

Sports-driven Economies: Do they help?

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Abstract

When it comes to the use of public funds to build new sports facilities, there are two opposing viewpoints. One camp including team owners and political leaders believes in the sport-driven economy. They claim that professional sports facilities built by public franchises are the drivers of the local economy. However, the other camp, which is mostly represented by economists, rejects this idea by providing the little impact of the sports teams on the urban economy. In this research paper, we critically review these two perspectives and study the long-term impact of the local sports teams on the economy of the city that hosts the teams. The significance of this topic is to see whether or not cities could benefit economically from having a professional sports team or whether they would be better off staying away from them. A comprehensive data analysis is conducted on the Metropolitan area statistics from 2001 to 2018 with regards to their sports teams, population and the GDP of the area. The data was obtained from the United States Census Bureau which provides the economic factors of the metropolitan areas of the United States. The result of the data analysis proves that over a long-term period hosting sports teams contributes to the growth of the economy of metropolitan areas in the United States.

Keywords

Professional Sports Teams, Metropolitan Statistical Areas, Economic Growth

Introduction (Literature review)

Little research has been done on the effect of hosting a professional sports team and the economy of the city over the past 20 years. The majority of those articles conducted before 2000 reject the idea of the sport-driven economy. However, they do not completely rule out the short-term impact of the sports teams on the prosperity of the economy of the city. In recent years especially after the big recession in 2008, the construction of sport major facilities such as sports arenas and stadiums has been rising. This trend has been accompanied by the growth in subsidies spending to build these facilities (Andrew Zimbalist, 2006). The cities providing subsidies hope to receive economic benefits to not just cover the subsidies but also to create infrastructure for the long-term prosperity of their economy. The following are some of the articles that investigated the role of professional sports teams on the growth of the local economy.

The paper titled “Economic Consequences of Professional Sports Strikes and Lockouts” discusses the impact that strikes and lockouts of professional sports have on a community. The

authors, Coates and Humphrey, attempt to show the downsides to a sport-driven economy's. They believe that the cancellation of many games across the United States in 1998-1999, which caused by the difficulties between players and owners in the NBA (National Basketball Association), had an insignificant impact on the local economic development. The hypothesis of the study was that if professional sports teams leverage greater economic activity, especially in consumer spending, then the work stoppage must have the opposite effect. The objective of their study is to examine the economic consequences of work stoppages in professional sports on the economies of cities with professional sports franchises. One research gap in their article is that they did not address the impacts of strikes and lockouts on any sports (other than baseball) (Dennis Coates B. R., 2001). However, in the current paper, we address this gap by considering NFL (National Football League), NBA (National Basketball Association), MLB (Major League Baseball), and NHL (National Hockey League) teams hosted by a city.

Baade et al. in their paper titled "Selling the Game: Estimating the Economic Impact of Professional Sports through Taxable Sales" discuss how the people from places near a professional sports facilities are affected by taxable sales. That article also supports the claim that the benefit of professional sports for the host cities' economy is minor. The financial benefits of constructing new stadiums at public expense and hosting mega-events such as the Super Bowl are not considerable enough to increase economic activities. That research is relevant to the research being conducted because it explores the negative impacts of holding sports events. The NFL announced that the economic impact of holding the Super Bowl was about \$400 million in 1999. The MLB attaches a \$75 million benefit to the All-Star Game (Selig, 1999) and up to \$250 million for the World Series (Ackman, 2000). The hypothesis of the article is if franchises do indeed provide large positive impacts on local economies, then their sudden absence as a result of work stoppages should result in observable negative effects on the city. The objective of their study is to examine the impact of individual sporting events on taxable sales. The research gap in their study is that it only focuses on just state of Florida and not multiple different geographical locations (Robert A. Baade, 2008). However, we will address this gap by considering major metropolitan areas to infer a more credible result.

The other relevant literature is the "Negotiating Games: Cities, Sports, and the Winner's Curse" conducted by Rosentraub and Swindell because it is looking at the economic effects of subsidies that cities provide for sports facilities. They believe that using subsidies, which are public funds, to build arenas has no economic justification. In other words, in North America, sports teams' benefit from public funds is far bigger than the economic progress they create for the community in terms of jobs, development, and taxes (Danoelson, 1997) (Euchner, 1994) (Short, 1999). This study hypothesizes that cities can avoid the winner's curse by reducing needs to offer a subsidy. Its objective is to identify external and internal factors to understand the value of the teams. One research gap in the paper is that their study does not use any data analysis to come to their conclusions (Mark Rosentraub, 2002).

The next paper titled "Professional Sports Facilities, Franchises, and Urban Economic Development" is also relevant to our study. Coates and Humphreys try to find the social benefit of having sports teams by looking at the collected data. One theory that is presented is that by having a city own a team and raising taxes, there is a chance that there will be support for subsidies. They also support the previous articles' idea that professional sports facilities and franchises do not contribute as much to the economic development of the cities as claimed by

the owners of professional sports teams. The objective of the paper is to see how sports impact an urban community in terms of income and employment. The research gap in the paper is that two major sporting events are considered to make a conclusion (Dennis Coates B. R., 2003).

The next article is titled "An Empirical Estimation of the Economic Impact of Major League Sports Teams on Cities". This paper is relevant to the topic that is being researched because the paper looks at both the social and economic benefits of having a major league sports team in a community. The paper gives examples early on of Denver and Milwaukee and how the cities raised funds for new stadiums. The objective of the paper is to determine if there is an impact on per capita income. It concluded that "cities, where one major league sports team is located, do not have different incomes than cities without teams, but the cities with more than one team have higher per capita money incomes than cities without teams" (Mark Gius, 2001).

However, in recent years, most research papers in this area have ended up concluding that investment in sports teams and facilities from public funds will move the wheels of the local economy. One of these papers is titled "The Economic Impact of Stadiums and Teams: the case of Minor League Baseball" which investigates the justification of government subsidies for minor league baseball teams and stadiums by their impact on the local economy. They studied the 238 metropolitan areas that hosted affiliated or independent minor leagues between 1984 and 2006. That study shows that AAA teams, A+ teams, AA stadiums, and rookie stadiums have a positive effect on the local per capita income. This paper presents an opposite view than the previous papers with respect to the impact of the local professional teams on the economy of the community. It suggests that not only the increase in income, job, and taxes resulted from minor league teams could offset the public sector contribution, but it also makes a dramatic positive change in the local economy of small towns. The gap in this research is to just consider the baseball league to conclude the positive impact of the sports team on the local economy (Agha, 2013).

The next paper written by Xia Feng and Brad Humphreys is titled "Assessing the Economic Impact of Sports Facilities on Residential Property Values". It states that proximity to two sport facilities in Columbus, OH has significant positive value for the surrounding residential properties. It presents an intangible benefit of having sports facilities on the local economy. This article argues that the increase in property values generated by sports facilities outweighs the cost increase caused by higher tax and cost of living. Their rationale is that the main part of the cost increase will go back into the cycle of the local economy in the form of renewing the city or building new sports facilities. Although the effect of the sports facilities may not always be visible, the residents benefit from their intangible advantages such as higher quality of life derived from various community attributes and amenities. Quality of life is defined as a multifaceted concept which includes but not limited to climate, public safety, medical facilities, cultural importance, civic pride, city visibility, and city image. The main gap in that research is to conduct the study on Columbus, OH which may not be representative of the entire United States (Xia Feng, 2018).

The next article written by Peter Grootuis and Kurt Rotthoff is titled “The Economic Impact and Civic Pride Effects of Sports Teams and Mega-events: Do The Public and the Professionals Agree?”. It surveyed US residents’ perception of economic impacts and civic pride from mega-events such as the Super Bowl and the Winter Olympics. It argues that hosting mega-events has a significant positive impact on civic pride which is hard to quantify. Their research results show that general public opinion agrees with the positive impacts of hosting sports events on the local economy. The gap in this research is its data collection method which was done over the phone in 2013 before the Super Bowl and 2014 after the Winter Olympics were held (Grootuis & Rotthoff, 2016).

The paper titled “What is the value of a Premier League football club to a regional economy?” is written by Annette Roberts et al. It provides numerical evidence to support the positive impact of the regular season-based sport in peripheral regions. It identified a substantial return on the public investment in the stadium infrastructure due to the redistribution of television revenues of the UK Premier League to the regional economy. This is one of the few articles that studied the net economic impact of the sports events on the local economy. The gap in this research is to consider only the UK Premier League which may not be similar to the other leagues around the world (Roberts & Neil Roche, 2016).

Given the reviewed literature, this paper attempts to investigate the short-term and long-term effects of having sports events and hosting sports teams on the economy of the host cities in the 384 Metropolitan Areas of the United States.

The rest of the paper is organized as follows. In the proposed method, the research questions, data collection and data analysis of the research are outlined. In conclusion, the obtained results and the future research pathway are provided.

Methodology

Having reviewed the main body of the literature on the relationship between hosting sports teams and the local economy, we present a new complementary perspective that includes those points and also introduces a new definition in that regard. We argue that not all economic benefits are measurable with typical metrics. Nor are they tangible in terms of their visible impacts on the appearance of the city and its residents. Rather, the main impact of investing in large-scale sports facilities and also hosting professional sports teams appears in the long term.

As far as the short-term impact of hosting sports teams on the economy is concerned, various factors including job creation, income increase, and tax revenue increase should be taken into account. Experts estimated that over \$7 billion would be spent on building new facilities and also renovating the old ones by 2006. Each of those facilities costs about \$200 million which is substantially paid from public sources such as federal government, state and local government. Tax-exempt bonds that have lower interest rates on debt help cities and teams build or renovate sports facilities. The subsidies are offset by tax revenue from ticket sales, sales tax, and increase in property taxes arising from sports facilities’ impact on the value of the properties economic (Andrew Zimbalist, 2006). One of the short-term positive impacts is to create construction jobs. Besides, maintenance of the facilities also creates jobs for locals. It is also going to be a new source of capital investments for investors, but the amount of investment depends on factors such as the popularity of the sports team, population and size of

the city as well as the size of the facility. These impacts to a large extent are measurable and tangible but some other factors exist whose impact needs a long period of time to appear. A few of these factors are discussed below.

In studying the long-term impact of hosting sports teams on the local economy, factors such as an increase in nearby residential property value, sport-tourism outweigh the other factors. Sports events have been one of the main reasons for attracting tourists. They provide an opportunity for residents, participants, spectators, as well as fans from outside the town to gather and watch the game. The media coverage of the event can draw the attention of fans from across the country to the event. With the advancement of the Information Technology and telecommunication infrastructure, sports fans from abroad can also pay close attention to the game. One aspect of the sports events in sport tourism was first introduced by Kurtzman. He defined participants and spectators as sport tourists (Kurtzman J. , 1993) (Kurtzman, 2005). He distinguished five types of activities that can contribute to the economic growth of the city hosting events. The pre and post-match events held in town, tourist attractions, tour, sports resorts, and sports cruises were those categories whose impact on the global picture of the city is hardly measurable. The other aspect of the event is the media coverage of the game broadcast over cable networks and also the Internet which both need customer subscriptions.

In addition to tourism, hosting sports events is an advertisement for the city in terms of city image, cultural importance, and community visibility. These factors are intangible and are not quantifiable in the economic context. However, their long-term effects raise the quality of life in the city.

The other intangible and long-term impact of hosting sports events, which goes hand in hand with the general image of the city and its importance, is the increase in the value of the properties. It has been proven that residential properties close to sports facilities have more increase in values than those far from the sports facilities (Gabriel Ahlfeldt W. M., 2009) (Gabriel Ahlfeldt G. K., 2014) (Xia Feng, 2018). The price rise for the properties near sports facilities is beneficial for the owners who bought them before the construction of the sports stadium. However, it may not be as beneficial for the owners who purchased the property after the construction. If it is considered in the long-term context, the increase in the value of the residential properties surrounding the sports facilities happens at a higher rate than the other properties. This long-term increase in the value makes up for the short-term costs such as property taxes and cost of living.

Therefore, putting the tangible and intangible benefits over the short-term and long-term together, we conclude that the overall impact of hosting sports teams is beneficial to the city hosting them. Considering the laid out argument, we hypothesize that hosting sports teams have an overall positive impact on the economy of the city. We attempt to test that hypothesis on the data collected over 384 Metropolitan Statistical Areas in the United States.

Hypothesis:

H₀: *In the United States Metropolitan Statistics Areas, hosting professional sports teams does not have a positive long-term impact on the local economy.*

H_a : In the United States Metropolitan Statistics Areas, hosting professional sports teams has a positive long-term impact on the local economy.

In this hypothesis, by sports teams we mean NFL, NBA, MLB, and NHL teams and by the local economy, we mean the GDP of the Metropolitan Area.

Data Analysis

The United States Office of Management and Budget (OMB) defines the metropolitan statistical area as “a core area containing a substantial population nucleus together with adjacent communities having a high degree of economic and social integration with that core. Each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. As of September 2018, there are 384 metropolitan statistical areas in the united states” (US-Census-Bureau, 2018).

The dataset was downloaded from the United States Census Bureau which includes the information of 384 Metropolitan Statistics Areas in the United States between the years 2001 and 2018. This dataset has nine variables, Year, Geographic Name, Per Capita, GDP, Number of NFL teams, Number of NBA teams, Number of MLB teams, Number of NHL teams, and Population. The table has 6912 records for the metropolitan areas between 2001 and 2018.

In order to see the effect of hosting professional sports teams on the local economy, the correlation between the sum of the number of teams and the GDP of the Metropolitan area is calculated which is given below.

| <i>Linear Correlation Table</i> | GDP | SUM(Teams) |
|---------------------------------|-------------|-------------|
| | Data Set #1 | Data Set #1 |
| GDP | 1.000 | 0.881 |
| SUM(Teams) | 0.881 | 1.000 |

Table1. Correlation between Team Numbers and GDP

The result shows that the two variables are highly correlated. In the next step, a simple linear regression is performed to calculate the dependence equation between the two variables.

| <i>Multiple Regression for GDP</i> | Multiple | R-Square | Adjusted | Std. Err. of | Rows | Outliers |
|------------------------------------|-------------|-------------|-------------|--------------|-------------------------|-------------|
| | R | | R-square | Estimate | Ignored | |
| <i>Summary</i> | 0.8812 | 0.7766 | 0.7766 | 46925692.11 | 0 | 162 |
| <i>Regression Table</i> | Coefficient | Standard | t-Value | p-Value | Confidence Interval 95% | |
| | | Error | | | Lower | Upper |
| Constant | 9565114.8 | 588150.4473 | 16.26304093 | < 0.0001 | 8412159.153 | 10718070.45 |
| SUM(Teams) | 88255720.59 | 569466.498 | 154.9796536 | < 0.0001 | 87139391.23 | 89372049.95 |

Regression Equation

$$GDP = 9565114.79961464 + 88255720.5909634 \text{ SUM(Teams)}$$

Table2. Simple Linear Regression results

Table2. Includes the result of the regression. The regression table indicates that the sum of the number of teams is statistically significant and also has a positive effect on the GDP of the metropolitan area with the following formula.

$$GDP = 9565114.79961464 + 88255720.5909634 \text{ SUM(Teams)}$$

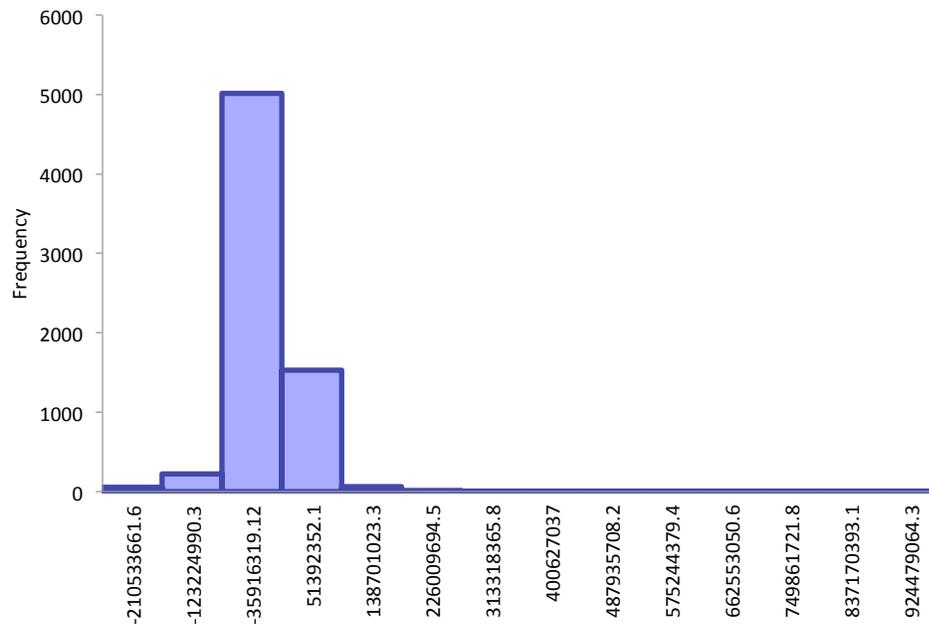


Figure1. Histogram of the residual

The assumptions of the regression are also satisfied. R-squared is equal to 0.7766 which is very close to 1 and is indicative of the good fit of the model. Histogram of the residual given in Figure1 shows that it has a normal distribution. Therefore, the results obtained from regression analysis are reliable.

To see the effect of the other factors such as population of the metropolitan area on the equation, in the second step of the analysis, a new model including Sum(Teams) and the population as independent variable and annual GDP as the dependent variable is created. The result of the multiple linear regression is given in Table3.

| <i>Multiple Regression for GDP</i> | Multiple R | R-Square | Adjusted R-square | Std. Err. of Estimate | Rows Ignored | Outliers |
|------------------------------------|------------|----------|-------------------|-----------------------|--------------|----------|
| <i>Summary</i> | 0.9920 | 0.9840 | 0.9819 | 930471.9978 | 0 | 0 |

| <i>Regression Table</i> | Coefficient | Standard | t-Value | p-Value | Confidence Interval 95% | |
|-------------------------|-------------|-------------|-------------|----------|-------------------------|-------------|
| | | Error | | | Lower | Upper |
| Constant | -200113678 | 31850253.42 | 6.282954027 | < 0.0001 | 268000886.2 | 132226469.8 |
| SUM(Teams) | 1007866.066 | 323143.8102 | 3.118939724 | 0.0070 | 319101.3389 | 1696630.794 |
| Population | 180.2776751 | 9.365440257 | 19.24924725 | < 0.0001 | 160.3157117 | 200.2396385 |

Regression Equation

$$\text{GDP} = - 200113678.001221 + 1007866.0663147 \text{ SUM(Teams)} + 180.27767512 \text{ Population}$$

Table3. Multiple Linear Regression results

The result of the multiple regression shows that this model better fits the data with R-Square=0.99. In addition, both GDP and Population with p-value<.05 are statistically significant. It indicates that the new model better approximate the GDP. The regression equation also shows that the effect of hosting teams on the local economy is higher than that of the population.

In summary, data analysis indicates the positive effect of hosting sports team and the population on the GDP of the metropolitan area.

Result and Discussion

The purpose conducting this research was twofold. Firstly, it was intended to review the two perspectives about the effect of hosting professional sports teams on the economy of the city. Secondly, we wanted to provide a complementary perspective that is inclusive of the previous viewpoints and is supportive of the positive impact of hosting teams on the local economy. There have been different measures to quantify this effect over the past two decades. However, this article attempted to monitor the relationship between GDP of the metropolitan areas and the number of professional teams competing in NFL, NBA, MLB, and NHL hosted by the respective metropolitan areas from 2001 through 2018.

The short-term impact of hosting sports teams, hosting sports events, and having sports facilities are not always visible. However, the long-term effect appears not just in an invisible manner such as civic pride, the image of the city, and the tourism attraction, but also in visible economic factors such as GDP. The possible reason could be the job increase both permanent and occasional, increase in the value of the properties, and also increase in the investment because of the prosperity of the city.

This paper has made several contributions to the current body of knowledge in sports economics. It has provided a summary of the major ideas in the area of the sports economy. Additionally, an objective study with credible data was conducted to measure the economic impact of the sports teams on the metropolitan GDP. It also considered the fluctuations over a long period of time between 2001 and 2018 which includes the big recession in the United States.

One future research pathway would be the analysis of the other sports-related factors such as the number of sports facilities, live TV coverage of the sports games, the number of online viewers of the game, empirical studies of the fluctuation in the value of the properties before and after the construction of the sports facilities on the economy of the metropolitan area.

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