thunder	NBA	2008	n/a	$ 134.00	$ -			
Orlando	Amway Center	Orlando Magic	NBA	2010	2008	$ 521.00	$ 342.00			
Sacramento	Golden 1 Center	Sacramento Kings	NBA	2016		$ 557.00		$233.00		
San Antonio	AT&T Center	San Antonio Spurs	NBA	2002	2000	$ 245.00	$ 169.00		$146.50	
Brooklyn	Barclays Center	Brooklyn Nets/New York Islanders	NBA/NHL	2012	2009	$ 1,031.00	$ 564.00			
Dallas	American Airlines Center	Dallas Mavericks/Dallas Stars	NBA/NHL	2001	1998	$ 561.00	$ 152.00	$125.00		
Detroit	Little Caesars Arena	Detroit Red Wings/ Detroit Pistons	NBA/NHL	2017	2014	$ 450.00	$ 250.00			
Glendale	University of Phoenix Stadium	Arizona Cardinals	NFL	2006	2003	$ 534.00	$ 286.00	$ 10.00	$300.40	
Glendale	University of Phoenix Stadium	Arizona Cardinals	NFL		2005	n/a	$ 64.00			
Atlanta	Mercedes-Benz Stadium	Atlanta Falcons	NFL	2017		$ 1,500.00				$ 14.00
Chicago	Soldier Field	Chicago Bears	NFL	2003	2001	$ 755.00	$ 533.00			
Cincinnati	Paul Brown Stadium	Cincinnati Bengals	NFL	2000	1998	$ 619.00	$ 500.00			$ 30.00
Dallas	AT&T Stadium	Dallas Cowboys	NFL	2009	2005	$ 1,318.00	$ 337.00	$325.00	$ 25.00	
Denver	Sports Authority Field	Denver Broncos	NFL	2001	1999	$ 536.00	$ 348.00			
Detroit	Ford Field	Detroit Lions	NFL	2002	1997	$ 658.00	$ 25.00		$219.00	
Green Bay	Lambeau Field	Green Bay Packers	NFL	2003	2001	$ 380.00	$ 143.00			
Houston	NRG Stadium	Houston Texans	NFL	2002	2000	$ 624.00	$ 423.00			
Indianapolis	Lucas Oil Stadium	Indianapolis Colts	NFL	2008	2005	$ 792.00	$ 485.00			
Indianapolis	Lucas Oil Stadium	Indianapolis Colts	NFL		2007		$ 242.00			
Indianapolis	Lucas Oil Stadium	Indianapolis Colts	NFL		2008		$ 60.00			
Minnesota	US Bank Stadium	Minnesota Vikings	NFL	2016	2014	$ 1,079.00	$ 392.00	$150.00		$348.00
Foxbourough	Gillette Stadium	New England Patriots	NFL	2002	n/a	$ 542.00	$ -			
New York	MetLife Stadium	New York Jets/Giants	NFL	2010	n/a	$ 1,737.00	$ -			
Philadelphia	Lincoln Financial Field	Philadelphia Eagles	NFL	2003	2001	$ 666.00	$ 214.00	$304.00		$170.00
Pittsburgh	Heinz Field	Pittsburgh Steelers	NFL	2001	1999	$ 376.00	$ 125.00		$129.50	$ 75.00
San Fransisco	Levi's Stadium	San Francisco 49ers	NFL	2014	n/a	$ 1,310.00	$ -	$ 12.36		
Seattle	CenturyLink Field	Seattle Seahawks	NFL	2002	1999	$ 515.00	$ 142.00			
Seattle	CenturyLink Field	Seattle Seahawks	NFL		2000		$ 268.00			
Glendale	Gila River Arena	Arizona Coyotes	NHL	2003	2002	$ 283.00	$ 37.00	$180.00		
Glendale	Gila River Arena	Arizona Coyotes	NHL		2003		$ 64.00			
Columbus	Nationwide Arena	Columbus Blue Jackets	NHL	2000	n/a	$ 241.00	$ -			
Las Vegas	T-Mobile Arena	Las Vegas Knights	NHL	2014		$ 375.00				
Minnesota	Xcel Energy Center	Minnesota Wild	NHL	2000	n/a	$ 234.00	$ -	$ 30.00		$ 65.00
Newark	Prudential Center	New Jersey Devils	NHL	2007	2004	$ 428.00	$ 239.00	$210.00		
Pittsburgh	PPG Paints Arena	Pittsburgh Penguins	NHL	2010	2007	$ 348.00	$ 288.00			

Source: Gayer, Ted. 2016 Brookings Institute, Marquette University Sports Law Sports Facility Reports

Figure 4: Breakdown of funding for all test cities

								Division of Public Funding		
Stadium	**Team**	**League**	**Year complete**	**Year of Bond Issuance**	**Total Cost of Stadium in millions**		**Tax-exempt municipal bonds issued in millions**	**City**	**County**	**State**
Sun Trust Park	Atlanta Braves	MLB		2017n/a	$	672.00			$ 397.00	
AT&T Stadium	Dallas Cowboys	NFL		2009	2005 $	1,318.00	$ 337.00	$ 325.00	$ 25.00	
University of Phoenix Stadium	Arizona Cardinals	NFL		2006	2003 $	534.00	$ 286.00	$ 10.00	$ 300.40	
University of Phoenix Stadium	Arizona Cardinals	NFL			2005 n/a		$ 64.00			
Lucas Oil Stadium	Indianapolis Colts	NFL		2008	2005 $	792.00	$ 485.00			
Lucas Oil Stadium	Indianapolis Colts	NFL			2007		$ 242.00			
Lucas Oil Stadium	Indianapolis Colts	NFL			2008		$ 60.00			
T-Mobile Arena	Las Vegas Knights	NHL		2014n/a	$	375.00				
Marlins Park	Miami Marlins	MLB		2012	2009 $	654.00	$ 347.00	$ 15.00	$ 359.00	
Marlins Park	Miami Marlins	MLB			2010		$ 147.00			
Target Field	Minnesota Twins	MLB		2010	2007 $	591.00	$ 171.00		$ 392.00	
Target Field	Minnesota Twins	MLB			2008 n/a		$ 211.00			
Yankee Stadium	New York Yankees	MLB		2009	2006 $	2,538.00	$ 1,107.00	$ 480.00		
Yankee Stadium	New York Yankees	MLB			2007 n/a		$ 271.00			
Yankee Stadium	New York Yankees	MLB			2009 n/a		$ 286.00			
Citi Field	New York Mets	MLB		2009	2006 $	817.00	$ 643.00	$ 90.00		$ 75.00
Citi Field	New York Mets	MLB			2009		$ 91.00			
Amway Center	Orlando Magic	NBA		2010	2008 $	521.00	$ 342.00			
PPG Paints Arena	Pittsburgh Penguins	NHL		2010	2007 $	348.00	$ 288.00			
Golden 1 Center	Sacramento Kings	NBA		2016n/a	$	557.00		$ 233.00		
Levi's Stadium	San Francisco 49ers	NFL		2014n/a	$	1,310.00		$ 12.36		
Busch Stadium	St. Louis Cardinals	MLB		2006n/a	$	429.00			$ 45.00	
Nationals Park	Washington Nationals	MLB		2008	2006 $	846.00	$ 446.00	$ 610.80		

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