The Economic Effects of Sports Stadiums and Franchises

Abstract

This paper attempts to build upon previous research done by Coates & Humphreys by trying to find a relationship between real per capita personal income and the growth of real per capita personal income in 1984 dollars and sports stadiums and/or franchises. Thirty-five major United States cities were analyzed over the period 1969 to 2000. This study attempts to capture the sports environment of a particular region better than the other existing literature. Like in other studies, this study found that there was a slight positive and in some cases a slight negative effect on real per capita personal income when sports-related variables were introduced.
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Introduction

Beginning in the 1950s it had become common as part of the baseball bargaining agreement for cities that wanted to keep existing franchises from moving to another location to build or renovate new stadiums. Teams that were unhappy with their existing stadiums threatened to leave town for better facilities. Many city officials thought these were empty threats until the Brooklyn Dodgers left New York in 1957. At the time, the Dodgers were the most successful franchise in the NL, and New York lost them to the city of Los Angeles. City officials got the message, teams meant business. About a decade later, local governments started to invest in, subsidize, renovate, or even build brand new stadiums to keep the existing franchise from leaving town and attract new ones interested in establishing. But is it worth it? (Quirk & Fort, 1992).

Roger Noll and Andrew Zimbalist [1997] commented on public spending on professional sports facilities. “New facilities costing at least $200 million [each] have been completed or are under way in Baltimore, Charlotte, Chicago, Cincinnati, Cleveland, Milwaukee, Nashville, San Francisco, St. Louis, Seattle, Tampa, and Washington, D.C. and are in the planning stages in Boston, Dallas, Minneapolis, New York, and Pittsburgh. Major stadium renovations have been undertaken in Jacksonville and Oakland. Industry experts estimate that more than $7 billion will be spent on new facilities for professional sports teams before 2006. Most of this $7 billion will come from public sources.” (Noll & Zimbalist, 1997). As of 1991, 65 of the 84 stadiums and arenas were publicly owned. Government entities that provide the billions of dollars of state and local tax revenues only feel a small direct financial return. Why then do
government bodies insist on fronting money for stadium projects that return only a small financial gain? The grounds for stadium construction are based on indirect returns; put more simply, a community will see indirect returns through economic development. (Siegfried & Zimbalist, 2000).

Bidding wars and the need for new stadium construction have taken off since the 1990s. Advocates justify the construction of the stadiums with public subsidies and tax dollars in two very distinct ways. The first way points directly to economic benefits. Advocates say that a newly constructed sports stadium will revive the local economy and expedite its growth within the immediate region. Secondly, proponents say that a new stadium can act as a job creator and have multiplier effects on the local economy. However, more often than not these claims turn out to be untrue. In order to understand the economics of sports stadiums one must separate fact from fiction. Cities believe that investing millions of public tax dollars into a stadium will improve the cities image and thus attract new investment and business dollars. However, Mark Rosentraub, an expert on sports economics says that using sports franchises as a way to stimulate economic development is a myth. (as cited in Delaney & Eckstein, 2003).

On the other hand building sports stadiums has positive externalities that are non-pecuniary and lead to social redevelopment of a community. “Community collective conscience” and “community self-esteem” are terms coined by Emile Durkheim, a 1933 sociologist, and used by local growth coalitions to express how the community will view itself and how the members of the community will interact with each other. According to Durkheim, modern society has diverged from its pre-industrial roots because today’s society members are less dependent on one another for survival. People to people
interactions are becoming less of the culture and modern society members have moved to a phase where alienation is becoming the status quo. And without a common dominant religion or common set of beliefs people turn to sports to find their “collective conscience”. (as cited in Delaney & Eckstein, 2003).
Publicly financed stadiums are usually paid for by state and local governments. Generally, the rationale for developing sports facilities with public tax dollars is that it will create a boost to the local economy. More specifically, the economic benefits consistent with this are positive externalities, consumer surpluses, and job creation. (Siegfried & Zimbalist, 2002).

Academic scholars have measured economic performance using job creation, business creation, personal income growth, and tax revenues in cities that have or have had a sports facility or franchise. Results have been consistent among scholars. Roger G. Noll and Andrew Zimbalist, the pioneers of stadium research, conclude that “A new sports facility has an extremely small (perhaps even negative) effect on overall economic activity and employment. No recent facility appears to have earned anything approaching a reasonable return on investment. No recent facility has been self-financing in terms of its impact on net tax revenues… [T]he economic benefits of sports facilities are de minimus.” (as cited in Bast, 1999).

In Jacksonville, team owners for a new NFL stadium projected that $130 million a year and 3,000 new jobs would be added to Jacksonville’s local economy. In Baltimore, 1,394 new jobs were projected to be created with the construction of their new stadium. However, none of these projections were actually realized. The projections were only realized by one-tenth of what they were estimated. (Baade & Sanderson, 1997). Why are projections so far off?
Consulting firms perform much of the promotional studies for team owners that contained flawed methodologies and unrealistic assumptions. A consultant who provided a report not consistent with favorable results was immediately fired or not given new contracts with team owners in the future. Therefore, these studies, more often than not, concluded adding a sports franchise will have a meaningful impact on the local economy.

For example, Arthur Anderson was given the task of showing the economic benefits of building a baseball stadium in Philadelphia. Arthur Anderson administered a survey during five Phillies home game’s and collected 1,652 responses. The participants of the survey were asked several questions like “where they lived; where they worked; how they got to the game; and where and how much they spent on food, drink, and entertainment before and after the ballgame.” According to the survey, the participants spent an average of $23.32 outside of the ballpark. This average was then multiplied by the average attendance of Phillies games for the entire year. The estimated impact for out-of-stadium spending came to $46,200,000 (1,980,000 fans x $23.32). (Delaney & Eckstein, 2003).

The methodological dilemmas with these projections are endless. Arthur Andersen commits sampling errors, like not including children as part of the average attendees. Moreover, Arthur Andersen does not consider the possibility of the substitution effect. For example, would a family who bought dinner before the Phillies game have bought dinner anyway even if they did not go to the game? If yes, then Arthur Andersen’s out-of-stadium spending estimate is way off and $46,200,000 does not add to the city’s tax revenues. (Delaney & Eckstein, 2003).
Price Waterhouse employed a similar research strategy for the city of Los Angeles for the new Staples Center in 1996. In their study they neglected to say where the increase in income was going to come from (because no new team was entering L.A.) and how they derived a multiplier of 2.36 (when the U.S. as a country has about that value instead of one county). (Quirk & Fort, 1999).

Another example of lofty analysis projections comes from Blair & Swindell [1997], where the small market town of Cincinnati attempted to retain both the MLB Reds and the NFL Bengals by giving the Reds a new baseball-only stadium and the Bengals a new football-only stadium. In a fifty-nine page report the Center for Economic Education (CEE), analyzed the costs and benefits of the stadium proposals. The paper was broken down into various sections which included impact of stadium construction, annual impact of new stadiums, and economic impact from new stadiums. The section entitled impact of stadium construction was full of empirical problems. First, the CEE estimated that approximately 90 percent of the stadium’s construction would be done by Cincinnatians. There was no rhyme or reason for this projection; however both the football stadium and baseball stadium were scheduled to be built around the same time so this meant a higher percentage of the task would go to construction firms outside of Cincinnati. The biggest problem with the section of the CEE report was that the construction spending was being analyzed as if the funds were coming from an outside source. In reality, the funds were coming in the form of increased tax dollars so any stadium spending would crowd out private spending. (Blair & Swindell, 1997).

An important item missing from promotional impact studies is opportunity cost analysis. More often than not the return on the next best alternative investment is usually
left out of the impact calculation. For instance, when a city votes ‘yes’ for a stadium referendum than the city officials must take into account the next best alternative investment (whether this is new schools, more police, or better roads). If the return to the city for a sports stadium is 5% and the return to the city for new roads is 6%, than the actual economic return to the city for the new stadium is approximately -1% (a negative return on investment, ROI). (Zarestsky, 2000).

Looking at scholarly research, Baade and Sanderson [1997] studied the employment effects of teams and sports facilities. Interestingly, they found that 256 jobs were added to the Kansas City economy when the Chiefs began to play and 356 jobs when the Royals began to play. Similar techniques were used to analyze job creation in San Diego and Denver. They found that there were less than 200 jobs created when each of their respective football and baseball teams began to play.

To put this into perspective, Baade and Sanderson consider how many jobs $250 million could sustain in the stock market if we assume an 8% real return. ($250 million is the amount of public tax dollars used to build a new stadium for the Arizona Diamondbacks.) $250 million at 8% implies $20 million a year and assuming an average salary of $40,000, the $250 million stock market investment would sustain 500 people. These amounts substantially exceed the jobs created in Kansas City, San Diego, and Denver. (Baade & Sanderson, 1997).

In a typical front office of a sports franchise approximately 70-130 people are actually employed. Approximately 1000 people are employed to work the day of the games. However, these jobs are usually low-skilled, low-wage, and part-time jobs. To
break this down even more, an NFL team will guarantee only 20 to 30 full time jobs over
the course of their 10-week home season.

Furthermore, sports franchises are still considered small businesses. In 1999
average team revenues for the NHL, NBA, MLB, and NFL were $55 million, $75
million, $85 million, and $100 million respectively. In a medium market city the sports
business only accounts for 0.3 percent of the region’s economic output, while in a large
market city the sports business accounts for less than 0.03 percent of the region’s
economic output. (Siegfried & Zimbalist, 2000).

More research on employment effects were conducted by Austrian and
Rosentraub [1997] who looked at the impact of the construction of Jacobs Field on the
city of Cleveland. They were unable to find a positive relationship between income
growth and employment in the Cleveland area. This corroborated the earlier studies of
Baade [1987] and Nunn [1978], which did not find a relationship between income growth
and employment in ten major cities. (as cited in Quirk & Fort, 1999).

The focal city for a lot of stadium research has been Indianapolis because they
have used sports more than any other city to spur economic development. As part of its
redevelopment plan it used public tax dollars to keep the Indianapolis Colts (NFL), the
Indiana Pacers (NBA), the headquarters for the NCAA, and much more. Mark
Rosentraub [1997] found that average salaries declined from 1977 to 1989 and only a
small number of low-wage service jobs were created. Rosentraub looked to other cities
that Indianapolis competes with for economic development to find a basis for
comparison. The other cities’ average salaries and employment rates were rising at a
faster rate than that of Indianapolis. Therefore, this suggested that, according to Rosentraub, “the sports strategy did not achieve its objective.” (as cited in Bast, 1999)

Researchers have also looked at other economic metrics to see if sport stadium construction could spur economic development. Work done by Baade and Dye [1990] found no economic benefit in nine cities ranging from the period 1965 to 1983. Of the nine cities in the study seven realized a decline in regional income after adding a sports franchise or stadium. Baade [1994] expanded on his previous study to look at thirty-six cities over a longer period from 1958 to 1987. Not a single city realized a statistically significant positive impact on regional income. In three metropolitan areas there was a decline in regional income. Most recently, work done by Baade [1996] found no correlation between real per capita personal incomes for regions with changes in sports franchises or facilities to regions with no changes or having no franchises or facilities present at all. The study covered three decades starting from 1958 and included cities that hosted at least one of the four major professional sports (NFL, NBA, MLB, NHL). (as cited in Zimbalist, 2000).

Coates and Humphreys [1999] extended the research of Baade and Dye [1990]. Coates and Humphreys use data from 37 Metropolitan Statistical Areas during the period 1969 to 1994. Furthermore, Coates and Humphreys do not just use the presence of a sports team to represent a region’s sports environment, as Baade and Dye did before them. Coates and Humphreys create entry and exit and stadium capacity and construction dummy variables to better capture the region’s sports environment. Coates and Humphreys found that the sport environment of a region had a negative impact on the level of real income per capita. Their findings were different than Baade and Dye [1990]
by virtue of the fact that they found a negative influence, whereas Baade and Dye did not find any influence. Coates and Humphreys [1999] concluded that “sports-led development strategies are not effective engines of economic growth.” (Coates & Humphreys, 1999).

Waldon [1997] actually looked at three different engines that could have an impact on economic growth. Waldon [1997] investigated the effects of high school graduation rates, spending on police, and the presence of a major league sports franchise. Controlling for various factors that may affect economic trends, in 46 cities spanning the period 1990-1994 Waldon [1997] found that higher high school graduation rates and more spending on police stimulated economic growth. In stark contrast, Waldon [1997] found that the presence of a major league franchise hindered economic growth. (as cited in Siegfried & Zimbalist, 2000).

Noll and Zimbalist [1997] discuss the multiplier effects the economy feels from stadium construction. Advocates of stadiums stress the importance of the multiplier effect stadium construction will have on the regional economy. The theory behind this concept is that an employee of the stadium will earn an income, spend it in the economy on a good produced by another worker, and that second worker’s income will therefore increase because of the first worker’s consumption. Theoretically, this should continue numerous times so that one worker’s consumption is ‘multiplied’. Although, Noll and Zimbalist [1997] agree there exists a regional sports multiplier, they say it is usually erroneously calculated because of leakages where income is spent outside of the immediate region. (as cited in Quirk & Fort, 1999).
Not everybody loses from sports franchises and stadiums. There are economists that do acknowledge groups of people who do benefit. Dean Baim [1994] believes subsidies are regressive. Those who benefit are the rich owners and overpaid athletes. Baim even argues the upper-middle class who can afford to buy overpriced tickets also benefit. (as cited in Baade & Sanderson, 1997).

Bast [1998] argues that one way to have fans benefit is to let the fans own and manage teams through nonprofit corporations. This has been successfully done in Green Bay, Wisconsin and has become known as the Packer business model. The Green Bay Packers became the first franchise where its fans were given the option of buying stock at $25 per share to help save the bankrupt Packers of 1923. According to the Packers CFO, because they are nonprofit, all of the so-called “profits” go back into the franchise for stadium renovations, players, or endowments. Because of this business model the Green Bay Packers have the lowest public subsidies of any sports franchise and earns money on its stadium (Lambeau field). (Bast, 1999).

There are some success stories in publicly financed stadiums. In 1989 data of stadium annual financial reports and files of the Government Division, Bureau of the Census show there have been cities that have turned a positive net operating income. Net operating income is calculated by subtracting operating expenses from operating revenue. If net operating income is negative, the stadiums next best alternative to generate smaller losses would be to shutdown. However, if the net operating income is positive the opportunity cost of the stadium to remain open is less than it would be to shutdown. In 1989 Anaheim Stadium ($5,605,000), the Metrodome ($5,554,000), Giants Stadium ($5,150,000), and RFK Stadium ($4,930,000) turned in a substantial, positive net
operating income. Turning in positive net operating incomes will cause tax revenues to increase in each of the stadium’s respective cities. However, for every successful stadium there is an unsuccessful stadium. Louisiana Superdome (-$7,922,000), Seattle Center (-$3,967,000), Atlanta-Fulton County Coliseum (-$1,478,000), and Market Square Arena (-$1,100,000) all turned in negative net operating incomes. This means that stadiums and arenas with negative net operating income must have their respective cities cough up enough cash to cover the operating loss. (Quirk & Fort, 1992).

If stadiums are built on the grounds of economic benefits and they continue to be poor economic development strategies then why do governments continue to subsidize them? The prime reason is the direct result of dubious promotional, impact studies. As we have seen, the promotional impact studies are methodologically flawed and often confuse those that vote ‘yes’ for stadium referendums. Those who are not familiar with economics are often the ones who are mislead. The rest of this paper impartially investigates whether or not economic benefits are generated by redevelopment of sports stadiums. More specifically, I will be looking for a relationship between real per capita personal income and the presence of a sports stadium and/or franchise in one of the 35 major Metropolitan Statistical Areas from the period 1969 to 2000.
Data

The framework for running empirical regressions is represented by the equation
\[
\ln(y) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + \gamma_1 z_1 + \gamma_2 z_2 + \ldots + \gamma_j z_j
\]
where the \(x_k\)'s represent \(k\) variables measuring regional characteristics of the cities and the \(z_j\)'s represent sports-related variables. If the \(\gamma\)'s are significantly different from zero than I can conclude that sports stadiums and franchises do have an impact on per capita personal income. However, if the \(\gamma\)'s are not statistically different from zero than I can conclude that sports stadiums and franchises do not have an impact on real per capita personal income.

That data set used in this paper is constructed using income and population data from the Regional Economic Information System (REIS), from the website of the U.S. Department of Commerce and the Bureau of Labor Statistics. I constructed real per capita personal income by dividing per capita personal income by a CPI multiplier using 1984 as the base year. For the purposes of this paper I used the CPI for urban wage earners because 1) I am analyzing urban areas and 2) it accounts for most of the population. Therefore, all regressions will be outputted in real 1984 dollars to help account for the effects in inflation.

The sports variables generated in the data set were constructed using information from Quirk and Fort [1992] and Meserole [1996]. The data set ranges from the years 1969 to 2000 and covers thirty-five Metropolitan Statistical Areas (MSAs).

The thirty-five MSAs being analyzed are cities that either have or have had a professional football, basketball, or baseball franchise during the period 1969 to 2000. Dummy and explanatory sports variables were constructed to best capture the sports environment of each MSA. For instance, there are dummy variables that capture the
mere presence of a basketball, football, or baseball franchise. Further there are dummy variables that follow a basketball, football, or baseball franchise 10 years after they have entered or exited an MSA to account for lag effects in real per capita personal income. Finally, there are dummy variables for stadium construction and 10 year periods after its construction to account for any lag effects in real per capita personal income. I have also included stadium capacity and how they have changed from 1969 to 2000 to show effects of renovations. Table 1 in the appendix shows variable names and definitions.
Empirical

Table 2 shows mean values from the period of 1969 to 2000 for population, real per capita personal income, baseball stadium capacity, football stadium capacity, and basketball arena capacity for each respective city. New York, Los Angeles, and Chicago rank among the top three cities in population with 1,700,000, 1,300,000, and 8,250,000 respectively. The cities that rank among the top three in population of the thirty-five MSAs have more than three professional sports franchises per city. This means that New York, Los Angeles, and Chicago have more than one franchise per sport. For instance, the city of New York has two baseball teams, two football teams, and one basketball team for a total of five professional sports franchises. These three major cities intuitively rank among the three highest cities with respect to baseball, football, and basketball capacity to accommodate their fans. However, although these cities have multiple franchises per sport, they do not rank among the top three of the thirty five MSAs with respect to real per capita personal income (except New York). Among the top three are San Francisco, Washington, and New York with real per capita personal income of $20,719, $19,650, and $18,984 respectively. With the exception of New York, San Francisco has only two sports franchises and Washington only has three sports franchises. One interesting point to take away from the mean values of Table 2 is that the top two cities with the highest real per capita personal income (San Francisco and Washington) have few professional sports franchises.

Table 3 shows the average growth of real per capita personal income, the average growth of real personal income, and the average growth in population from 1969 to 2000. All thirty-five MSAs experienced a positive growth in real per capita personal income
and real personal income. Thirty-two of the thirty-five MSAs experienced positive
growths in population while three of the MSAs, more specifically, Buffalo (-0.004),
Cleveland (-0.002), and Pittsburgh (-0.004) experienced a negative growth in population.
All thirty-five MSAs seem to have experienced a similar growth in real per capita
personal income ranging from about 0.013 (Buffalo) to 0.023 (Boston, Charlotte, and San
Francisco). Contrastingly, real personal income had a much larger growth range from
0.016 (Detroit) to 0.056 (Orlando and Phoenix).

The Regressions

The regressions tabulated in the appendix were run with year dummy variables to
account for changes in the natural business cycle not due to sports-related factors. Also,
all the dummy variables that were run as regressors were created to show percent changes
over the course of a ten year block to account for lag effects in the changes of real per
capita personal income.

Table 4 shows the results on the natural log of real per capita personal income of
having a baseball, football, or basketball team present over the course of ten years. Table
4 also shows the effects of capacity and renovations may have on the natural log of real
per capita personal income. Of the six variables in Table 4 three were significant within
a 90-percent confidence level. The other three variables that are not significant within
the 90-percent confidence level can be ignored. The variables that do have a significant
effect on the log of real per capita personal income are minimal. Any football team
present decreases real per capita personal income by 2.4% over the course of ten years.
Any basketball team present and baseball team present are not statistically significant
with the 90-percent confidence level so its safe to assume that there contribution to real
per capita personal income is zero. This suggests that any city with at least a football team will have a net negative impact on real per capita personal income. The baseball capacity, football capacity, and basketball capacity coefficients are not statistically different from zero and therefore suggest that renovations and capacity do not affect real per capita personal income. Of all three professional sport franchises, the presence of a football team has the only significant impact on the real per capita income of a region, albeit negative.

Table 5 shows the effects of any baseball, basketball, or football franchise leaving over the course of ten years. All three variables are significant within the 90-percent confidence level. Both football and baseball franchises leaving have a positive effect on the natural log of real per capita personal income. Any baseball franchise that left increases real per capita personal income by 9.4% over the course of ten years. Any football franchise that left increase real per capita personal income by 4.9% over the course of ten years. Finally, any basketball franchise that left decreases real per capita personal income by 3.8% over the course of ten years. According to Table 5, once a basketball team is in a city it is better if it stays because its departure leads to a decrease in real per capita personal income. However, the opposite is said for a football or baseball franchise. Once a football or baseball franchise is present in a given MSA their departure leads to an overall increase in real per capita personal income.

Table 6 shows the effects of multiple departures on the natural log of real per capita personal income. The multiple departure regression consists of cities that have a first team leave town and then a second team leave town. Four of the five variables were significant within the 90-percent confidence level. For a given MSA, the first basketball
team to leave town decreased real per capita personal income by 3.7% over the course of ten years. Likewise, the first football team to leave town increased real per capita personal income by 7.4% over the course of ten years. The second football team to leave town decreased real per capita personal income by 2.7% over the course of ten years. The first baseball team to leave town did not have a significant coefficient within the 90-percent confidence level and therefore can be interpreted as having no effect on real per capita personal income. The second baseball team to leave town increased real per capita personal income by 13% over the course of ten years. Of all the regressions run the multiple departures had the largest impact on the percentage change of real per capita personal income. However, the largest coefficients were positive suggesting that cities were better off when teams were leaving town. A basketball team leaving had the worst impact on real per capita personal income suggesting that a basketball franchise was the best of the three professional sports teams to stay.

Table 7 shows the effects of multiple entries on the natural log of real per capita personal income. The multiple entry regression consists of cities that have a first team enter town and then a second team enter town. Five of the six variables above are significant within the 90-percent confidence level. For a given MSA, the first baseball team to enter town increases real per capita personal income by 4.4% over the course of ten years. A second baseball team to enter town will increase real per capita personal income by 8.0% over the course of ten years. The first basketball team to enter town has a negative effect and will decrease real per capita personal income by 2.0% over the course of ten years. A second basketball team to enter town will increase real per capita personal income by 6.9% over the course of ten years. Finally, the first football franchise
to enter town has the worst effect on real per capita personal income. It will decrease real per capita personal income by 5.2% over the course of ten years. The second football franchise to enter does not have a coefficient that is statistically significant and therefore can be interpreted has having no effect on real per capita personal income. Although, the first basketball and football franchises to enter a city have negative effects on real per capita personal income bringing a second basketball or football franchise to a city will have a positive effect and no effect respectively and completely offset the negative effects of the first franchises. Therefore, cities that have one basketball franchise enter should consider having a second enter to crowd out the negative effects of the first. However, having just one franchise enter, either basketball or football, will be a detriment to real per capita personal income.

Table 8 shows the effects of basketball, football, and basketball stadium construction on the natural log of real per capita personal income over the course of ten years. Two of the three variables are significant within the 90-percent confidence level. For a given MSA, a baseball stadium constructed increases real per capita personal income by 2.4% over the course of ten years. A football stadium constructed increases real per capita personal income by 1.5% over the course of ten years. Finally, a basketball arena constructed does not have a significant coefficient and therefore can be interpreted as having no effect on real per capita personal income. Baseball stadium construction seems to have the largest, positive impact on real per capita personal income at 2.4%. The largest net impact of stadium construction would come from cities that had both a baseball and football stadium constructed.
Most of the dummy variables in the regressions ran with growth of real per capita personal income came back insignificant at the 90-percent confidence level. Therefore, I only included regressions tables that had at least one or more variables significant at the 90-percent confidence level.

Table 9 shows the results on the growth of real per capita personal income of having a baseball, football, or basketball team present in the last ten years. Table 9 also shows the effects of capacity and renovations may have on the growth of real per capita personal income. Of the six variables in Table 9 two were significant within a 90-percent confidence level. The other four variables that are not significant within the 90-percent confidence level can be ignored. The variables that do have a significant effect on the growth of real per capita personal income are minimal. Football capacity and basketball capacity are both not statistically different from zero and therefore can conclude that renovations and capacity do not have an effect on the growth of real per capita personal income.

Table 10 shows the effects of multiple entries on the growth of real per capita personal income. Only one variable is significant within the 90-percent confidence level so the other variables can be ignored. A second basketball team entering a city is likely to contribute to negative growth on real per capita personal income over the course of ten years by approximately -1.17% over the course of ten years.
Conclusion

There are three prominent economic theories as to why sports stadiums do not act as good economic engines to a local economy. They are the substitution effect, leakages, and negative effect on local government budgets. These three reasons pertain to a situation where a new stadium or arena is built for a new franchise entering a local area.

The substitution effect arises because most consumers have a fixed entertainment budget. This implies that if a new sports franchise or stadium comes to town then it is likely that no new money will follow it. To put it more simply, the money a family spends at the sports stadium is money that will not be spent at a restaurant, bar, or theater. The net effect of spending is zero. The only way the net effect of spending would be greater than zero is if new money was being attracted to the region because of the sports franchise. For instance, the Boston Red Sox claim that 35 percent of fans at Fenway Park are from outside the immediate area of Boston. Fenway Park is quite the exception because of the stadium’s rich history that probably attracts avid baseball fans from all over the country. (Siegfried & Zimbalist, 2000).

Leakages are another reason why sports stadium seem to fail as economic redevelopment strategies. In the NBA, MLB, and NFL over 50 percent of team revenues go towards paying players salaries. Another 40 percent goes to the owners. Some of this money is spent locally. However, how much of this money is spent outside of the local economy is an economic phenomenon known as ‘leaking’. (Siegfried & Zimbalist, 2000).

To help illustrate the concept of leakages we will run through a numerical example. Let’s say that a major league player makes about $1 million. About 40% of
this income will immediately be leaked to Washington D.C. because most athletes face the highest income tax level. That leaves the player with approximately $600,000 to spend. However, with a higher level of disposable income comes a higher savings rate. Let’s use 10% percent as a personal savings rate. That’s $60,000 that leaks out of the local economy because more often than not player’s salaries are transitory and have money in world money markets. That leaves $540,000 to be spent locally. However, players do not usually live where they work all year round. Most players have primary, family, or vacation homes elsewhere. Thus the $540,000 that could have been spent locally is usually spent outside of the host city.

Lastly, the concession stand companies at sports stadiums are based elsewhere and the high profits of hot dogs and beer are usually shipped elsewhere. (Siegfried & Zimbalist, 2000).

Finally, there is the negative effect stadiums have on local government budgets. There has been no empirical research to show that sports stadiums contribute to tax revenues. More often than not, sports stadiums earn a negative net operating income. Quirk and Fort [1992] looked at 25 stadiums between the years 1978 to 1992 and found that local governments were giving teams an average subsidy of $7 million a year to cover the net operating loss. In all 25 stadiums that Quirk and Fort [1992] looked at, no stadium turned in a positive net operating income that would have contributed to higher tax revenues for local governments.

Advocates of stadiums also say that the actual construction of the stadium brings an economic impact. However, the money to build the stadiums often comes from the budgets of local governments. Thus, the city is faced with either raising taxes or
decreasing local spending. In any instance, no regional impact will take place without state or federal money. (Siegfried & Zimbalist, 2000).

The results that I discovered from this study were very similar to what Coates [1999] found in his study. According to the results in the Coates’ paper, there was a slight positive and in some cases a slight negative effect on real per capita personal income with the presence of sports franchises in a given MSA. Coates assumes that residents of a particular MSA are willing to accept lower real personal income for the positive social benefits a sports franchise brings to a community.

Like in my study, Coates [1999] had a difficult time finding statistical significance in his multiple entry models and in the growth rates of real per capita income. He concludes, as do I, that the sports environment has no impact on the growth rate of real per capita income because of the lack of statistical significance in the sports-related variables. Further, my findings suggest that there is little benefit in the construction of sports stadiums and arenas.

The empirical analysis of this paper and the empirical analysis of other researchers do not find economic impact benefits with the presence of sports franchises or stadiums.

Let me take the time to point out that in no way am I trying to say that sports stadiums should not be a part of a community and a nation at large. However, I am suggesting that there validation be based upon the enjoyment and satisfaction sports bring to a community and not the false economic impact analysis that are currently being performed.
References


Data Source

The data used in this study was obtained from three sources:


Variables created from data taken from REIS include:

- City
- Year
- Population
- Personal income
- Per capita personal income
- Real personal income
- Real per capita personal income
- gr_percappers
- gr_income
- DPOP

Variables created from data taken from Meserole and Quirk & Fort include:

- bbcapacity
- fbcapacity
- bacapacity
- bbe1
- bbe2
- bad1
- bad2
- bbco
- bbe
- bbd
- bae1
- bae2
- fbe1
- fbe2
- fbd1
- fbd2
- fbc
Do-files

Import.do

set more off

*CAPACITY
clear
insheet using capacity.txt
save capacity.dta, replace

*INCOME
clear
insheet using income.txt
sort city year
save income.dta, replace

*CPI
clear
insheet using cpi.txt
drop if year==.
gen cpi_multiplier=cpi/100
save cpi.dta, replace

*BASEBALL
clear
insheet using baseball.txt

*Generate bbe1
sort city year
by city: gen counter=sum(bbteamlenters)
by city:  gen team1entersyear=year if bbteam1enters==1
by city:  gen yearcounter=sum(team1entersyear)+10
by city:  gen bbe1=1 if counter==1 & year<=yearcounter
drop counter team1entersyear yearcounter
replace bbe1=0 if bbe1==.

*Generate bbe2
sort city year
by city:  gen counter=sum(bbteam2enters)
by city:  gen team2entersyear=year if bbteam2enters==1
by city:  gen yearcounter=sum(team2entersyear)+10
by city:  gen bbe2=1 if counter==1 & year<=yearcounter
drop counter team2entersyear yearcounter
replace bbe2=0 if bbe2==.

*Generate bad1
sort city year
by city:  gen counter=sum(bbteam1exits)
by city:  gen team1exitsyear=year if bbteam1exits==1
by city:  gen yearcounter=sum(team1exitsyear)+10
by city:  gen bad1=1 if counter==1 & year<=yearcounter
drop counter team1exitsyear yearcounter
replace bad1=0 if bad1==.

*Generate bad2
sort city year
by city:  gen counter=sum(bbteam2exits)
by city:  gen team2exitsyear=year if bbteam2exits==1
by city: gen yearcounter=sum(team2exitsyear)+10
by city: gen bad2=1 if counter==1 & year<=yearcounter
drop counter team2exitsyear yearcounter
replace bad2=0 if bad2==.
*Generate bbco
sort city year
by city: gen counter=sum(bbbuilt)
by city: gen builtyear=year if bbbuilt==1
by city: gen yearcounter=sum(builtyear)+10
by city: gen bbco=1 if counter==1 & year<=yearcounter
drop counter builtyear yearcounter
replace bbco=0 if bbco==.
*Generate bbe
gen bbe=1 if bbe1==1 | bbe2==1
replace bbe=0 if bbe==.
*Generate bbd
gen bbd=1 if bad1==1 | bad2==1
replace bbd=0 if bbd==.
save baseball.dta, replace
*FOOTBALL
clear
insheet using football.txt
*Generate fbel
sort city year
by city: gen counter=sum(fbteamlenters)
by city: gen team1entersyear=year if fbteam1enters==1
by city: gen yearcounter=sum(team1entersyear)+10
by city: gen fbe1=1 if counter==1 & year<=yearcounter
drop counter team1entersyear yearcounter
replace fbe1=0 if fbe1==.

*Generate fbe2
sort city year
by city: gen counter=sum(fbteam2enters)
by city: gen team2entersyear=year if fbteam2enters==1
by city: gen yearcounter=sum(team2entersyear)+10
by city: gen fbe2=1 if counter==1 & year<=yearcounter
drop counter team2entersyear yearcounter
replace fbe2=0 if fbe2==.

*Generate fbd1
sort city year
by city: gen counter=sum(fbteam1exits)
by city: gen team1exitsyear=year if fbteam1exits==1
by city: gen yearcounter=sum(team1exitsyear)+10
by city: gen fbd1=1 if counter==1 & year<=yearcounter
drop counter team1exitsyear yearcounter
replace fbd1=0 if fbd1==.

*Generate fbd2
sort city year
by city: gen counter=sum(fbteam2exits)
by city: gen team2exitsyear=year if fbteam2exits==1
by city:  gen yearcounter=sum(team2exitsyear)+10
by city:  gen fbd2=1 if counter==1 & year<=yearcounter
drop counter team2exitsyear yearcounter
replace fbd2=0 if fbd2==.

*Generate fbco
sort city year
by city:  gen counter=sum(fbbuilt)
by city:  gen builtyear=year if fbbuilt==1
by city:  gen yearcounter=sum(builtyear)+10
by city:  gen fbco=1 if counter==1 & year<=yearcounter
drop counter builtyear yearcounter
replace fbco=0 if fbco==.

*Generate fbe
gen fbe=1 if fbe1==1 | fbe2==1
replace fbe=0 if fbe==.

*Generate fbd
gen fbd=1 if fbd1==1 | fbd2==1
replace fbd=0 if fbd==.
save football.dta, replace

*BASKETBALL

clear

insheet using basketball.txt

*Generate bael
sort city year
by city:  gen counter=sum(bateamlenters)
by city:  gen team1entersyear=year if bateam1enters==1
by city:  gen yearcounter=sum(team1entersyear)+10
by city:  gen bae1=1 if counter==1 & year<=yearcounter
drop counter team1entersyear yearcounter
replace bae1=0 if bae1==.

*Generate bae2
sort city year
by city:  gen counter=sum(bateam2enters)
by city:  gen team2entersyear=year if bateam2enters==1
by city:  gen yearcounter=sum(team2entersyear)+10
by city:  gen bae2=1 if counter==1 & year<=yearcounter
drop counter team2entersyear yearcounter
replace bae2=0 if bae2==.

*Generate bbd1
sort city year
by city:  gen counter=sum(bateam1exits)
by city:  gen team1exitsyear=year if bateam1exits==1
by city:  gen yearcounter=sum(team1exitsyear)+10
by city:  gen bbd1=1 if counter==1 & year<=yearcounter
drop counter team1exitsyear yearcounter
replace bbd1=0 if bbd1==.

*Generate bbd2
sort city year
by city:  gen counter=sum(bateam2exits)
by city:  gen team2exitsyear=year if bateam2exits==1
by city: gen yearcounter=sum(team2exitsyear)+10
by city: gen bbd2=1 if counter==1 & year<=yearcounter
drop counter team2exitsyear yearcounter
replace bbd2=0 if bbd2==.

*Generate baco
sort city year
by city: gen counter=sum(babuilt)
by city: gen builtyear=year if babuilt==1
by city: gen yearcounter=sum(builtyear)+10
by city: gen baco=1 if counter==1 & year<=yearcounter
drop counter builtyear yearcounter
replace baco=0 if baco==.

*Generate bae
gen bae=1 if bae1==1 | bae2==1
replace bae=0 if bae==.

*Generate bad
gen bad=1 if bbd1==1 | bbd2==1
replace bad=0 if bad==.
save basketball.dta, replace
clear

set more on
Cleaning.do
clear

use capacity.dta
sort city year
save, replace

use baseball.dta
sort city year
save, replace

use basketball.dta
sort city year
save, replace

use football.dta
sort city year
save, replace

use income.dta
sort city year
save, replace

use cpi.dta
sort year
save, replace

use baseball.dta
sort city year
merge city year using basketball.dta

drop _merge
sort city year
merge city year using football.dta

drop _merge
sort city year
merge city year using capacity.dta

drop _merge
sort city year
merge city year using income.dta

drop _merge
sort year
merge year using cpi.dta
sort city year
*generate more variables
gen realpercapita = percapitapersonalincomedollars/cpi_multiplier
gen realpersonal = personalincome/cpi_multiplier

sort city year
by city: gen gr_percappers = (realpercapita[_n+1]-
realpercapita)/realpercapita

by city: gen DPOP = (population[_n+1]-population)/population

by city: gen gr_income = (realpersonal[_n+1]-
realpersonal)/realpersonal

gen ln_realpercapita = ln(realpercapita)

save dataset.dta, replace

Analysis.do

use dataset.dta

keep if year >= 1969

table city, contents(mean bbcapacity mean fbcapacity mean bacapacity)
table city, contents(mean gr_percappers mean DPOP mean gr_income)

*PRESENCE REGRESSIONS
xi: reg ln_realpercapita bbcapacity fbcapacity bacapacity
bbe fbe bae i.year

*GOING REGRESSIONS
xi: reg ln_realpercapita bbd fbd bad i.year
xi: reg ln_realpercapita bbd1 fbd1 fbd2 bad1 bad2 i.year

*ENTERING REGRESSIONS

xi: reg ln_realpercapita bbe1 bbe2 bae1 bae2 fbe1 fbe2 i.year

*CONSTRUCTION REGRESSIONS

xi: reg ln_realpercapita bbco fbco baco i.year

*GROWTH REGRESSIONS

*PRESENCE REGRESSIONS

xi: reg gr_percappers bbcapacity fbcapacity bacapacity bbe fbe bae i.year

*GOING REGRESSIONS

xi: reg gr_percappers bbd fbd bad i.year

xi: reg gr_percappers bbd1 fbd1 fbd2 bad1 bad2 i.year

*ENTERING REGRESSIONS

xi: reg gr_percappers bbe1 bbe2 bae1 bae2 fbe1 fbe2 i.year

*CONSTRUCTION REGRESSIONS

xi: reg gr_percappers bbco fbco baco i.year
Data Appendix

Variable name: city
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: city name
Variable values and coding: Atlanta, Baltimore, Boston, Buffalo, Charlotte, Chicago,
Cincinnati, Cleveland, Dallas, Denver, Detroit, Green Bay, Houston, Indianapolis,
Kansas City, Los Angeles, Miami, Milwaukee, Minneapolis, New Orleans, New York,
Orlando, Philadelphia, Phoenix, Pittsburgh, Portland, Sacramento, Salt Lake City, San

Variable name: year
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: year

Variable name: bbcapacity
Number of non-missing observations: 617
Percentage of non-missing observations: 42%
Variable description: capacity of a baseball stadium
Variable values and coding:
  Mean: 57,088
  Standard deviation: 16,100
  Minimum: 25,420
  Maximum: 112,646

Variable name: fbcapacity
Number of non-missing observations: 795
Percentage of non-missing observations: 54%
Variable description: capacity of a football stadium
Variable values and coding:
  Mean: 68,324
  Standard deviation: 9,625
  Minimum: 26,500
  Maximum: 92,604

Variable name: bacapacity
Number of non-missing observations: 661
Percentage of non-missing observations: 45%
Variable description: capacity of a basketball arena
Variable values and coding:
Mean: 17,180
Standard deviation: 3,872
Minimum: 6,841
Maximum: 40,192

Variable name: population
Number of non-missing observations: 1120
Percentage of non-missing observations: 76%
Variable description: city population
Variable values and coding:
  Mean: 3,073,039
  Standard deviation: 3,147,795
  Minimum: 197,096
  Maximum: 1.84e+07

Variable name: personalincome
Number of non-missing observations: 1120
Percentage of non-missing observations: 76%
Variable description: city personal income
Variable values and coding:
  Mean: 5.41e+07
  Standard deviation: 7.65e+07
  Minimum: 661,356
  Maximum: 7.33e+08

Variable name: percapitapersonal
Number of non-missing observations: 1120
Percentage of non-missing observations: 76%
Variable description: per capita personal income of a city
Variable values and coding:
  Mean: 15,819
  Standard deviation: 8,816
  Minimum: 3,140
  Maximum: 48,343

Variable name: realpersonal
Number of non-missing observations: 1120
Percentage of non-missing observations: 76%
Variable description: real personal income in 1984 dollars
Variable values and coding:
  Mean: 4.80e+07
  Standard deviation: 5.59e+07
  Minimum: 1,802,060
  Maximum: 4.26e+08

Variable name: realpercapita
Number of non-missing observations: 1120
Percentage of non-missing observations: 76%
Variable description: real per capita personal income in 1984 dollars
Variable values and coding:
  Mean: 14,564
  Standard deviation: 2,713
  Minimum: 8,555
  Maximum: 28,073

Variable name: gr_percappers
Number of non-missing observations: 1085
Percentage of non-missing observations: 74%
Variable description: growth of real per capita personal income in 1984 dollars
Variable values and coding:
  Mean: 0.0178
  Standard deviation: 0.0240
  Minimum: -0.0675
  Maximum: 0.1037

Variable name: gr_income
Number of non-missing observations: 1085
Percentage of non-missing observations: 74%
Variable description: growth of personal income in 1984 dollars
Variable values and coding:
  Mean: 0.0320
  Standard deviation: 0.0287
  Minimum: -0.0655
  Maximum: 0.1468

Variable name: DPOP
Number of non-missing observations: 1085
Percentage of non-missing observations: 74%
Variable description: percentage change in population
Variable values and coding:
  Mean: 0.0139
  Standard deviation: 0.0139
  Minimum: -0.0176
  Maximum: 0.0739

Variable name: bbe1
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: first baseball franchise entered, last 10 years
Variable values and coding:
0: years that the first baseball team did not enter
1: year corresponding to the first baseball team to enter and the subsequent nine years
Modifications to variable:
a) “.” converted to “0”

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Number of non-missing observations</th>
<th>Percentage of non-missing observations</th>
<th>Variable description</th>
<th>Variable values and coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>bbe2</td>
<td>1470</td>
<td>100%</td>
<td>second baseball franchise entered, last 10 years</td>
<td>0: years that the second baseball team did not enter 1: year corresponding to the second baseball team to enter and the subsequent nine years</td>
</tr>
<tr>
<td>bad1</td>
<td>1470</td>
<td>100%</td>
<td>first baseball franchise left, last 10 years</td>
<td>0: years that the first baseball team did not leave 1: year corresponding to the first baseball team to leave and the subsequent nine years</td>
</tr>
<tr>
<td>bad2</td>
<td>1470</td>
<td>100%</td>
<td>second baseball franchise left, last 10 years</td>
<td>0: years that the second baseball team did not leave 1: year corresponding to the second baseball team to leave and the subsequent nine years</td>
</tr>
<tr>
<td>bbco</td>
<td>1470</td>
<td>100%</td>
<td>baseball stadium constructed, last 10 years</td>
<td>0: years that the baseball stadium was not constructed 1: year corresponding to the baseball stadium constructed and the subsequent nine years</td>
</tr>
<tr>
<td>bbe</td>
<td>1470</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Variable description: any baseball franchise present, last 10 years
Variable values and coding:
0: years that any baseball franchise was not present
1: year corresponding to a baseball team present and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: bbd
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%

Variable description: any baseball franchise left, last 10 years
Variable values and coding:
0: years that any baseball franchise had not left
1: year corresponding to a baseball team leaving and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: bae1
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%

Variable description: first basketball franchise entered, last 10 years
Variable values and coding:
0: years that the first basketball team did not enter
1: year corresponding to the first basketball team entering and the subsequent nine years
Modifications to variable
a) “.” converted to “0”

Variable name: bae2
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%

Variable description: second basketball franchise entered, last 10 years
Variable values and coding:
0: years that the second basketball team did not enter
1: year corresponding to the second basketball team entering and the subsequent nine years
Modifications to variable
a) “.” converted to “0”

Variable name: bbd1
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%

Variable description: first basketball franchise left, last 10 years
Variable values and coding:
0: years that the first basketball team did not leave
1: year corresponding to the first basketball team leaving and the subsequent nine years
Modifications to variable
a) “.” converted to “0”

Variable name: bbd2
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: second basketball franchise left, last 10 years
Variable values and coding:
0: years that the second basketball team did not leave
1: year corresponding to the second basketball team leaving and the subsequent nine years
Modifications to variable
a) “.” converted to “0”

Variable name: baco
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: basketball arena constructed, last 10 years
Variable values and coding:
0: years that the basketball arena was not constructed
1: year corresponding to the basketball arena constructed and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: bae
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: any basketball franchise present, last 10 years
Variable values and coding:
0: years that any basketball franchise was not present
1: year corresponding to a basketball team present and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: bad
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: any basketball franchise left, last 10 years
Variable values and coding:
0: years that any basketball franchise had not left
1: year corresponding to a basketball team leaving and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: fbe1
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: first football franchise entered, last 10 years
Variable values and coding:
0: years that the first football team did not enter
1: year corresponding to the first football team to enter and the subsequent nine years
Modifications to variable:
a) “.” converted to “0”

Variable name: fbe2
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: second football franchise entered, last 10 years
Variable values and coding:
0: years that the second football team did not enter
1: year corresponding to the second football team to enter and the subsequent nine years
Modifications to variable:
a) “.” converted to “0”

Variable name: fbd1
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: first football franchise left, last 10 years
Variable values and coding:
0: years that the first football team did not leave
1: year corresponding to the first football team to leave and the subsequent nine years
Modifications to variable:
a) “.” converted to “0”

Variable name: fbd2
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: second football franchise left, last 10 years
Variable values and coding:
0: years that the second football team did not leave
1: year corresponding to the second football team to leave and the subsequent nine years
Modifications to variable:
a) “.” converted to “0”

Variable name: fbco
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: football stadium constructed, last 10 years
Variable values and coding:
0: years that the football stadium was not constructed
1: year corresponding to the football stadium constructed and the subsequent nine years
Modifications to variable:
a) “.” Converted to “0”
Variable name: fbe
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: any football franchise present, last 10 years
Variable values and coding:
0: years that any football franchise was not present
1: year corresponding to a football team present and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”

Variable name: fbd
Number of non-missing observations: 1470
Percentage of non-missing observations: 100%
Variable description: any football franchise left, last 10 years
Variable values and coding:
0: years that any football franchise had not left
1: year corresponding to a football team leaving and the subsequent nine years
Modifications to variable
a) “.” Converted to “0”
Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>bbcapacity</td>
<td>baseball stadium capacity</td>
</tr>
<tr>
<td>fbcapacity</td>
<td>football stadium capacity</td>
</tr>
<tr>
<td>bacapacity</td>
<td>basketball stadium capacity</td>
</tr>
<tr>
<td>bae1</td>
<td>first basketball franchise entered, last 10 years</td>
</tr>
<tr>
<td>bae2</td>
<td>second basketball franchise entered, last 10 years</td>
</tr>
<tr>
<td>fbe1</td>
<td>first football franchise entered, last 10 years</td>
</tr>
<tr>
<td>fbe2</td>
<td>second football franchise entered, last 10 years</td>
</tr>
<tr>
<td>bbe1</td>
<td>first baseball franchise entered, last 10 years</td>
</tr>
<tr>
<td>bbe2</td>
<td>second baseball franchise entered, last 10 years</td>
</tr>
<tr>
<td>bbd1</td>
<td>first basketball franchise left, last 10 years</td>
</tr>
<tr>
<td>bbd2</td>
<td>second basketball franchise left, last 10 years</td>
</tr>
<tr>
<td>fbd1</td>
<td>first football franchise left, last 10 years</td>
</tr>
<tr>
<td>fbd2</td>
<td>second football franchise left, last 10 years</td>
</tr>
<tr>
<td>bce</td>
<td>any baseball franchise present</td>
</tr>
<tr>
<td>bae</td>
<td>any basketball franchise present</td>
</tr>
<tr>
<td>fbe</td>
<td>any football franchise present</td>
</tr>
<tr>
<td>fbe</td>
<td>any baseball franchise left, last 10 years</td>
</tr>
<tr>
<td>bbd</td>
<td>any basketball franchise left, last 10 years</td>
</tr>
<tr>
<td>bad</td>
<td>any baseball franchise left, last 10 years</td>
</tr>
<tr>
<td>fbd</td>
<td>any football franchise left, last 10 years</td>
</tr>
</tbody>
</table>
Table 2

Mean Values 1969 to 2000

<table>
<thead>
<tr>
<th>City</th>
<th>per capita personal income</th>
<th>personal income</th>
<th>population</th>
<th>Baseball Capacity</th>
<th>Football Capacity</th>
<th>Basketball Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>$15,527</td>
<td>$49,649,766</td>
<td>2,792,049</td>
<td>52,710</td>
<td>62,622</td>
<td>15,250</td>
</tr>
<tr>
<td>Baltimore</td>
<td>$16,137</td>
<td>$38,429,891</td>
<td>2,305,092</td>
<td>52,276</td>
<td>61,101</td>
<td>15,391</td>
</tr>
<tr>
<td>Boston</td>
<td>$18,251</td>
<td>$75,960,935</td>
<td>4,080,169</td>
<td>33,871</td>
<td>52,652</td>
<td>17,300</td>
</tr>
<tr>
<td>Buffalo</td>
<td>$14,043</td>
<td>$16,984,080</td>
<td>1,237,787</td>
<td>69,156</td>
<td>76,237</td>
<td>14,740</td>
</tr>
<tr>
<td>Charlotte</td>
<td>$14,877</td>
<td>$15,849,822</td>
<td>962,688</td>
<td>23,698</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicago</td>
<td>$17,062</td>
<td>$143,800,000</td>
<td>8,250,290</td>
<td>83,086</td>
<td>58,605</td>
<td>18,802</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>$14,777</td>
<td>$27,603,922</td>
<td>1,812,881</td>
<td>66,044</td>
<td>58,335</td>
<td>19,142</td>
</tr>
<tr>
<td>Cleveland</td>
<td>$16,086</td>
<td>$34,630,760</td>
<td>2,177,514</td>
<td>69,213</td>
<td>78,512</td>
<td>15,998</td>
</tr>
<tr>
<td>Dallas</td>
<td>$16,098</td>
<td>$64,800,192</td>
<td>3,564,371</td>
<td>60,790</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver</td>
<td>$17,121</td>
<td>$29,916,908</td>
<td>1,586,654</td>
<td>56,825</td>
<td>76,273</td>
<td>14,740</td>
</tr>
<tr>
<td>Detroit</td>
<td>$16,423</td>
<td>$71,332,996</td>
<td>4,342,822</td>
<td>52,416</td>
<td>70,499</td>
<td>17,212</td>
</tr>
<tr>
<td>Green Bay</td>
<td>$13,844</td>
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<th>P&gt;t</th>
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Table 5

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**Multiple Entries**

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### Table 8

**Construction effects**

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### Table 9

**Presence Effects**

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