

IMPACTS OF PROFESSIONAL SPORTS STADIUM DEVELOPMENT PROJECTS ON
URBAN AREAS

by

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A REPORT

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Abstract

Professional sports stadium development projects are major civic endeavors, and city officials and sports franchises often promise stadiums will generate significant gains in the regional economy. This study examines the effectiveness of stadium development in inducing economic development and urban revitalization by conducting a secondary data analysis, and case study of PNC Park and Heinz Field in Pittsburgh, Pennsylvania. Consistent with prior empirical studies, the secondary data analysis shows that stadium projects do not always produce significant regional economic benefits. A close investigation of the two stadium projects in the North Shore neighborhood of Pittsburgh, however, finds substantially positive effects on investment and physical development at the district level. The present research suggests that stadium developments can be a more powerful urban redevelopment catalyst when consideration is given to four essential factors – location, design, institutional structure, and history and timing.

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Dedication

I dedicate this Master's Report to my mom, Barb Corwin, for whom I would not be where I am today without. I also dedicate this report to my dad, Robert Corwin, a great man, who inspired me to be a passionate fan of both sports and writing.

Chapter 1 - Introduction

Professional sports stadium developments are among the largest public investment projects in American urban areas over the last two decades. In 2006, 89 of the 120 major league teams in the “Big-Four” North American sports, football, baseball, basketball, and hockey, played in facilities built or significantly refurbished since 1990. Public sources provided \$12 billion of the \$17 billion to construct these stadiums (Baade, Nikolova, & Matheson, 2006). Even the stadium projects financed via private funding sources, are constructed at the expense of valuable land and other urban projects. Currently, in Brooklyn, New York, a new arena for the New Jersey Nets’ basketball team is under construction. According to Nets’ owner Bruce Ratner, the arena is the proposed catalyst of a \$4.9 billion development project, “Atlantic Yards,” consisting of over 6,000 apartments, thirty percent of which will be reserved for low- to middle-income families. The costly project is to be financed using private funds, but a majority of the twenty-two acres of land needed for the project is being taken through eminent domain, under the power of the Empire State Development Corporation (*New York Times*, 2010).

The large amount of public investment is often justified and approved based on promises by the local government and sports franchises that a new stadium will spur economic success in the implemented area and further induce positive spillover effects. However, it is questionable whether the promises have been realized. A considerable number of empirical studies (Baade & Dye, 1988; Krumholz, 1999; Baim, 2003; Coates & Humphreys, 2003; Coates & Humphreys, 2004, Delaney & Eckstein 2003) have reported limited, if any, amount of expected public return, while other assessments (Krumholz, 1999; Ahlfeldt & Maennig, 2009) offer strategies to promote economic successes of the projects. Still other assessments (Nelson, 2001; Young, 2003; Carlino & Coulson, 2004; Chapin, 2004; Nardone, 2005; Chapman, 2006; Hequet, 2006; Ahlfeldt & Maennig, 2009; Ahlfeldt & Maennig, 2010) suggest, through appropriate implementation of best practices, stadium projects can be successful catalysts for physical development and urban revitalization.

From the mixed findings of the potential effectiveness of stadium development projects, it is important to determine the real benefits of these large projects. Can stadium developers, planners, and policy makers really address urban problems, such as central city decline and

poverty concentration, promote regional economic prosperity, and/or revitalize urban areas through a stadium construction project? In what context is the project more likely to be successful? And, what strategies can planners implement to ensure stadium projects benefit, rather than hinder, communities?

This study analyzes the effects of professional sports stadium development projects on a city's development and vitality. More specifically, the study examines whether stadium development is as beneficial for the city as expected, and in what ways the development can be more successful. The present research combines the following two methods, in conjunction with a review of pertinent literature.

1) Comparative secondary data analysis:

An initial secondary data analysis was first conducted to look at the effects of stadium construction on local and regional economic growth in general. Two groups of the cities throughout the United States: 1) eleven cities where one or more professional stadiums have been constructed since 1990, and 2) eleven comparable cities without a professional stadium constructed since 1990 – were selected for this purpose. Using aggregate population, income, and employment data, the two groups were then compared to determine if the construction of sports stadiums had any substantial effects on regional and county growth rates.

2) In-depth study of the case of Pittsburgh:

A field study in Pittsburgh, Pennsylvania was conducted to closely investigate if the stadium project has been successful or unsuccessful, why, and what strategies were implemented to make the stadium project beneficial to the neighborhood and adjacent downtown. This was accomplished through site visits, direct observations, and interviews with five key individuals involved in the development of Heinz Field and PNC Park and the surrounding neighborhood. Based upon the two types of analyses, the present study is expected to provide further insight into the nature of stadium development as a development policy and derive a set of meaningful strategies for stadium developers, planners, and other policy makers.

The remainder of the report is structured as follows. Chapter Two reviews a broad range of literature on the implications of sports stadium development projects in urban areas. The chapter emphasizes economic impacts and other potential effects of the stadium construction projects and highlights key factors for success. Chapter Three presents how the secondary data analysis was conducted and discusses what the analysis outcomes imply. Chapter Four describes

the case of Pittsburgh and explains the in-depth field study with the case. The chapter also focuses on the case study's findings and implications to the present research. Chapter Five summarizes the Master's Report and establishes a set of strategies intended for the use of planners when implementing professional sports stadiums.

Chapter 2 - Literature Review

Implications of Sports Stadium Development in Urban Areas

Due to the recent trend of sports stadium developments and the apparent need for public investment, a great deal of attention is paid to various implications of these stadium projects. Using a variety of methodologies at multiple scales (region, city, neighborhood-level), researchers in planning and many other fields examine not only the benefits versus costs of stadium projects, but also why certain projects are successful, while others are not and how positive effects can be promoted. This chapter reviews and synthesizes relevant literature, particularly empirical assessments of the development projects. By doing so, the effects of stadium construction can be exposed, and the present research can begin to derive a set of strategies to achieve and maximize alternative stadium project benefits.

The literature review is presented according to the following themes: 1) economic impacts present local and regional effects of stadium development by employing empirical analysis at state, regional, city, and neighborhood levels; 2) other benefits infer stadiums can be catalyst for urban redevelopment, as well as boost a community's sense of pride and attract tourists and a qualified workforce; 3) the present study finds the body of literature offers reoccurring key factors that when implemented lead to successful projects; and 4) examples of stadium development best practices are present in several cities, among others, Chicago and Seattle.

Economic Impacts

Can the construction of sports stadiums really be a viable mechanism to promote regional and local economic development? The economic impact of large public development projects is among the key issues that draw attention in the planning and economic development literatures. Many projects are primarily supported as a stimulus for economic development; however, empirical assessments suggest that sports stadiums generally do not have significant amounts of positive effects or sometimes may generate negative consequences. Scholarly findings from more disaggregated levels are also mixed, but some studies report certain tangible economic benefits, such as property value increases, as a result of a stadium development.

First, Coates and Humphreys (2004) analyzed thirty-seven U.S. cities that have built one or more stadiums between 1969 and 1996. The study focused on factors that affected the level or the growth of per-capita income, such as presence of franchises, franchise entry and departure, stadium construction and renovation, the location of new stadiums and arenas, and the “novelty effect” of a new stadium. The study also accounted for city-specific factors, such as decline in rust-belt cities and booms in sun-belt cities. Using time-series cross-sectional econometric models, the study was able to control for the factors that affected income per person. Based on the findings, they conclude, attracting a sports franchise and building the franchise a new stadium will have no effect on the growth rate of real per-capita income, and may actually reduce that value of per-capita income in that city. They also concluded, specific economic sectors that are usually thought to be major benefactors from stadium construction are likely to benefit very little and may even be harmed. The study found a net loss of 1,924 jobs in the service sector of a city’s economy as a result of the presence of a professional sports team (Coates & Humphreys, 2004).

Furthermore, Coates and Humphreys (2003) offered four primary reasons why stadiums fall short of their economic promises. First of all, household spending on sports is highly substitutable, meaning dollars spent at the stadium would otherwise be spent on other forms of entertainment had the stadium not existed. Secondly, worker’s productivity can be negatively impacted by the introduction of sports franchises to a city. Workers may spend more time handicapping the upcoming game and less time actually working. “This time is recorded as time at work, but production is lower, resulting in lower per-capita income over a period of many years” (Coates & Humphreys, 2003, p. 343). Furthermore, as the third primary reason, they indicated that public money spent on the construction of a sports stadium could come at the expense of other highly productive public services, such as public schools. This point is highlighted in the case of Cleveland, which used a public “sin tax” (taxes on tobacco and alcohol) to finance its new stadiums. The tax dollars went to financing the stadium project, instead of supporting the public school system, which at the time, was \$150 million in debt (Delaney & Eckstein, 2003). Finally, the economic multiplier for spending on sports facilities may be far lower than other forms of entertainment. The majority of revenue from professional sports goes into paying the owners, management, and players. This money is not usually reinvested in the community, unlike wages earned by other local employees.

Baim (2003) also suggested that stadium projects might burden a city's economy. In response to a possible relocation of the San Diego Chargers' football team, he evaluated the effects of the football team on San Diego's economy. The conclusion is the Chargers were not an economic engine in San Diego. He used County Business Patterns, issued annually by the U.S. Census Bureau, to obtain employment and payroll data, by industry, at the county level and found that the Los Angeles Rams' franchise was not related to higher levels of employment and incomes overall. Baim (2003) stated that the significance of using the Rams is the close comparison in geography and demographics to San Diego. Baim (2003) strongly suggests it was not justifiable for San Diego to "increase or institute broad based taxes, such as a sales tax increase, to lessen the Chargers financial burden, or to provide them with a new or renovated stadium" (p. 18).

However, it appears that the stadium development can generate tangible economic benefits in smaller areas, such as districts and neighborhoods. Ahlfeldt and Maennig (2009) paid attention to the consequences at a neighborhood scale, as opposed to conventional regional studies. They also investigated how property values are affected by the presence of three multifunctional sports arenas in Berlin-Prenzlauer Berg, Germany. Empirical evidence is used to conclude property values increase, as one gets closer to the stadium, thus increasing a neighborhood's location desirability. For this reason, voters in close proximity to a proposed stadium development tend to favor a stadium subsidy compared to voters located further away. In addition, a study by Tu (2005) used the case of FedEx Field, home of the Washington Redskins' football team, to show the same result. Tu (2005) found an estimated impact of up to thirteen percent on real estate prices in a comparison of the periods before and after completion of the stadium; the prices decreased with distance (Ahlfeldt & Maennig, 2010). These early studies suggest that newly constructed sports stadiums can be a good means of carrying out city development policies at the level of part of a city only (neighborhood scale).

Krumholz (1999) proposed economic development in central cities during the 1980s and 1990s consisted of contrasting patterns of growth and decline between downtown and neighborhood areas. Although new construction and regeneration of parts of the business district existed, the spillover effect in surrounding neighborhoods was negligible with the exception of providing some housing. Furthermore, the stated purpose of generating new jobs and net tax increases was not satisfied. While "success" in downtown was proclaimed, it did not seem to

translate into lower poverty and unemployment rates. Krumholz (1999) states that in many projects public-private partnerships invested in local economic development “focused massive public subsidies on downtown real estate deals that provided tangible benefits to developers, land owners, politicians, and development officials, but benefits in the form of jobs for the poor and unemployed residents could not be demonstrated” (p. 86). Although, he stated local economic development is not always positive for the entire urban area, several cities have improved broader equity outcomes by implementing redistributive urban planning and local economic development policies. He included an example in Boston, which required the developer to use profits from market-rate housing to subsidize affordable housing within the same development. In Cleveland, the developer was asked to guarantee a certain number of jobs to city residents with the goal of leveraging clear benefits to Cleveland’s poor and working class residents. Policies in Chicago and Oakland required joint venturing on neighborhood projects between private developers and neighborhood-based community development corporations (CDCs).

Other Benefits

Although stadium development has not proven to be an effective regional economic generator in many cases, this does not necessarily mean that there is no benefit to be gained from development projects. Stadiums can be a potential catalyst for urban redevelopment and can induce subsequent meaningful investments in urban areas. In addition, stadium benefits may include the creation of civic amenities/civic icons in order to boost quality of life and/or attract tourists and a qualified workforce. A branch of the literature highlights these positive aspects of stadium projects.

Chapin (2004) focused on the role of sports facilities as potential urban redevelopment catalysts rather than traditional economic boosters. He investigated the examples of Baltimore’s Oriole Park and Cleveland’s Gateway project to test his theory, by identifying physical changes to the district surrounding each sports project between the late 1980s and 2000. The study first established a district setting in the 1980s, using aerial photographs, planning documents, and parcel records, to build a geographic information system (GIS) database to map the built form of the districts. The same was done for 2000. After physical changes to the districts were identified, the final step was to determine the role of the sports stadiums in revitalization of the

host district through careful research of several sources (Chapin, 2004). According to his analysis, the Gateway project has been successful from a “purely physical development perspective” (Chapin, 2004, p. 206) and is considered a development catalyst. The Gateway project was built on the site of an old inner-city market and was made up of mid-sized housing structures that served a successful produce and meat market (Chapin, 2004). Gateway is located directly south of the central city, and Interstate 90, which attributes to the site’s accessibility to the region. Due to the close proximity to downtown, the project’s master plan emphasized pedestrian connections, linking activity centers, such as large downtown entertainment and retail projects and an urban campus, Cleveland State University (Chapin, 2004). Through combined investments of the public and private sectors and the establishment of a development corporation, the project attracted hotels, residences, and retail businesses. Specifically, the project seemed to induce the renovation of vacant buildings into market rate housing units, establish seven residential projects, and reuse retail space. The redevelopment in the district helped remake the image of the Gateway project’s portion of downtown (Chapin, 2004).

Carlino and Coulson (2004) assessed the social benefits of hosting a National Football League (NFL) team. They mentioned that cities typically use general revenue bonds to finance a share of the cost of a stadium. The bonds are then paid off, through a variety of methods, including ticket surcharges and state lottery proceeds (Carlino & Coulson, 2004). The large amount of local government investment in stadium projects across the country suggests that civic leaders and residents find value in these civic endeavors. The value of such projects is that sports teams may contribute to a city’s “quality of life.” This is difficult to measure, but it views a professional sports team as a commodity from which a citizen receives enjoyment just by having it around (Carlino & Coulson 2004). The measurement of this benefit is determined by considering how much a person is willing to pay extra to live in a city with an NFL Team, compared to one without. This extra amount is calculated in two ways, paying higher rents or earning lower wages. If a person found a stadium to be something of value to them, they may be willing to pay an extra amount, for example \$1000, to live in a city with an NFL status. In order to justify this “quality of life” contribution, the authors constructed a cost and benefit analysis of cities hosting an NFL Team in 1999. The value of the potential increase in property taxes was compared to the amount of state and local subsidies provided to an NFL team for the construction of a new stadium. The study showed the potential increases in property tax revenue

exceeded the subsidies in all but three cities that subsidized stadiums. This indicates “quality of life” benefits for stadium construction may be a good investment for central cities and their residents (Carlino & Coulson, 2004). The study did state however, the substitution effect, or as the authors called it, the opportunity cost, of funding a sports stadium is reason for cities to not immediately decide to fund stadium projects. The study was limited in covering the vast amounts of other variables involved in stadium construction, but serves as a method to make tangible, the subjective “quality of life” justification for civic amenities.

Ahlfeldt and Maennig (2010) suggested that architectural design of the new stadiums offers advantages for cities competing for tourists and a qualified workforce. The authors cite Florida (2002) who stated the rise of the creative class has forced cities to create quality urban spaces, which has become a prerequisite for economic development of cities in the area of globalization (Ahlfeldt & Maennig, 2010). In justifying the effects of tourism and workforce, Hon. Michael R. Turner (2007) also references Florida,

There is a significant amount of peer literature that does show that the amenities that a community has significantly impact economic development. Richard Florida, who, as you know, is the author of *The Creative Class*, goes into an incredible analysis. In one article entitled, “The Economic Geography of Talent,” he actually correlates a community’s success based upon their ability to attract a highly educated, highly skilled, highly qualified, competitive work force to the amenities in the community and indicates that the success level of a community is based upon the amenities that are provided and being able to attract people who have degrees and young folk. Interestingly enough, he has a little graph here that says Coolness Index, and it says Pittsburgh, Seattle, Atlanta, Denver, San Francisco, Boston, Chicago, Los Angeles, all of which, I think we could all in this room name their teams. As an indication, it goes on to say that median housing values are higher in those communities that have these amenities where there is a coolness associated with attracting new talent, an item that Dr. Humphreys, you indicated that it appears that residential properties values may be higher in cities with sports teams. (p. 90)

Apparently, a community’s success can be based on the amenities it has to offer. Sports stadiums, established as iconic forms (i.e. through prominent design), might allow cities to vie for international attention and establish the city in the international tourism market, as well as attract a competitive workforce of young, educated individuals, which can also potentially raise median housing values.

Key Factors for Success

The above studies suggest that professional stadium development projects can generate substantial benefits, although it is questionable that stadium construction tends to promote local and regional economic growth. Among others, some projects have been found to spark urban redevelopment, as well as attract national and international tourists and a qualified workforce through an added civic amenity or iconic structure. Some studies pay attention to critical factors in determining the success of the projects.

The literature suggests that location is considered one of the most important factors in stadium development. For instance, Nelson (2001) investigated how the level of economic benefits differs by location of stadium development. More specifically, he tested a hypothesis that a Metropolitan Statistical Area's (MSAs) share of regional wealth, where the region is defined as the state, will rise when a major league team plays in the central business district (CBD), but fall when they play elsewhere by conducting a statistical analysis using the data for forty-three areas over a twenty-six year period. Results showed that the areas where professional sports teams played in the CBD tended to show a higher share of regional wealth in terms of percentage of its host state's wealth (Nelson, 2001). Based on this finding, the author contends that if a decision has been made to construct a stadium, "locating it in the CBD will probably generate greater economic benefits than locating it in the suburbs" (Nelson, 2001, p. 261).

Chapman (2006) argued that the location of the stadium might be very important if ancillary development is a project goal. For instance, the stadium's proximity to public transit stops is essential for mitigating the hassle of stadium parking. Having a critical mass of office workers and residents live and work within walking distance may also be ideal. The idea is that people will spend money as they walk along the way, which is less likely to happen if they are driving a car down a highway and directly into stadium parking. Pittsburgh, for example, was able to attract Alcoa headquarters, a large steel manufacturing company, after PNC Park opened. The headquarters is located 100 yards away from the stadium and a close walk across Roberto Clemente Bridge into downtown (Chapman, 2006). Chapman (2006) states, "...it's hard to discern any community-wide payoff when projects are built away from business and residential centers" (p. 62). He used the example of Atlanta's Turner Field, which was built for the 1996 Olympic Games and is now the current home of the Atlanta Braves baseball team. The project, costing approximately \$235 million, is situated between highways and surface parking and is

located two miles outside of downtown. It lacks connection to the MARTA rail system, causing fans to find their own source of transportation. Since its opening, only a few restaurants or retail businesses are located near the stadium (Chapman, 2006).

Moreover, Ahlfeldt and Maennig (2010) asserted that location plays a key role in creating an iconic image for the host city. Stadiums and other civic and entertainment type buildings are usually showcased within walking distance of the city center and usually near a body of water. They cited the prominent example of the Sydney Opera House in Sydney, Australia. Such imagery, created by correct location, leads to “regional pride and identification” (Ahlfeldt & Maennig, 2010, p. 631).

It appears that design is another critical factor for success. This is sometimes overlooked, particularly in economic assessments. Baade and Dye (1988) offered some design strategies to promote successful sports stadium developments, and assert, “A stadium is not usually enough of a significant development to anchor an area’s economy alone; rather, in considering revitalization of an urban neighborhood, a number of potential economic anchors should be developed simultaneously” (p. 273). They suggested channeling fans through carefully planned commercial corridors in order to help maximize secondary economic activity. The study challenges city planners to balance land acquisition costs, convenience, development potential, and neighborhood safety when attempting to mitigate the concern of suburbanites going directly home after ball games. Cities must design strategies to make ancillary development both safe and convenient in order to keep stadium traffic in the city longer, after ball games. If amenities surrounding the stadium are safe and convenient, visitors are more likely to stay and enjoy such amenities.

Ahlfeldt and Maennig (2010) investigated whether the architectural quality of sports stadiums can accelerate urban redevelopment and gave several recommendations for the planning and design of such stadiums. According to the study, the stadium should illuminate surroundings and contribute to the appreciation of the area through the use of lighting, which can inspire evening events, without dominating the surroundings. Stadiums can become iconic monoliths or be incorporated into the urban fabric by blending the stadium in with neighborhood design characteristics. In densely populated inner-city districts such architecture “...makes sense to create or connect urban spaces...” thus maximizing the spillover effect. Finally, the authors suggested cities must replace investor architecture with cityscape-oriented architecture. Investor

architecture is characterized by commercial considerations and constraints, whereas cityscape-oriented architecture increases the attractiveness of the surrounding areas.

Furthermore, Ahlfeldt and Maennig (2009) reiterated parking as a major consideration when planning for stadium design. The Max-Schmeling-Arena in Berlin, Germany was planned to have 100 percent of its spectators arrive by public transportation, thus no parking was incorporated in the design. The optimistic goal led to congestion because of the problem with parking scarcity. The result angered nearby citizens and resulted in a decline in businesses due to the difficulties of meeting with clients on game days. The Max-Schmeling-Arena could have had positive spillover effects on the community, if the parking issue had been more carefully considered prior to construction, such as incorporating underground parking into the initial design (Ahlfeldt & Maennig, 2010).

These studies shed light on the importance of considering stadium architecture in the context of urban development. Additionally, physical, as well as socio-political barriers, may prevent a stadium's external effects from spreading "concentrically." As the case in Pittsburgh, the football and baseball facilities are hemmed in by three rivers, hilly terrain, and major highways, which create problems for visitors and spectators wishing to travel to the site. Creating links through appropriate design allows for the increase in positive stadium impacts in areas outside the stadium district.

In addition to location and design, financing is among the more complex issues considered when discussing sports stadium construction. It must be noted that financing highly depends on a host city's institutional setting, political climate, and a number of other variables. Chapter Four gives explicit attention to the importance of institutional structure in determining stadium suitability.

Several strategies have been used to finance sports stadium development projects. Among the more common strategies is the use of tax referendums to support stadium projects. In Cleveland, taxes on alcohol and cigarettes were employed to finance the Gateway project. Pittsburgh used a combination of state dollars, sports team contributions, and an existing tax/revenue stream. Also important is the determination of who owns control of the stadium. If a stadium is municipally run, vendors (i.e., merchandise and food) can have more control over their contracts, and the team is not able to pressure concession vendors into buying expensive luxury boxes. If the team controls the stadium, the franchise owners have full control over

marketing and selling of luxury boxes, thus are able to control prices. This could result in an increased dollar amount the public has to pay for concessions (Delaney & Eckstein, 2003).

The other significant issue in stadium project financing is how the revenues are allocated. Revenues are generated from a variety of sources, including ticket, merchandise, and concession sales. Other sources include parking revenues, and stadium rent. Allocations are determined in the lease agreement between the city and the team. Negotiations are made between these two entities and bargaining deals may occur, if for instance, the team wishes to expand the amount of seating in the stadium. A complaint often cited by the public is that teams are sometimes exempt from paying rent fees to the city. In Cleveland, Cavalier owners received \$1.5 million in “rent credit,” rooted in the original contract agreement, because the relocation from a prospective suburban site could have potentially lost parking revenues. Other losses, which burden the city, are capital costs for the implementation of access roads and other infrastructure. The government also incurs future costs for traffic and crowd control at stadium events (Baade & Dye, 1988). Although some may view capital costs as a public burden, some researchers view them as investments in the district. Chapin (2004) complimented stadium projects for their ability to galvanize new infrastructure and urban design improvements. He even states these projects “...help to establish and sustain a revitalized district” (Chapin, 2004, p. 194). Furthermore, land acquisition is usually the responsibility of the city, and should be used as a leveraging tool during negotiations. Krumholz (1999) suggests that when stadiums are publicly financed, negotiations should include policies that capture revenue and lower taxes such as “taxing the income of players, establishing the stadium within a special taxing district, capturing the public’s portion of the increased value of the team produced by the new facilities and leases, or assessing fees for broadcast and the telecast of games” (Krumholz, 1999).

Additional Best Practices

Related to the key factors for successes as synthesized in the literature above, attention is also paid to several exemplary practices in a variety of U.S. cities. Planners and policy makers can obtain meaningful lessons from stories introduced and analyzed by a set of studies (Nardone, 2005; Baade et. al., 2006; Delaney & Eckstein, 2003; Hequet, 2006; Young, 2003; and Chapman, 2006).

In Boston, planners and designers used master plans to achieve the most efficient use of land. Nardone (2005) stressed master plans also address design measures, such as orientation of facilities when considering sun glare and views. In more dense neighborhoods, existing infrastructure such as stormwater systems are necessary to take into account so as to prevent drainage problems later on in the development process. In cities where land costs are high and land is scarce, it might be essential to create stadium project master plans to maximize land use and account for variables that must comply with existing city networks (Nardone, 2005).

Wrigley Field in Chicago is integrated within the fabric of a local neighborhood, while also providing positive economic spillovers to nearby neighborhoods. Wrigley Field, a much older ballpark compared to modern stadiums, also has qualities in its design, which features narrow concourses and walkways, significantly lowering the number of vendors selling merchandise and food. As a result, surrounding businesses see increases in sales.

Decision-makers in Denver used Coors Field to catalyze private and public improvements, in order to stimulate extensive housing developments in Lower Downtown. But, much of this neighborhood improvement was already well underway at the time the stadium was constructed (Delaney & Eckstein, 2003). Although some improvements existed prior to the development process, the following contributed to the surrounding district. During negotiations, the lease agreement was amended to make it less generous to the team. The district would receive twenty percent of game-day parking revenues and eighty percent of non-baseball parking revenues. The district would also receive twenty-five cents from each ticket sold after the first 2.25 million tickets sold (Delaney & Eckstein, 2003). This renegotiation, from a previously parsimonious negotiation, was largely exercised to thwart negative publicity.

The cases of San Diego, Saint Louis, and Columbus also illustrate how stadium development projects can be successful. The San Diego Padres' baseball team owner agreed to develop twenty-six blocks surrounding the stadium as part of the baseball stadium deal (Hequet, 2006). San Diego's Petco Park opened in 2004, and is part of a revitalization effort to restore the city's historic Gaslamp District. The opening of the stadium sparked \$1.8 billion in hotel, retail, and residential development (Hequet, 2006). The new Busch Stadium, home to the Saint Louis Cardinals' baseball team, is adjacent to the planned twelve-acre Ballpark Village. The planned area consists of 45,000 square feet of office space, 400 residential units, an aquarium, the Cardinals' Hall of Fame, and shops fronting a one-acre plaza (Hequet, 2006). In Ohio, the

Columbus Blue Jackets' hockey arena, opened in 2000, planned for a ninety-five acre site surrounding the neighborhood. The most notable aspect of the project is the brick-paved alleyways that lead to restaurants, bars, a theater complex, and a music hall. Also important is the fact that people live and work in the district, cutting down on traffic. A common trait of all three of these stadium projects is they happened with help from the cities involved. Mark Barbash, Columbus's development director advises in Hequet's article, "Don't assume that development will spin off from the arena. You have to plan for it" (2006, p. 88).

Young (2003) presented the measures Seattle took to preserve its neighborhood fabric when building the new multi-sport stadium and exhibition center. The complex offers links to historic Pioneer Square and other downtown districts, through height and material design standards. Qwest Field is designed with the upper-level having an open end, with the "U" facing north toward downtown Seattle. This connects spectators to the surrounding communities, and those outside the stadium have views inside. The complex was also designed to provide for the use of flex space in order to allow for integration between the facility and surrounding neighborhood. The venue could become an urban leisure center, hosting festivals and concerts for Seattle's residents and visitors on non-game days (Young, 2003). Other best practices include town hall meetings, held to gain input on community impacts, which resulted in \$10 million to be set aside for neighborhood improvements (Young, 2003). The Kingdome, which was imploded and replaced by the new complex, was scrapped for recycling, and a majority of the equipment was sold, or donated to schools and community groups. The Building Team of Ellerbe Becket (EB) and Turner Construction were charged with design and construction of the project, and established goals to hire a diversified workforce by recruiting apprentices with the help of trade unions and local union halls. EB's project leader, Kelly Kerns, states, "It's essential that you have this involvement if you're going to really reflect the community... local input contributes to the success of the project" (Young, 2003, p. 38). Furthermore, a third of the profits generated by the stadium were used to build youth playfields across the state. According to Young, the project stayed focused on the community goals from the very start.

In Kansas City, the suburban boom of the 1980s and early 1990s led to a decentralized population and a declining downtown. The Sprint Center and Power and Light District are part of a mixed-use project intended to revitalize the once-blighted district. The project is the largest of its kind in the Midwest, and features office space, shops, and galleries styled after

Manhattan's SoHo district (Chapman, 2006). Chapman (2006) used the example of Kansas City's new Sprint Center to stress the importance of keeping a facility active with concerts and events when the team is away. One of the many plans for the Sprint Center is to catalyze downtown growth, but the facility has yet to lure a National Hockey League (NHL) or National Basketball League (NBA) franchise, making growth a more difficult task. It is important, according to Chapman (2006), that along with a professional franchise, sports facilities need to be in constant use, "It's not enough to bring fans to the neighborhood 80 nights a year: The new arenas like the Sprint Center are expected to justify their massive public subsidies by generating permanent improvements to surrounding neighborhoods" (p. 61).

Summary of Literature Review

In sum, the previous studies suggest that stadium construction projects render mixed results, but often do little to promote regional and local economic growth. Many of the jobs created are service sector jobs, which according to Coates and Humphreys (2003) are seasonal, unskilled, and generally do not pay well. Much of the revenue generated directly from the stadium is not reinvested in the community and is instead used to pay players, management, and owners who usually spend their money elsewhere. There are, however, some indications that stadiums are likely to have certain positive economic effects at the neighborhood scale, for example, increased real estate prices within closer proximity to the stadium. In addition, redistributive and equitable urban planning and community development policy efforts may broaden project outcomes. Furthermore, some literature suggests sports stadium construction projects can generate some alternative benefits, such as catalysts for urban revitalization. For instance, investment and physical development seem to be induced by the construction of a sports stadium, serving as a spark to revitalize blighted urban areas.

However, it is apparent that not all stadium construction projects are successful. Key factors must be carefully planned and best strategies applied, in order to establish successful projects. Location should be a major consideration when constructing stadium facilities. Access is a high priority and is a key in allowing for critical masses of people to enter and exit the site in an efficient manner. The literature suggests stadiums need to be located near major transportation corridors, such as highways, pedestrian and bicycle routes, and water routes. It is

also important to disallow the creation of physical barriers, such as highways and train tracks that interrupt the flow of people to the site, and separate the stadium from downtown, as the case in Atlanta. If such barriers exist, offering public transit or pedestrian corridors to the site are appropriate. Furthermore, locating sports facilities near residential neighborhoods and offices will encourage people living nearby to have easier access to stadium events. If possible, stadiums should be located near the downtown to promote spending in the CBD, and to encourage center city revitalization.

The literature shows design is another important factor for success. Integrating the stadium within the fabric of the neighborhood, as in the case of Wrigley Field, allows for a uniform urban design. Wrigley Field is also designed to limit the amount of in-stadium vendors, which may promote spending in surrounding businesses. Stadium facilities should be developed simultaneously with other complimentary development, in order to maximize project benefits, because stadiums alone are not sufficient to support an area (Baade & Dye, 1988). Appropriate uses of lighting and color can attract people to the site and help tie the stadium facility to the rest of the city. Unique and iconic designs can also enhance a city's tourist market and attract a workforce consisting of new talent. Parking is another important element in design that should not be overlooked, and although it is not appropriate to surround the stadium with parking, enough parking should be offered on site, as to not potentially disturb surrounding neighborhoods. Such parking should be designed in a manner to not dominate the site (underground parking should be incorporated when appropriate) and greater emphasis should be placed on pedestrian and public transportation access.

Consideration also needs to be given to financing issues. Potential feasible strategies include demanding that team owners share revenues, or offer funds to reinvest in the community, as the case in Denver and San Diego. Hiring local union workers for construction and donating parts of the old stadium to local youth groups after the stadium was dismantled are among the best practices employed in Seattle's football stadium project.

Although there are a considerable number of studies on stadium developments, as summarized in this chapter, these studies suggest that the topic demands further research in order for the impacts of stadium facilities to be fully understood. Delaney and Eckstein (2003) conclude that Coors Field may have cemented an established area (Lower Downtown), but has done little to promote the kind of spin-off economic development promised in the immediate

vicinity, leading the researchers to ask: “Do ballparks really foster the kind of mixed-use development that benefits cities in the long run?” (Delaney & Eckstein, 2003, p. 117). Chapin (2004) states that due to the mixed results of the successes of sports stadiums in catalyzing revitalization of urban cores, “further research is required to identify those project attributes and/or those planning processes that yield development benefits” (p. 207). He also stated that even though almost all the literature concludes that sports stadium projects are poor investments for the community, little insight is issued to planners faced with programming and implementing a facility that has been passed by a public referendum (Chapin, 2004). Ahlfeldt and Maennig (2010) encouraged future studies to focus on a more localized scale, instead of only looking at regional and metropolitan areas. They also contended that future studies should investigate the importance of architectural quality and urban design of the sports venues under review.

Chapter 3 - Secondary Data Analysis

Introduction

Given the mixed findings of previous studies on the effectiveness of stadium construction as an economic development mechanism, first, a secondary data analysis was conducted with a recently updated dataset. Consideration was mainly given to the impact the opening of a sports stadium has not only on region-wide economic growth, but also, the host county in the region. Since professional sports stadiums are typically constructed in central counties of large metropolitan areas, the latter (county level) effect investigated here can reveal the stadium project's effectiveness in central county development or revitalization in which regional planners and many other policy makers are interested.

To accomplish this, two groups of metropolitan areas (*with* versus *without* a professional stadium) were compared, similar to the study by Carlino and Coulson (2004).¹ As explained in the next section, twenty-two metropolitan areas were selected, grouped (eleven with stadium versus eleven without a stadium) and then contrasted. Key economic indicators, such as population, income, and employment, were used for this relatively less sophisticated comparison.

Study Areas

The two study areas consisted of first, U.S. cities with a professional stadium having a city population between 225,000 and 650,000 (which is a reasonable range to ensure a level of consistency) and opening a stadium after 1990 and before 2008 (stadium group). The cities are not exclusive, but provide an adequate list from which to base conclusions. Populations were

¹ Among the several studies that have attempted to measure the regional impact of hosting a team, Carlino and Coulson offer a method used by Robert Baade (1988). Baade's study compares the growth rates of income and employment in cities and metropolitan areas that have professional teams, and the same variables with cities with no teams (Carlino & Coulson, 2004).

identified using data provided by the U.S. Census Bureau, while accessing individual stadium websites identified the opening date for each stadium. Table 3.1 lists the eleven U.S. cities.²

Table 3.1 List of stadium group cities

City	Stadium Name	Type	Year Opened	Pop. (2010)
Arlington, TX	Rangers Ballpark in Arlington	MLB	1994	365,438
Atlanta, GA	Turner Field	MLB	1997	420,003
Baltimore, MD	Camden Yards	MLB	1992	620,961
Cleveland, OH	Progressive Field	MLB	1994	396,815
Denver, CO	Coors Field	MLB	1995	600,158
Glendale, AZ	University of Phoenix Stadium	NFL	2006	226,721
Kansas City, MO	Sprint Center	Multi.	2007	459,787
Nashville, TN	LP Field	NFL	1999	601,222
Pittsburgh, PA	PNC Park	MLB	2001	305,704
Seattle, WA	Safeco Field	MLB	1999	608,660
Tampa, FL	Raymond James Stadium	NFL	1998	335,709

Source: U.S. Census Bureau (2010)

Of these eleven cities, Arlington and Glendale are located in the MSA of larger cities, Dallas and Phoenix, respectively. Stadiums in Arlington, Atlanta, Glendale, and Tampa, are located outside what is considered the CBD, but are still within their MSA's central county.³

Second, in order to make a comparison to cities with stadiums, cities having no professional stadium construction after 1990 (control group), but within the same population range as the cities in the stadium group, were selected to better examine the effects of a sports stadium by comparing the two groups.⁴ More specifically, eleven comparable cities were identified, as presented in Table 3.2.

² Cities excluded from the list due to large population sizes, but having developed stadium projects in the last twenty years include Los Angeles, New York City, Philadelphia, San Diego, and San Francisco, among others.

³ The study used Dallas County data, even though Arlington is not located in the same county. Dallas County is considered the central county within the MSA and increases in regional economy in the county may still be attributable to Arlington's stadium.

⁴ Although only Boston hosts a professional sports team, all control group cities host a major university and/or a minor league team.

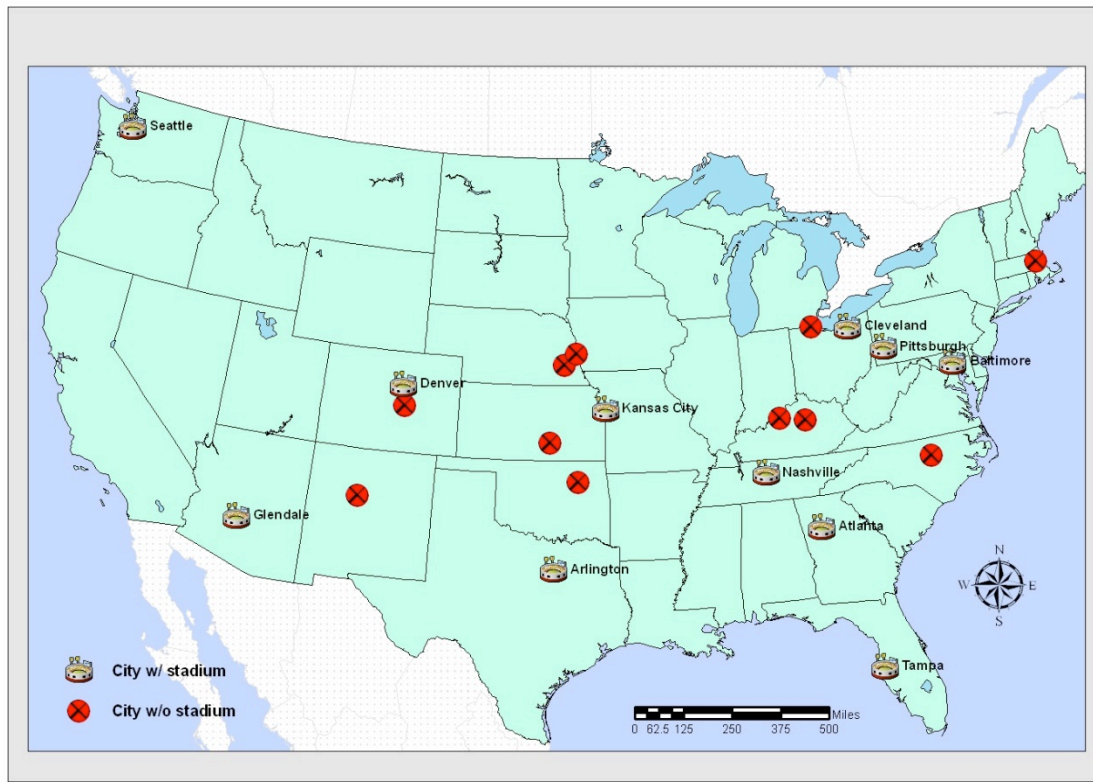
Table 3.2 List of control group cities

City	Comment	Pop. (2010)
Albuquerque, NM	Hosts minor league teams	545,852
Boston, MA	Only control group city that hosts professional sports teams	617,594
Colorado Springs, CO	Hosts minor league teams	416,427
Lexington, KY	Hosts University of Kentucky	295,803
Lincoln, NB	Hosts University of Nebraska at Lincoln	258,379
Louisville, KY	Hosts University of Louisville	597,337
Omaha, NB	Hosts minor league teams	408,958
Raleigh, NC	Hosts North Carolina State	403,892
Toledo, OH	Hosts minor league teams	287,208
Tulsa, OK	Hosts minor league teams	391,906
Wichita, KS	Hosts minor league teams	382,368

Source: U.S. Census Bureau (2010)

Figure 3.1 illustrates the regional distribution of the cities included in the study. Although the cities in California and some other states are not covered, it is shown that the study areas were not made through discriminate locational selection.

Figure 3.1 Distribution of cities with and without a professional sports stadium opening after 1990



Detailed Methodology and Data

The selected cities classified into the two groups can be compared in a variety of ways. This study, as noted above, focused on metropolitan-wide and central county's growth (measured using three major socio-economic indicators – population, personal income, and total employment) that may or may not be distinct in one from another.

Necessary information was compiled for each city's MSA and central county using Regional Economic Information System (REIS), U.S. Bureau of Economic Analysis.⁵ Data from this source were gathered from 1969, the year data collection began, to 2008, the last year of available data. The compiled information was then used for both regional growth rate analysis and central county's share change analysis.

In the comparison, several careful treatments have been made to avoid the possibility of misleading results that may likely occur if the economic indicators of the two groups are directly compared. The first challenge is that a broad range of socio-economic, political, cultural, and ecological conditions determines local and regional growth. In other words, even if a significant gap (in terms of the size of growth rate) is found between the two groups, it may not be attributable to the stadium construction, because the stadium is not the single most motivating factor of local and regional growth. To deal with this challenge, in this secondary data analysis, attention was paid to how the growth rates have changed in the region (MSA) before and after the boom of stadium construction began in the early 1990s. This method can address some shortcomings of the simple comparison of particular time periods, even though this approach is not superior to a multivariate statistical analysis.

In addition, to avoid year-by-year fluctuations, the analysis employed a framework with five-year increments, starting in 1970 and ending in 2008.⁶ This provides eight sets of compound annual growth rates, for each economic indicator for each city, as below,

$$\text{Compound Annual Growth Rate} = \left(\frac{P_{t+5}}{P_t} \right)^{1/5}$$

⁵ The central county is the most populated and most centralized county in the stadium's MSA and is host to the stadium site.

⁶ For example, data are grouped from 1970 to 1975 and so on. The last increment is 2005 to 2008.

where P indicates population (or other indicators, such as employment and income) of the MSA in time t . It needs to be noted that for the 2005-2008 period, the growth rates were calculated using $(P_{2008}/P_{2005})^{1/3}$.

Next, an average growth rate was computed for all stadium group cities, as well as an average for the control group cities and average of all cities (Total Average) for each economic indicator for each five-year period. Comparing the two groups' five-year period averages before 1990 and after 1990 exposes overall trends and may garner conclusions to the effectiveness of stadium development on regional economy.

Another issue with this study is the variation in timing of stadium investment across cities. As shown in the stadium group, while some stadiums were constructed in the early 1990s, other stadiums were constructed in fairly recent years. This indicates that the group-wide comparison may have a limited usefulness in figuring out the effect of the stadium on local and regional growth. Therefore, in addition to the group-wide comparison, the growth rate of each region before and after its stadium construction year was compared with the control group's average. (See Table 3.3)

It also bears noting that a central county's growth is highly associated with that of the entire metropolitan area. In other words, it would not be very meaningful to look at the magnitude of the growth of the county as well as the metropolitan area. Therefore, the central county's share was used as a variable to obtain a more informative result, showing whether a new sports stadium is really effective in promoting economic development in the central county.

First, the central county's share of population, income, and employment, were computed by dividing the central county's value by the MSA's value. Differences were then calculated for every five-year increment, beginning in 1970 and ending in 2008, providing eight sets of central county share changes for each economic indicator for each city, as below,

$$\text{Central County' Share Change} = \frac{CP_{t+5}}{RP_{t+5}} - \frac{CP_t}{RP_t}$$

where RP_t and CP_t represent regional and central county's population (or other indicators, such as employment and income) in time t , respectively. Again, for the 2005-2008 period, the growth rates were calculated using $CP_{2008}/RP_{2008} - CP_{2005}/RP_{2005}$.

This proportional metric represents the relative performance of the central county in the metropolitan area; shares may increase or (not decline rapidly), if the central county successfully

attracts population, income, and employment due to the construction of the new stadium. This was done employing the same technique as used for growth rate, but instead, central county share change group averages were computed. Similar to the growth rate analysis methodology, the central county's share change of each city before and after its stadium construction year is compared with the control group's average. (See Table 3.4)

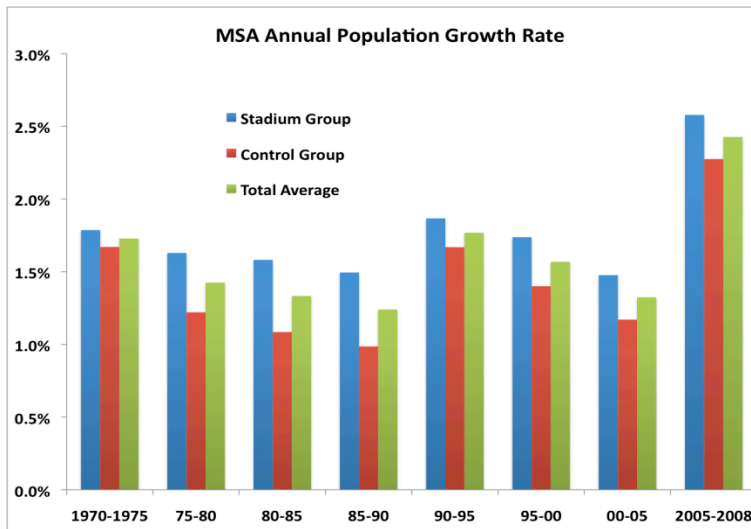
Analysis Results

Regional Growth

Figures 3.2 through 3.4 present how regional (MSA) population, personal income, and total employment growth rates of the two groups have changed since 1970. Individual stadium group cities were also analyzed and compared to control group averages and total averages in order to measure a city's performance overall.

As shown in Figure 3.2, post-1990, annual population growth rate averages of the stadium group are higher after 1990, but this can be attributed to historically found rapid growth of the cities rather than the effects of stadium projects. In fact, the growth rate gap between the two groups after 1990 (+0.2 percent) is narrower than that between 1975 and 1990 (average +0.5 percent). In other words, there is no clear evidence that indicates a significant effect of stadium development projects on regional population growth, because the stadium group averages had fared better compared to control group averages pre-1990.

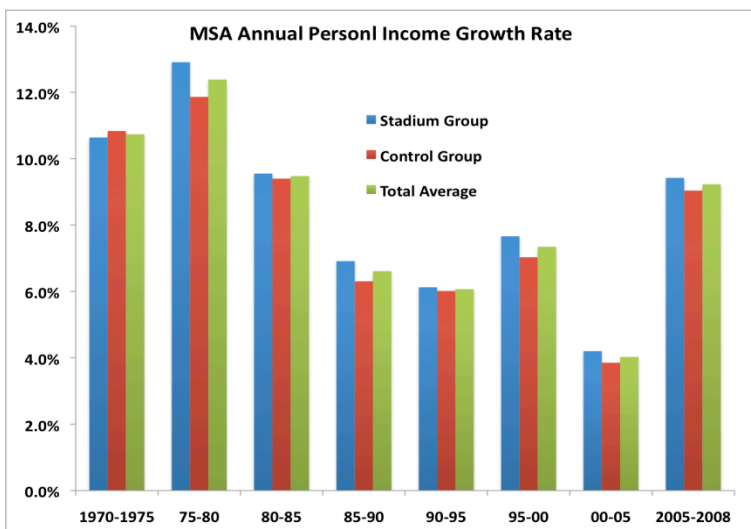
Figure 3.2 MSA annual population growth rate in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

A small difference in the income growth rate exists between the two groups, as shown in Figure 3.3. Personal income growth rates peaked for both group averages in 1980 and continued to decline until 2000, but appear to be on the rise again in the most recent period. When compared to control group averages, stadium group averages are no greater in the last twenty years than pre-1990, and a rise in growth rate in the most recent period, 2005-2008, is consistent between both group averages. Thus, similar to population, no significant evidence can be concluded to infer growth of personal income due to the construction of a sports stadium.

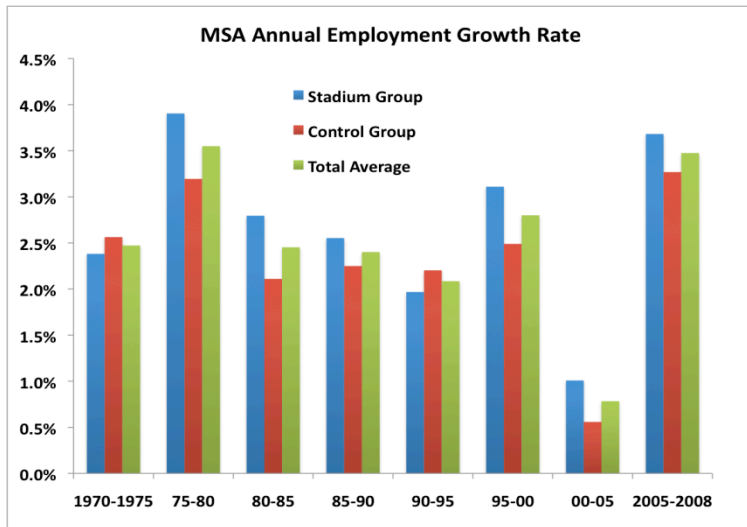
Figure 3.3 MSA annual personal income growth rate in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Trends in employment growth rates, shown in Figure 3.4, are closely related to trends in income growth rates. With the exception of 1970-1975 and 1990-1995 time periods, cities in the stadium group show greater employment growth rates in each five-year increment over the last forty years, but gaps are relatively similar, post-1990 (average +0.3 percent) compared to before the stadium construction boom (average +0.4 percent). In other words, stadium construction has shown no significant effect on regional employment growth between the two groups.

Figure 3.4 MSA annual employment growth rate in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Recognizing different years of the construction projects in different cities, the author has prepared Table 3.3, which highlights and summarizes annual employment growth rates by time period in each city with a new stadium and the average of the control group.⁷

Table 3.3 Summary of annual employment growth rates

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	2.8%	5.5%	5.1%	1.9%	2.3%	4.0%	1.1%	5.6%
Atlanta	1997	2.6%	4.6%	4.6%	3.3%	3.3%	4.0%	1.6%	5.0%
Baltimore	1992	0.9%	1.9%	1.8%	2.5%	-0.1%	1.9%	1.2%	3.0%
Cleveland	1994	0.0%	1.0%	-0.5%	1.7%	0.7%	1.4%	-0.6%	0.6%
Denver	1995	4.2%	5.3%	3.2%	0.5%	3.0%	3.9%	0.6%	4.0%

⁷ For additional comparisons of population and personal income, see Appendix A, Tables A.1 and A.2.

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Glendale	2006	4.7%	7.4%	5.5%	3.3%	3.6%	5.0%	3.0%	5.8%
Kansas City	2007	1.5%	2.5%	1.6%	2.0%	1.7%	2.3%	0.5%	2.9%
Nashville	1999	2.4%	3.5%	3.1%	2.9%	3.6%	3.1%	1.4%	4.3%
Pittsburgh	2001	0.5%	0.9%	-1.2%	1.9%	0.6%	1.3%	0.2%	1.8%
Seattle	1999	1.5%	5.5%	2.2%	5.1%	1.1%	3.2%	0.5%	4.9%
Tampa	1998	5.1%	4.9%	5.4%	2.9%	1.9%	4.1%	1.6%	2.7%
Control	N/A	2.6%	3.2%	2.1%	2.2%	2.2%	2.5%	0.6%	3.3%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate the time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

From 1990 to 1995, employment growth rates in the control group average exceeded the stadium group average, but during that time period, four stadiums were opened in the stadium group, two of the four having a higher regional employment growth rate. In the time period of stadium construction (highlighted in blue), seven of the eleven cities have a higher employment growth rate versus the control. Furthermore, the stadium group average for the most recent time period is greater than the control group average, and six of the cities boasted higher employment rates. However, conclusive evidence of stadium projects spurring employment growth is difficult, because stadium group cities fare well against control group averages in all time periods since 1970. In other words, an overall trend shows the cities experienced employment growth without the need of stadium construction.

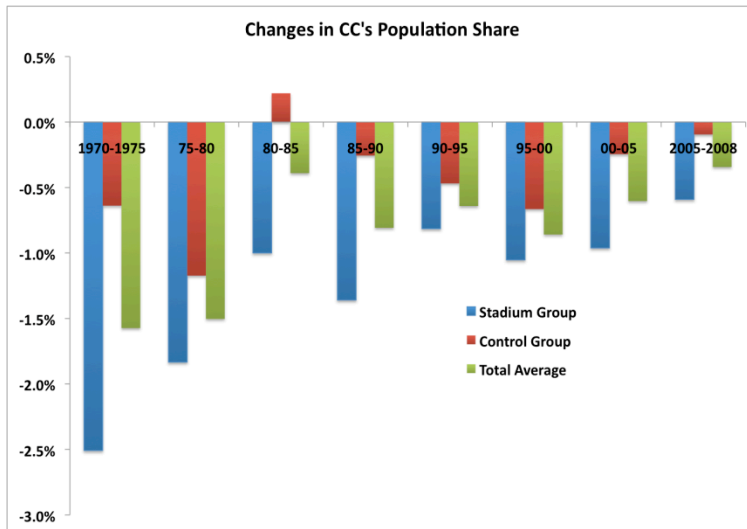
Central County' Share Change

Figures 3.5 through 3.7 present how the central county's share of population, personal income, and employment of the two groups has changed since 1970. Individual stadium group cities were also analyzed and compared to control group averages and total averages in order to measure a city's performance overall.

Negative changes in the central counties' population shares for cities in the stadium group, shown in Figure 3.5, are considerably greater compared to the control group over the forty-year span. Negative changes exist for all averages in every period except for the control group average from 1980 to 1985. However, the negative changes have decreased over time,

with the lowest negative change for cities in the stadium group occurring in the most recent time period. Prior to 1990, gaps between two groups in population shares are much greater in favor of the control group (-1.1 percent difference), compared to after 1990, when the gap narrows (-0.3 percent difference). This indicates stadium construction may have led to a lesser decline in population in the stadium group's central counties, but because control group cities saw lesser central county population share changes over forty-years, stadium construction may not be attributable to regional population shifts toward central counties.

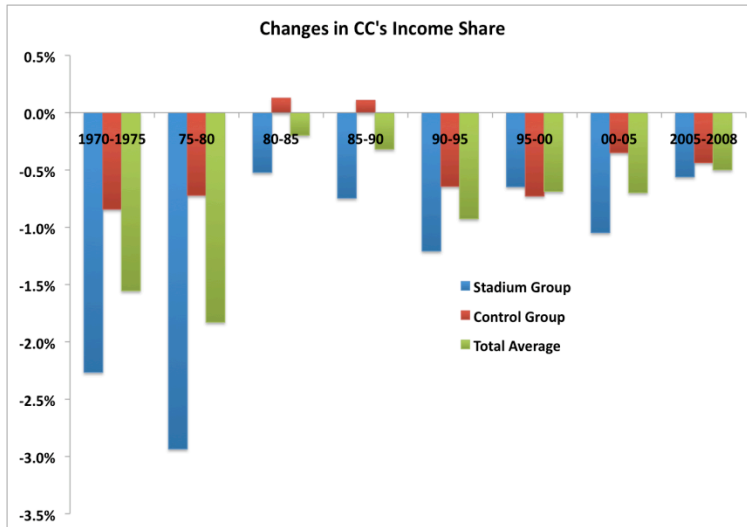
Figure 3.5 Changes in central county's population share in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Personal income results, shown in Figure 3.6, closely resemble those of population. From 1980 to 1990, the control group's income share changes were actually positive. Over the last forty years, negative changes for the averages of cities having opened a sports stadium have lessened significantly, while the control group changes have remained relatively constant, except for the mentioned periods. Post-1990, income gap differences of the two groups is relatively small compared to pre-1990, an average difference of -0.4 percent and -1.3 percent respectively. Although it appears the stadium group cities on average have witnessed a lesser decline in income shares to the region, post 1990, control group averages fare better, thus indicating stadium projects may not have a significant effect on a central county's income share.

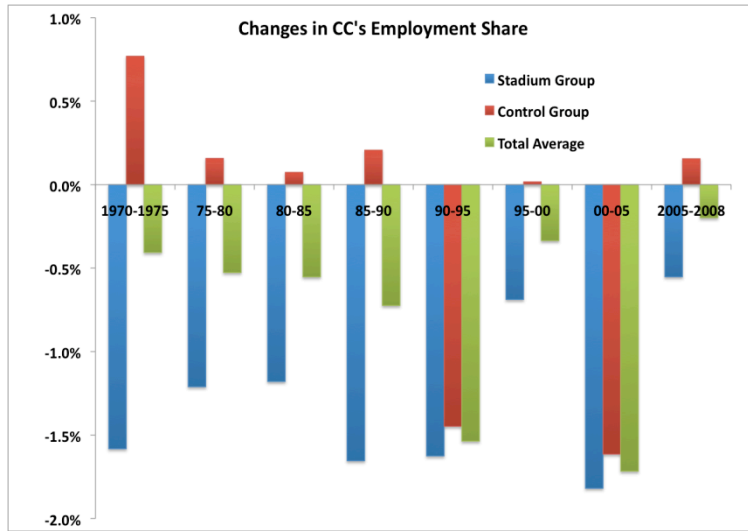
Figure 3.6 Changes in central county’s income share in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

As Figure 3.7 indicates, employment demonstrates the most significant difference among the three economic indicators between the two groups. The control group average shows a positive change in employment for all but two time periods, while the stadium group averages indicate no positive change, although the most recent time period, 2005-2008, is the lowest negative change. Additionally, although the gap between the two groups is significant in the first twenty years (-1.8 percent), the gap has decreased greatly post-1990 (-0.5 percent). In other words, the loss in stadium group cities’ central county shares is declining in recent years, while control group cities’ positive changes have lessened on average since pre-1990. However, negative employment changes are still high in years after the boom of stadium construction began, leaving it difficult to imply stadium projects have had a significant effect on employment changes in central counties.

Figure 3.7 Changes in central county’s employment share in five-year increments from 1970 to 2008



Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Table 3.4 illustrates the opening of stadiums in different years for each city and summarizes the central counties’ employment share changes by time period in each city with a new stadium and the average of the control group.⁸ Of the eleven stadium group cities, only four show more positive share change values upon opening a stadium compared to the control group. In the last twenty years, only three cities (Baltimore, Glendale, and Tampa), fare well versus the control group; however, the same three, plus Seattle, also fare well before 1990 against control group averages. In other words, the cities already showed positive employment share changes, without the introduction of a stadium. This discrepancy for individual stadium cities in employment trends since 1990 makes it difficult to provide meaningful conclusions for positive employment shifts due to stadium construction.

Table 3.4 Summary of central county’s employment share changes

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	-0.2%	0.0%	-0.5%	-3.7%	-1.5%	-1.1%	-5.0%	-1.6%
Atlanta	1997	-2.9%	-5.2%	-5.5%	-2.9%	-3.1%	-0.9%	-2.4%	-0.6%
Baltimore	1992	2.0%	2.2%	1.0%	0.4%	0.7%	0.1%	1.1%	0.1%
Cleveland	1994	-2.4%	-1.6%	-1.2%	-1.1%	-2.1%	-1.0%	-1.9%	-0.3%

⁸ For additional comparisons of population and personal income, see Appendix A, Tables A.3 and A.4.

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Denver	1995	-10.2%	-4.2%	-5.5%	-5.3%	-3.8%	-2.7%	-3.2%	0.1%
Glendale	2006	0.2%	1.6%	0.8%	-0.1%	-0.1%	0.7%	-0.1%	-0.3%
Kansas City	2007	-3.3%	-2.4%	-3.8%	-3.7%	-3.0%	-2.6%	-2.3%	-0.8%
Nashville	1999	-1.5%	-1.6%	0.3%	-3.0%	-3.0%	-2.0%	-3.0%	-1.3%
Pittsburgh	2001	-1.5%	-0.4%	1.0%	0.0%	-1.4%	-0.4%	-1.5%	-0.4%
Seattle	1999	2.9%	0.8%	0.0%	0.1%	-1.4%	1.2%	-1.8%	-0.5%
Tampa	1998	-0.6%	-2.6%	0.4%	1.2%	0.8%	1.1%	0.0%	-0.4%
Control	N/A	0.8%	0.2%	0.1%	0.2%	-1.4%	0.0%	-1.6%	0.2%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

Findings

Based on the analysis of MSA and central county population, personal income, and total employment data, collected from twenty-two cities across the U.S., there exists no significant systematic difference between the two groups in regional growth rates and central county share changes. Broadly, regional growth rates for the two groups appear to follow similar trends over the span of forty years. In other words, it may be that growth rates were similar in most U.S. cities (with similar characteristics to cities in this study) regardless of whether or not a sports facility was introduced. Central county's share change trends are far more skewed since 1970. There appears to be an overall, lesser decline from 1970 to 2008 for almost all stadium group cities, in all three economic indicators, indicating central counties are not losing these socio-economic indicators to the region at nearly the rate, pre-1990. In addition, certain stadium group cities indicate a large decrease in the *rate* of decline over forty years. For example, Denver, which from 1970 to 1995 (the year its stadium was opened), lost 20.0 percent of their county's income share to the region. From 1995 to 2008, the change in income shares in Denver (although still negative) was less than 2.0 percent. This is a substantial difference in share changes over forty years, but this example is echoed by a similar trend indicated by stadium group averages. Of course, due to the vast amount of socio-economic variables, it is nearly impossible to determine whether the introduction of a sports stadium is solely the reason for

decreases in five-year differences in Denver and other similar cities. Also, in comparison, the control group cities have generally maintained consistent central county economic shares and overall fare much better than stadium group share change averages.

It is apparent the stadium group's higher regional growth rates are linked to less negative central county shares for all economic indicators, and control group cities show similar growth rates since 1990 and overall have a greater proportion of central county shares. Recognizing different years the cities in the stadium group opened, and analyzing the employment growth rates and central county share changes compared to control group averages, yields similar mixed-results. Broadly, there exist no consistent, significant trends that lead the study to conclude the effectiveness of sports facilities on regional economies. While certain cities fared well after opening a stadium compared to the control group, other cities showed a decline in employment. The same conclusion can be made for both population and personal income growth rates and share changes, as shown in Appendix A. Thus, mixed results from regional growth rate analyses and central county share changes from city to city suggests the study at a local level, i.e. a case study, may be more appropriate to find real stadium development benefits.

Chapter 4 - The Case of Pittsburgh

Introduction

From the “Literature Review” and “Secondary Data Analysis” chapters, the author concludes that there are alternating outcomes as to the benefits of sports stadium development. In other words, a sports stadium does not necessarily promote regional and local economic growth and/or development. Rather, positive benefits can occur at the neighborhood level through successful strategy implementation (Baade & Dye, 1988; Krumholz, 1999; Nelson, 2001; Chapin, 2004; and, Ahlfeldt & Maennig, 2009; Ahlfeldt & Maennig, 2010). The mixed outcomes indicate that an in-depth analysis is required in order to obtain insights into the effects of a stadium construction project that varies by context.

For this reason a case study of the recent stadium development in Pittsburgh, Pennsylvania was conducted. Since 2001, Pittsburgh has experienced three professional sports stadium construction projects: 1) PNC Park in 2001, 2) Heinz Field in 2002, and 3) Consul Energy Center in 2010. The former two sparked a redevelopment project in Pittsburgh’s North Shore neighborhood, located directly north of downtown. The North Shore projects are the focus of this case study and were introduced, in part, with the downtown convention center, to advance the city’s attractiveness, as well as aid in accomplishing the goal of adding local and regional economic development. The North Shore projects also are important to Pittsburgh, because, similar to Cleveland, the city has witnessed rapid decline in population and income over the past several decades, thus investing in stadium development, although the city is already a widely popular “sports town,” added immense pressure for a successful outcome. The author hypothesized, the construction of Pittsburgh’s stadiums resulted in what Scott Campbell, calls, an outlier, or an exceptional case in which the case “refutes an assumption by proving something is indeed possible” (2003, p. 9).

This case study attempted to closely investigate the transformation of the North Shore district from the destruction of Three Rivers Stadium, once home to both the Pirates’ baseball team and the Steelers’ football team, to construction of PNC Park and Heinz Field and subsequent North Shore Development Project (NSDP). Attention was paid to various aspects of the project, the development process and strategies employed by key personnel involved. In

doing this, the author intended to assess a stadium project in the context of an urban area and relate the findings to previous and future studies. The results, although context based, are anticipated to serve as an example for other cities undergoing stadium projects currently and in the future.

Figure 4.1 Context of stadium project to the city (stadium site highlighted in blue)



Source: Google Imagery (2010)

Methodology

The case study was accomplished through the following three phases:

- 1) Preliminary study of historical and background information of the stadium project by reviewing relevant materials, such as comprehensive plans and local media
- 2) Site visits, including most recent trips in December 2010 and January 2011 and trips in June 2010 and July 2010

3) Interviews with five, key personnel involved in the implementation of the stadium development in Pittsburgh

In the first phase, it was intended to firmly establish a working context, so as to systematically assess the project by reviewing various sources of information. Browsing articles found in Pittsburgh's two large newspapers, the *Pittsburgh Post-Gazette* and the *Pittsburgh Tribune-Review*, helped establish a list of individuals to interview, and potential questions to ask; a document entitled "Allegheny County Economic Trends" (2005) identified historic and regional economic trends; Continental Real Estate Companies' North Shore Master Plan (2009) offered site plans, as well as contextual design information; the Sports and Exhibition Authority of Pittsburgh and Allegheny County website (2011) also provided information regarding existing and future infrastructure on site, and in addition, established background information; and, Delaney and Eckstein (2003) offered a detailed development process of the two stadiums, and also browsing their book provided names for people to interview and potential questions to ask.

Based on a preliminary understanding of the context, the second and third phases (i.e., site visits and interviews) were performed in parallel in December 2010 and January 2011 over a two-week period.⁹ The two complementary investigations attempted to reveal the detailed mechanism (circumstances, actions, consequences) of the development project, and eventually answer the research questions: 1) what are the real benefits of stadium construction in urban areas? and 2) in what context the project can achieve expected outcomes?

Site visits were critical in confirming with information provided in the referenced documentations and interviews. Also, a site visit during the National Hockey League's 2011 Winter Classic, as well as visits to PNC Park for a concert and baseball game in June and July 2010 provided general observations regarding the overall atmosphere (i.e., fan support and impacts on surrounding businesses) during peak events. Furthermore, direct observations allowed assessments to be made regarding the pedestrian and traffic flows, and aesthetic appeal of the two stadiums.

In addition, the interview process included the responses and analysis of five key personnel listed below:

- Dennis Davin, Director of Economic Development, Allegheny County

⁹ In addition to these intensive site visits, other general observations by the author, made in June and July, are used for the study.

- Mike Hudec, Vice President, Continental Real Estate Companies
- Kevin Joyce, Owner, The Carlton Restaurant, Downtown Pittsburgh
- Edward Patton, Chief Operating Officer, Riverlife
- Rifat Qureshi, Development Manager, Sports and Exhibition Authority

Each individual contributed to the project in a different manner and each is employed by a separate entity, which allowed for the research to gain diverse perspectives on the North Shore projects. The interviewees were asked about their individual and respective organization's involvement and the relationships between involved organizations, in order to solicit further information regarding the development process. Opinions regarding the projects' current status, future impacts of the site, and the project's successes and shortfalls were important to assist the author in determining project benefits and highlight issues that other cities may consider when investing in stadium projects.

Historical Background and Context

Located in the context of three rivers (Allegheny, Monongahela, and Ohio), Pittsburgh is often dubbed "The City of Bridges" or "The Steel City." Settled in 1717, the city's economy began to grow during the Civil War with the increase in production of iron and armaments. Steel production began in 1875, when Andrew Carnegie founded the Edgar Thomson Steel Works in North Braddock (Meislik, 1999). By 1911, Pittsburgh was the nation's eighth largest city and produced nearly half the nation's steel. Years of mill production created the need to clean up the city and regions' highly polluted area with projects known as "Renaissance," which began in 1946, and in the 1970s "Renaissance II." Industrialism remained prominent through the 1960s; however, beginning in the 1970s and 1980s steel production in the region buckled due to the massive layoffs and mill closures (Meislik, 1999).

Known for its pristine setting and once thriving steel industry, the city was forced to transform physically, economically, and socially in the 1980s after much of the steel industry left town. Since the 1980s, Pittsburgh has seen a decline in population, but a steady increase in employment. According to Allegheny County Economic Trends (ACET), employment in Allegheny County is expected to increase by fifteen percent between 2005 and 2030. This increase gives hope to a city and region, left devastated after the dismantling of thousands of

manufacturing jobs. Forced to reinvent itself, the city now relies heavily on the health care industry, which employs fourteen percent of the county's workers. The city also relies on the professional and scientific industries (Deitrick & Briem, 2005).

Often thought by outsiders as yet another "rust belt" city left to waste, Pittsburgh means something else entirely to native residents. The city has suffered a great loss in population, as shown in the secondary data analysis, but is viewed by many professionals (i.e., planners and economists) to have great potential. An often-cited reason for this potential is due to the fact that Pittsburgh hosts several large corporations, high-class amenities, including theaters, museums, a casino, and of course, professional sports venues.

Since 2001, Pittsburgh has opened three professional sports stadiums; the Consol Energy Center replaced the aging Mellon Arena, while PNC Park and Heinz Field replaced Three Rivers Stadium. (See Figure 4.2). The plan for PNC Park and Heinz Field was to provide the City of Pittsburgh with a high-class venue to promote sports and entertainment in the region. In addition, the NSDP was planned in order to include mixed-use development on site, instead of only parking for the two stadiums. Creating the NSDP was important, because Three Rivers Stadium was never able to attract ancillary development, just the opposite of the city's goals.

Figure 4.2 Three Rivers Stadium, Pittsburgh, PA



Source: USGS (2005)

Location wise, Heinz Field to the west and PNC Park to the east flank the site area. The Allegheny River runs along the southern border of the site, and the river along with downtown serve as a backdrop for both new stadium venues. North Shore Riverfront Park serves as a buffer between the new development and the river, and is one of the city’s most popular attractions. Interstate 275 bisects the site, and includes a pedestrian bridge (Fort Duquesne Bridge) with access to Point State Park. Roberto Clemente Bridge offers another pedestrian access from downtown and its north end is located next to PNC Park’s centerfield gates. The northern border of the site consists of highway overpasses. Urban neighborhoods are within walking distance, beyond these overpasses.

Figure 4.3 North Shore Development Project



Source: North Shore Master Plan Booklet (2009, p. 6)

As a result of the stadium construction, the North Shore Master Plan was conceived in order to implement the North Shore Development Project. As project developers, Continental issued a master plan in 2009, which provides site context, establishes goals for the project, and highlights key attributes of the NSDP. A highly valuable section of the NSDP is the “Option Area,” and is located between the two stadiums. Continental emphasizes the importance of

including office, retail, residential, hotel, and entertainment within the Option Area. The master plan also emphasizes the need for public transit connections to connect the site to downtown and other neighborhoods. As a result of this need, the Port Authority of Allegheny County is constructing a new light rail transit (LRT) line through the site that will open in 2011. The line is intended to run underneath the Allegheny River, from downtown, and have two stops on the site (Continental, 2009). Another plan for this development is to create a network of alleys that will allow pedestrian access from parking garages and residences to surrounding restaurants and bars. The alleyways are intended to be mainly for pedestrians, and will have limited vehicular access. The master plan also calls for the use of architectural design that establishes a unified urban character for the North Shore, and encourages a pedestrian orientation. Design elements and materials are intended to be compatible with the surrounding urban context (Continental, 2009).

According to Rifat Qureshi, Development Manager for the Sports and Exhibition Authority,

[The plan] was conceived with the input of various stakeholders to bring a mix of business, residential and retail development to the North Shore. The intent of the North Shore Master Plan is to generate a vibrant mixed-use district, with green space, walkable connections and contextual architectural features. The goal also was to avoid what happened during the time of Three Rivers Stadium, when development was planned but never materialized. (R. Qureshi, personal communication, January 18, 2011)

The stadiums are owned and operated by the Sports and Exhibition Authority (SEA) of Pittsburgh and Allegheny County. SEA was formed in 1954, and in 1998, it began working with the Commonwealth of Pennsylvania, the City of Pittsburgh, and Allegheny County to put in place the Regional Destination Financing Plan (RDFP). The goal of this plan was to make Pittsburgh a premier destination for people from all over the country and around the world (SEA, 2011). The major action plan to ensure the plan's success was to create the two new stadiums, a new convention center, and add needed infrastructure to support the area by investing over \$1 billion in these improvements.¹⁰ Funding sources to pay for the project came from hotel tax and sales tax revenues, Steeler ticket surcharges, parking revenues, State appropriations, federal funds, corporate funds, foundation money, and team contributions (SEA, 2011). Reportedly, no city or county funds were used for this development.

¹⁰ SEA's website clearly notes this point by stating, "[SEA] develops first class sports, entertainment, recreational, and convention venues to benefit Pittsburgh's economy and improve quality of life" (SEA, 2011).

So, the Regional Renaissance Partnership (RRP) formed a referendum to increase the region's sales tax from 6 to 6.5 percent, known as Plan A, as an initiative to fund economic development projects throughout the metropolitan area, the largest of the projects being the new ballparks for the Pittsburgh Pirates and Steelers and an expansion of the downtown convention center (Delaney & Eckstein, 2003). However, every county in Pittsburgh's metropolitan region voted down the referendum.

Of the total amount for the new stadiums (approximately \$480 million), the Commonwealth of Pennsylvania had already pledged to pay a third of the costs, or, \$86 million for each new stadium. The Pirates and Steelers pledged \$35 million and \$50 million, respectively. Due to approximately \$209 million needed in local funding and the failure of Plan A, a new plan (Plan B) was proposed, and rather than raising taxes, would redirect an existing tax/revenue stream called the Regional Asset District (RAD). Plan B would divert \$10 million of RAD's subsidy, currently used toward Three Rivers Stadium, and add \$5 million to the RAD money each year to help fund the new stadiums. The RAD money would be used to pay off bonds issued by the City of Pittsburgh and Allegheny County (Delaney & Eckstein, 2003).

Assessments and Findings

Are the North Shore stadium projects, described in the previous section, really successful? Have the projects generated any benefits? Have any objectives not been realized, and why? What can be learned from the case in Pittsburgh? This section attempts to assess the projects and derive meaningful lessons for planners and policy-makers in other cities, so that stadium projects may be more effectively implemented, as well as create broader benefits.

Robertson (1995) provides a significant analytic framework to broadly determine a "successful" urban redevelopment project, using three indicators:

- 1) Reuse of existing buildings or spaces due to new sports facility construction
- 2) New construction that occurs due to new facility
- 3) Generation of new activity due to sports facility

This framework, also adopted by Chapin (2004), can be employed to evaluate the projects in Pittsburgh. Regarding the first indicator, the North Shore stadium projects can be recognized as somewhat successful. Within the area between the two stadiums, no existing

buildings were reused. All the buildings are new in the Option Area. However, the North Shore Riverfront Park has been rehabilitated and reconstructed through a \$35 million investment. The 11.25-acre park features 3.1 acres of lawn, a planting area, a river walk, and places of public art (SEA, 2009).

With respect to the second indicator, the achievements of the projects are more notable. In the North Shore, the construction of the stadiums has resulted in a host of new construction. Qureshi (2011) explained a new street grid was implemented to establish primary access to and from the site. Two large office buildings (Del Monte Building and Equitable Building) have been constructed and are host to a variety of restaurants and bars at the street level, including Jerome Bettis Grille, McFadden's, Hyde Park, and Rivertowne Pub. Three hotels are completed (Hyatt Place Hotel, Residence Inn, and Spring Hill Suites), along with a ten-story parking garage, and a recently completed entertainment complex. According to Qureshi, "the development has been well received, and I believe implementation of the two stadiums has been a solid anchor for the North Shore" (R. Qureshi, personal communication, January 18, 2011).

Finally, in terms of the third indicator, the North Shore site appears to have been successful in attracting new activity. Since construction, Pittsburgh has been host to the 2006 Major League Baseball All-Star Game at PNC Park, and Heinz Field recently hosted the NHL's annual Winter Classic in 2011. The football and baseball facilities have also been host to popular music concerts. Stage AE, adjacent to the southeast end of Heinz Field, will also assist in drawing in musical and entertainment acts from all over the region and country. Furthermore, North Shore Riverfront Park draws in "tens of thousands of residents, visitors, and boaters every year" (R. Qureshi, personal communication, January 18, 2011).

PNC Park and Heinz Field can both be viewed as a successful case of a professional sports stadium development. In other words, the projects have worked as a catalyst of urban redevelopment in the North Shore. Although not fully successful in the reuse of existing buildings and infrastructure, the projects encouraged the rehabilitation of North Shore Riverfront Park. In addition, the projects have encouraged new development, including office and commercial space. The site also hosts new activities, most notably the recent Winter Classic.

However, the case of the North Shore stadium projects (investigated through historical background and context information, site visit observations, and interviews) does not indicate the stadium development is effective in all aspects. Rather, it suggests that the success depends on

various factors that need to be carefully planned and managed. Among other factors, four critical factors are most pronounced: 1) location, 2) design, 3) institutional structure, and 4) history and timing. These factors were identified through the literature findings and further highlighted by case study research and can be useful for planners so they may effectively implement professional stadium projects.

Location

Pittsburgh was able to take advantage of the sites location, which is a major contributor to some of the projects' achievements. As previously mentioned, the two stadiums were constructed in the same location as the previous Three Rivers Stadium. Observations confirmed, as indicated by Continental's master plan, the North Shore location offers great access to Pittsburgh's major roadways including Interstates 376, 279, 28, and 65. The site also offers two pedestrian connections, creating a short walk to downtown at the Roberto Clemente Bridge and the Fort Pitt Bridge or I-279 overpass. The stadiums' proximity to Mount Washington allows breathtaking views from atop the large hill, which based on the viewpoint's popularity determined through observation, may attribute to the SEA's goal of attracting people to the stadium site. Furthermore, due to the stadiums' close proximity to the river and surrounding hills, "Continental had little problems attracting businesses, especially to lease office spaces. A large number of businesses entertain clients by taking them to the games" (M. Hudec, personal communication, December 22, 2010). The author concludes prime location might prove vital in recruiting a qualified workforce, which, according to Florida (2002) may indicate the success level of a community.

However, Joyce indicated businesses located downtown and farther away from the stadium do not tend to attract stadium goers, as opposed to businesses located in the North Shore (K. Joyce, personal communication, December 22, 2010). A site visit to experience stadium activity during the Winter Classic on January 1, 2011, held at Heinz Field, made it apparent that restaurants and bars located adjacent to the stadium tend to be much more crowded for peak events. Thus, in order for businesses located farther away to attract customers it may be necessary to offer limousine services, similar to Joyce's restaurant that offers free limousine service for theatergoers who dine at his restaurant. The service connects his business with the theater business and might be used to enhance stadium spillover effects on other businesses.

Another service that may link businesses outside the stadium district is public transit. However, Hudec explained the new connector on the LRT line is not going to provide enough connection opportunities to justify its high costs. He does not think it will be a major factor to the stadium site, because there are not enough connectors and the system has limited capacity (M. Hudec, personal communication, December 22, 2010). Kevin Joyce criticizes the effort, saying, “The new addition does not connect people, only venues” (K. Joyce, personal communication, December 22, 2010). As the cost for the LRT system went up, the number of stops were reduced. However, by creating more stops, the LRT has a potential to connect people living in the North Side (neighborhood directly North of the site), to the site, to downtown, to the South Side, and finally to residents in Pittsburgh’s southwestern neighborhoods. The author recommends that Pittsburgh create more stops on the LRT to allow greater connection from areas outside the stadium district to the site and downtown.

Another issue with location as indicated by Delaney and Eckstein (2003), is Pittsburgh’s downtown, which, although within walking distance of the stadiums, becomes vacant after five o’clock on weekdays. Joyce believes, “The reason for this is geography. One has to go through a tunnel and across a bridge, just to get back to downtown” (K. Joyce, personal communication, December 22, 2010). Due to the difficult task in bringing people back to downtown where they work five days a week, it may be risky to pursue downtown development. However, Joyce recommended locating residential development near stadium and associated commercial development, particularly downtown, to attract people to the central city and create a synergy (K. Joyce, personal communication, December 22, 2010).

Design

Design (both aesthetic and contextual) of the North Shore projects has been influential for some of the area’s successes. Ed Patton, Chief Operating Officer of Riverlife, indicated Riverlife (a non-profit organization based in Pittsburgh) was able to convince the Pirates organization to push back North Shore Drive away from the river’s edge during initial project designs (E. Patton, personal communication, December 29, 2010). This allowed for the expansion and enhancement of the park and reconstruction of the northern riverbanks. Additionally, the author’s observation indicates that two major pedestrian bridges connecting the downtown to the North Shore are yellow in color, matching the tan and black colors of PNC Park

and the black and yellow colors of Heinz Field; this visually connects the urban spaces, and may be helpful in luring stadium goers to downtown, thus maximizing positive spillover effects. The North Shore development also incorporates contextual architectural features, blending new development with the larger urban context (North Shore Master Plan Booklet, 2009). Direct observations and interview responses indicate Pittsburgh's two stadiums contribute to visual connections due to design features and architectural quality, and begin to connect the site to downtown. However, Joyce recommended, and this is confirmed by the author's observations, that more should be done to increase the desirability of downtown. Although the city does offer way-finding tools to help pedestrians and bicyclists, especially visitors, access the stadium; it may be necessary for the North Shore side to better highlight downtown eateries and other leisurely amenities.

In addition to the desired goal of improving downtown, the surrounding development has been fairly successful in creating a more vibrant stadium district. Currently, Stage AE will provide year-round indoor/outdoor concerts and events. Also recently completed is the nearby Three Rivers Casino. Although controversial, according to Mike Hudec, Vice President of Continental, "What the casino did for us was to make the area more viable for hotels... [Pittsburgh] had a shortage of hotels" (M. Hudec, personal communication, December 22, 2010). With this ancillary development, he insisted people are drawn to the area. He believed the entertainment district, restaurants, and other development have helped in this regard. In contrast, Joyce, downtown restaurant owner, described the scenario as cutting too many pieces into the pie. The results are that, although new businesses may be created by the stadium development, existing businesses, especially those located downtown and away from the stadiums, are left with more competition and may be robbed of business (K. Joyce, personal communication, December 22, 2010). The author recommends that although new development may be desired, it should not come at the expense of existing businesses. In other words, if there already exists a surplus of restaurants in the area, it is not necessary to develop too many additional restaurants, because it may lead to devastating declines in customer numbers and overall profits for well-established, local businesses.

Institutional Structure

Institutional structure, including planning processes, shows mixed successes in the case of the North Shore development, but none-the-less is vital for consideration. First, interview responses indicate that the governmental structure in Pittsburgh appears problematic, because the area currently consists of 139 municipalities, which make up Allegheny County. In addition, documentation reveals, as of 2005, Pittsburgh's MSA is made up of seven counties, all of which impact the city's regional economy (Deitrick & Briem, 2005). The concern is that each has its own body of government expressing autonomous decision-making and interests, and no official regional government body exists. In Pittsburgh, Joyce argues, "What occurs is a dysfunctional government at every level, sprawling suburbs, and a top down power structure, making it difficult to form regional and/or local policies to enhance the city's urban core" (K. Joyce, personal communication, December 22, 2010). Hudec mentioned (although not exclusive to Pittsburgh) the many layers of approval, politically and bureaucratically, make development difficult (M. Hudec, personal communication, December 22, 2010). Furthermore, research indicates regional planning is essential (Duany, Speck, & Lydon, 2010), because people's lives operate at this scale and without such planning, even the best local planning may contribute to sprawl. The county, state, or regional organizations often administer regional planning efforts. Additionally, development under a regional body is encouraged to be placed on a fast-track approval process and considered for incentives, especially if a project is exemplary in both location and design (Duany et. al., 2010). Pittsburgh's fragmented governmental structure leads the present study to recommend that the formation of a regional planning body be considered, to serve as a guide to all municipalities and counties for the cooperation among existing governmental entities in order to make it easier for developers to build and improve downtown, mitigate sprawl and potentially tend to urban areas in need of revitalization.

First, although interviews conducted by the author confirm an overarching governmental structure does not exist in Pittsburgh, Qureshi stated the city's establishment of the SEA allows the SEA to oversee related development projects (i.e., negotiate with teams and developers), and has proven to be important (R. Qureshi, personal communication, January 18, 2011). In addition, Pittsburgh's Urban Redevelopment Authority (URA) played an important role in the stadium project, because, according to Davin, the URA was tasked with successfully relocating a senior housing facility, which today would stand in leftfield at PNC Park (D. Davin, personal

communication, January 13, 2011). The author recommends that certain government entities be tasked with the acquisition of land and property, as well as assist with relocation efforts.

Secondly, the development process in Pittsburgh included the creation of a consensus/master plan for the North Shore site in order to establish guidelines and building footprints for the eventual developer. Hudec noted the plan was beneficial in fostering team negotiations. The Steelers indicated they wanted a certain amount of parking left available for game days, while the Pirates viewed residential development next to its stadium as beneficial to their needs, as part of day-to-day activities, especially on Saturdays and Sundays (M. Hudec, personal communication, December 22, 2010). The consensus plan allowed the developer to organize the stadium area, and ensure that the two major contributors (i.e., the Steelers and Pirates organizations) were in agreement, and to allow the eventual master plan to be consistent with the city's and SEA's goals.

Furthermore, as mentioned above, the stadium development projects have been able to attract additional major events to the site. The Pirates and Steelers home games (eighty-nine total a year, not including postseason) and the University of Pittsburgh Panthers' football team home games (six games a year and also at Heinz Field) total a guaranteed ninety-five games a year out of 365 days a year. Hudec stated that a vital addition to the site has been the development of Stage AE, which will host an estimated 100 musical events each year outside the stadium structures. Plus, North Shore Riverfront Park often hosts festivals along the river, and the casino is in use year-round (M. Hudec, personal communication, December 22, 2010). The author concludes that the potential of 200 days per year of stadium and concert activity in the North Shore, in addition to park and casino activity, may be sufficient in generating adequate business in order to support development in the stadium area, as well as downtown.

Also important to note are attributes of the effective stadium referendum in Pittsburgh. Delaney and Eckstein (2003) mentioned a reason for Plan A's failure is that Pittsburgh is a midsized northeastern city, devastated by industrial decline, and a declining population. Pittsburgh's urban core population has been moving to the suburbs, and as a result Allegheny County and surrounding counties have become much more powerful (Delaney & Eckstein, 2003). Before the 1980s, the mayor and city council members played the most important role in local policy and were much more relevant to referendums, such as Plan A. Recently, though, Delaney and Eckstein (2003) indicated that more power has been placed in the voters of

surrounding counties, which was a major reason for the rejection of Plan A, which called for a tax increase to fund the stadium development and expansion of the convention center. Dennis Davin, current Director of Development for Allegheny County, mentioned the lack of support in outlining counties. He states, “the outlining counties would rather utilize existing tax bases” (D. Davin, personal communication, January 13, 2011). In addition, Delaney and Eckstein (2003) mentioned that business leaders emphasized the tax would stimulate economic development and create jobs. Delaney and Eckstein (2003) recommended, and the present research confirms, the shift from the economic benefit justification to a rally for community self-esteem was important in Pittsburgh, because it not only enabled the passing of Plan B, but it made more sense in a city faced with a vastly declining urban population and faltering economy that already had existing tax bases.

Finally, the review of plans and interviews indicated the majority of the previous site was primarily parking, and was heavily underutilized. In order to meet the challenge of underutilized land, the Stadium Authority, SEA, the Pirates, and the Steelers entered into a mutual agreement (the Option Agreement), which gives the two teams development rights to the land between the two stadiums. The Option Agreement incentivizes the teams to develop the area by limiting the team’s parking revenue. Certain parking revenues, instead, are placed in a development fund, assessed only when the area is developed (SEA, 2011). This aforementioned, highly important “Option Area,” is part of the larger NSDP site, and, “The Sports Authority owns the Option Area and works with the teams and Continental to facilitate the best development” (R. Qureshi, personal communication, January 18, 2011).

History and Timing

Historically, Pittsburgh, once known for its steel industries, has economically undergone transformation, and now relies favorably on white-collar jobs. The city was able to take advantage of timing, which was critical in the success of Pittsburgh’s two new stadiums. The city was experiencing employment growth, and large companies viewed the construction of PNC Park and Heinz Field as a great tool to lure top clients and potential employees.

Developments must also meet market conditions, and because of this, Hudec mentioned the eventual master plan for NSDP had to change from time to time. Some interviewees claimed that key personnel involved in the stadium project, did a tremendous job to attract hotels, offices,

and restaurants to the area, but Continental and the city have struggled to attract needed residential development, which is largely due to the current, poor housing market conditions in downtown and the adjacent North Shore (M. Hudec, personal communication, December 22, 2010).

Although research indicates Pittsburgh was accurate in historically timing recent stadium construction, the actual timing of sporting events, particularly Pirates games, has proven insufficient to expand downtown businesses. Joyce, a big advocate of the stadium construction and long time season ticket holder of the Pittsburgh Pirates, was hopeful that PNC Park, especially, would have an impact on downtown businesses, and that he would see an increase in dining. The stadium is only a thirteen-minute walk from his restaurant, closer than the previous Three Rivers Stadium. A problem he cites was, “The Pirates moved their starting time from 7:35 to 7:05 PM, which was unexpected. The push back in time meant less time for people to dine and walk to the game, so instead patrons are eating at establishments closer to the stadium, in the North Shore, rather than downtown” (K. Joyce, personal communication, December 22, 2010).

Case Study Summary

Based on evidence from background information, observations, and interview responses, it is apparent that the implementation of PNC Park and Heinz Field has succeeded in catalyzing physical development in the host neighborhood, establishing great civic amenities for the city and region, attracting thousands of visitors to the area each year, and creating civic pride among Pittsburgh natives. Assessments of case study research also conclude the two new stadiums have sparked new construction in the area, replacing previous parking lots. Furthermore, the stadium has shown success in advancing needed infrastructure within the city. Hudec asserts, “The two stadiums created an infrastructure (utilities, roadways) for the North Shore project, and a controversial LRT connector was added, largely due to the construction of the stadiums and NSDP” (M. Hudec, personal communication, December 22, 2010).

Moreover, three of the five individuals interviewed explicitly stated the construction of PNC Park and Heinz Field in conjunction with the NSDP has encouraged economic growth for the region. Although the research lacks additional support for this conclusion, four critical factors that contribute to a successful stadium project have been discussed and are emphasized in

hopes of generating at least physical development and community pride, which in turn, may allow for the creation of economic benefits.

Conclusions from the case study offer an in-depth example to illustrate to planners and decision-makers in what context stadium developments are appropriate and strategy ideas that can be implemented to promote successful stadium projects.

Chapter 5 - Summary and Discussion

This study assesses the effectiveness of professional sports stadium development projects as a driver of local and regional economic development and/or as a catalyst of urban revitalization and investigates in what context a stadium development project can be more successful through conducts of literature review, a secondary data analysis, and a case study of Pittsburgh, Pennsylvania. Furthermore, it is attempted to derive and provide a set of key, meaningful lessons for planners who can play a critical role in managing stadium projects.

In this study, several important findings are derived, as follows:

- 1) Some stadium development projects seem to generate substantial local economic benefits and induce urban revitalization, while some other projects not, as suggested by mixed outcomes in the literature on the effects of stadium development and the secondary data analysis.
- 2) Despite the optimistic promises of local governments and sports franchises, it is suggested that stadium development itself is not a sufficient condition for economic development or urban revitalization.
- 3) Therefore, to be successful, stadium development must require a careful pre-assessment and management of the project; among others, consideration needs to be given to location, design, institutional structure (including planning process), and history and timing.

The implications for policy and planning process reform appear great as a result of these findings. Particularly, planners need to pay attention to the four critical factors of success (i.e. what is most desirable location and design, how can planners be most effective in the planning process, and what is the best time to build) in developing their own strategies for stadium development or related investment projects.

What is the most desirable location?

Location is perhaps the most critical factor of whether or not stadiums can be effective promoters of urban revitalization, because location can support and allow for convenience to the

CBD, enhance accessibility, promote synergies, and overcome natural and physical barriers between the stadium and its patrons.

It appears that the CBD, or another appropriate site in central cities, can generally be a good option, particularly when downtown revitalization is strongly pursued. As Nelson (2001) indicates, “A stadium located in the suburbs or outside the CBD, although land costs may be much less, could result in a higher loss of MSA share of regional wealth, whereas the CBD option will likely generate greater economic benefits” (p. 261).

More importantly, in locating the stadium, coordination of the project with other infrastructure is critical. For instance, locating the sporting venue next to public transportation and major transit routes allows for greater accessibility and more efficient travel. As mentioned by Nelson (2001) and the present study confirms, pedestrian corridors or light rail transit, from the venue to the CBD, in conjunction with integrated shopping, dining, and hotel opportunities, allows residents and visitors to have greater connection from downtown to the stadium, promoting additional business.

Locating places of residence next to stadium developments can also be considered useful, and may be desirable, to help people live and work in the district. Although geographic barriers pose a strategic problem, constructing sports stadiums near downtown, and establishing housing in close proximity, may be useful to tie a stadium facility into a downtown and can promote vibrancy.

What design and spatial context are most important?

Design is another important factor to be considered in the process of stadium development. A number of issues arise when considering design of a stadium. Not only aesthetic appeal, but also the position of the stadium on the site and ancillary development surrounding the site, must be considered within the context of the city. Baade and Dye (1988) stressed a simultaneous development of a number of economic anchors is critical in a large-scale development project including the construction of a stadium; and the anchors need to be carefully organized.

Even if the district is not simultaneously redeveloped, stadiums need to be designed with consideration of its interactions with existing structures and businesses. Wrigley Field features

narrow concourses and walkways, which significantly lowers the number of vendors selling merchandise and food in the stadium, due to the lack of space, while promoting spending outside the stadium. The stadium “Concession sales are a poor substitute for pregame and postgame activities” (Nelson, 2001, p. 258). Also important is the creation of an aesthetic connection between the stadium district and the downtown district, by understanding the aesthetic context of stadium placement. Ahlfeldt and Maennig (2010) suggested that sports stadiums can either be iconic forms of architecture or be incorporated into the urban fabric. In any design, a sports stadium should be a showcase to the cityscape, as well as provide views from outside to the inside, as Seattle’s design suggests. The Qwest Field design also provides flex space to allow adaption for multiple uses, when the football team is not playing (i.e., festivals and concerts).

The other aspect of stadium design, which cannot be neglected, is stadium parking. There must be a balance between parking needs and development, although it is a challenge to ask lenders to invest in a parking garage. By not offering enough parking, negative effects may occur including nuisance complaints, as the case in the Max-Schmeling-Arena in Germany. This is especially important to consider in planning for a neighborhood stadium. Although parking must be incorporated into the design, it should not dominate the site. The use of aesthetically pleasing parking garages, which might include additional uses such as office or commercial space, or the installation of underground parking, might also be considered.

How can planners be most effective in the planning process?

Although explicit attention is not given to the importance of institutional environment in the present study, it is an important aspect to be noted. Particularly, systematic cooperation among various institutional parties, including governmental units, stakeholders, developers, residents, and so on, seems critical. A master planning process with the public involved early on in the process can be an effective method to achieve this. Holding town hall meetings to help gain input on community-wide impacts is important.

Lease agreements and negotiation talks may also be a crucial ingredient in planning for a stadium. The city can try to amend lease agreements to make them less generous for the team and more beneficial to local governments (Delaney & Eckstein, 2003). Also, it is sometimes necessary that owners agree to develop a certain amount of land surrounding the stadium, as part

of the stadium deal (Hequet, 2006), and contribute some profits generated by the stadium to local youth, neighborhood, and non-profit organizations. Development projects should try to include local labor in construction of the project. Although some evidence indicates that stadiums provide little in economic gains for the region, the negotiation strategies above can have significant impacts for local labor unions and labor organizations. Showcasing deals that reinforce community wide support may also assist in approval of stadium referendums reliant on public investments. Cooperation between owners and local government for the public use of facilities for alternative activities when the team is away appears to be beneficial for the economy and provides additional entertainment for residents. It would be another feasible and desirable strategy to incorporate development incentives that assure appropriate housing needs are met as a condition for development approval.

When is the best time to build?

History and timing is the last of the critical factors for success identified through this research on professional sports stadium development projects. Before a city decides to develop a stadium facility, it is important it, in association with planners and decision-makers, investigate the context of the proposed stadium development. Particularly, a city should consider the historic context and timing of the project, including past development trends that have and have not worked, as well as current market trends. For example, planning a stadium project, with an emphasis on the incorporation of residential components, will not work if the current market will not allow for such development. What may result are a failed project and a stadium surrounded by a sea of parking. Mike Hudec stressed that it is important for developers and planners to be aware of current and projected market trends in order to shape intended development patterns. Developers must also be aware not to overdevelop a region. Joyce mentions that “Pittsburgh is not getting any bigger, and the city has 300 more restaurants than it did five years ago. The result is an increase in competition for existing restaurant owners. The stadium site offers lower costs for parking than downtown, and is supplied with hotels, restaurants and office space, while downtown is not at full occupancy and has an ample supply of office space” (K. Joyce, personal communication, December 22, 2010).

Future

Professional sports stadiums may, or will likely continue to be constructed at a rapid pace in the near future, with large investment projects already underway in Brooklyn and Los Angeles, and planned projects on the tables in Miami and Milwaukee. Planners need to be at the forefront of development discussions in order to ensure projects achieve as many potential benefits as possible.

Although the present study is not without limitations, it discusses the potential benefits of professional sports stadium development projects and identifies four critical factors for success. It is essential for planners to take into account the critical factors and coordinate stadium projects to ensure they are viewed on a contextual basis.

Still other issues remain. For instance, the present study investigated whether stadium construction projects could provide benefits to the region and neighborhood through analysis of regional economic data and a case study, but did not investigate how to effectively manage large-scale events. Given that the hosted events such as the National Hockey League's Winter Classic, major league playoff games, or international sporting events (i.e., the Olympic Games) can generate a substantial amount of impacts, future studies may wish to examine the effects of these events and the importance of stadium management. In addition, little is known about desirable locations, designs, and cooperation strategies in different contexts. Focusing on this issue, future research might analyze the cases in many other cities and provide planners with additional lessons. This is necessary to ensure that stadium projects can remain catalysts for urban redevelopment, beginning at the local level and hopefully expanded to positively influence surrounding areas, thus creating region-wide benefits as often promised.

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Appendix A - Additional Tables and Figures

Additional Growth Rate Tables

Table A.1 Summary of annual population growth rates

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	1.8%	2.7%	3.4%	2.2%	2.3%	2.9%	2.3%	4.1%
Atlanta	1997	2.7%	2.0%	2.7%	2.9%	3.3%	3.4%	2.9%	4.8%
Baltimore	1992	0.8%	0.2%	0.5%	1.2%	0.8%	0.5%	0.7%	0.7%
Cleveland	1994	-0.7%	-0.6%	-0.4%	-0.3%	0.4%	0.0%	-0.3%	-0.7%
Denver	1995	2.7%	2.6%	2.1%	0.4%	2.9%	2.6%	1.6%	2.9%
Glendale	2006	5.0%	3.8%	3.7%	3.1%	4.1%	3.6%	3.4%	6.0%
Kansas City	2007	0.3%	0.6%	0.7%	1.0%	1.1%	1.2%	1.2%	2.3%
Nashville	1999	2.1%	1.9%	1.1%	1.7%	2.4%	2.1%	1.9%	3.9%
Pittsburgh	2001	-0.4%	-0.4%	-0.8%	-0.6%	0.1%	-0.4%	-0.5%	-0.6%
Seattle	1999	0.3%	2.4%	1.4%	2.7%	1.8%	1.6%	1.0%	2.3%
Tampa	1998	5.0%	2.7%	2.9%	2.1%	1.4%	1.6%	1.9%	2.7%
Control	N/A	1.7%	1.2%	1.1%	1.0%	1.7%	1.4%	1.2%	2.3%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

Table A.2 Summary of annual income growth rates

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	10.9%	14.9%	12.4%	6.0%	6.4%	9.5%	4.4%	11.2%
Atlanta	1997	11.3%	13.0%	12.1%	8.8%	7.9%	9.3%	4.4%	9.4%
Baltimore	1992	9.9%	10.9%	8.7%	7.0%	4.2%	6.3%	5.3%	9.1%
Cleveland	1994	7.7%	9.9%	6.9%	5.8%	3.9%	4.7%	2.0%	5.6%
Denver	1995	12.2%	14.0%	9.8%	5.2%	7.9%	9.7%	4.1%	9.6%
Glendale	2006	12.8%	16.4%	11.5%	7.5%	7.8%	9.5%	6.8%	12.5%
Kansas City	2007	9.5%	11.1%	8.4%	5.8%	5.9%	6.9%	3.5%	8.2%

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Nashville	1999	11.1%	13.0%	10.4%	7.5%	8.4%	7.3%	4.6%	10.2%
Pittsburgh	2001	8.9%	10.2%	5.4%	5.7%	4.0%	5.2%	2.5%	7.6%
Seattle	1999	9.2%	14.4%	8.1%	9.1%	5.8%	9.1%	3.3%	11.2%
Tampa	1998	13.6%	14.3%	11.4%	7.6%	5.4%	6.8%	5.4%	9.1%
Control	N/A	10.8%	11.9%	9.4%	6.3%	6.0%	7.0%	3.9%	9.0%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

Additional County Share Change Tables

Table A.3 Summary of central county's population share changes

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	-1.1%	-2.2%	-2.6%	-2.5%	-1.3%	-2.3%	-3.0%	-1.6%
Atlanta	1997	-5.4%	-1.9%	-1.7%	-2.5%	-0.9%	-1.1%	-0.2%	-0.1%
Baltimore	1992	-0.1%	0.2%	-0.3%	-0.4%	0.2%	0.3%	0.0%	-0.1%
Cleveland	1994	-2.8%	-2.4%	-0.5%	-1.3%	-1.0%	-1.4%	-2.3%	-1.2%
Denver	1995	-6.9%	-5.1%	-2.8%	-2.8%	-1.1%	-1.6%	-1.7%	-0.1%
Glendale	2006	0.4%	0.6%	0.3%	0.1%	-0.1%	-0.2%	-0.6%	-1.6%
Kansas City	2007	-2.1%	-1.6%	-1.1%	-2.1%	-1.5%	-1.5%	-1.1%	-0.3%
Nashville	1999	-4.1%	-3.3%	-1.4%	-2.2%	-2.2%	-3.2%	-1.4%	-1.5%
Pittsburgh	2001	-2.1%	-1.3%	-0.4%	-0.2%	-0.8%	-0.6%	-0.7%	-0.2%
Seattle	1999	-0.8%	-1.6%	-0.7%	-1.1%	-0.9%	-1.0%	-0.7%	-0.2%
Tampa	1998	-2.6%	-1.5%	0.2%	0.0%	0.4%	1.0%	1.2%	0.3%
Control	N/A	-0.6%	-1.2%	0.2%	-0.3%	-0.5%	-0.7%	-0.2%	-0.1%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

Table A.4 Summary of central county's income share changes

City	Year	70-75	75-80	80-85	85-90	90-95	95-00	00-05	05-08
Arlington	1994	-1.9%	-2.6%	-1.8%	-2.9%	-2.6%	-2.3%	-2.7%	-1.6%
Atlanta	1997	-4.9%	-4.0%	-1.2%	0.2%	-0.7%	0.5%	0.1%	-0.2%
Baltimore	1992	1.0%	-1.7%	-0.2%	-0.8%	-0.2%	-0.1%	-0.8%	-0.1%
Cleveland	1994	-2.8%	-2.9%	-0.3%	-0.4%	-2.2%	-1.9%	-1.6%	-0.8%
Denver	1995	-5.9%	-7.1%	-2.8%	-2.0%	-2.4%	-1.6%	-0.3%	0.0%
Glendale	2006	0.1%	0.8%	0.9%	-0.1%	0.0%	0.0%	-0.9%	-0.8%
Kansas City	2007	-2.6%	-3.4%	-1.7%	-1.9%	-1.9%	-2.5%	-0.8%	-1.2%
Nashville	1999	-4.5%	-5.3%	-1.3%	-1.8%	-2.8%	-2.4%	-1.7%	-1.3%
Pittsburgh	2001	-2.4%	-2.1%	1.8%	0.6%	-1.6%	-0.1%	-1.6%	-0.6%
Seattle	1999	-0.3%	-0.8%	0.1%	-0.4%	-0.6%	1.5%	-2.4%	-0.2%
Tampa	1998	-0.8%	-3.2%	0.8%	1.3%	1.6%	1.7%	1.2%	0.6%
Control	N/A	-0.8%	-0.7%	0.1%	0.1%	-0.6%	-0.7%	-0.3%	-0.4%

Source: Regional Economic Information System, U.S. Bureau of Economic Analysis (2010)

Note: Areas shown in blue indicate time period a stadium was constructed. Areas in grey indicate the time periods following stadium construction.

Appendix B - List of Acronyms

ACET – Allegheny County Economic Trends

CBD – Central Business District

CDC – Community Development Corporation

EB – Ellerbe Becket and Turner Construction

GIS – Geographic Information System

LRT – Light Rail Transit

MLB – Major League Baseball

MSA – Metropolitan Statistical Area

NBA – National Basketball Association

NFL – National Football League

NHL – National Hockey League

NSDP – North Shore Development Project

PNC – Pittsburgh National Corporation/Provident National Corporation

RAD – Regional Asset District

RDFP – Regional Destination Financing Plan

REIS – Regional Economic Information System

RRP – Regional Renaissance Partnership

SEA – Sports and Exhibition Authority of Pittsburgh and Allegheny County

URA – Urban Redevelopment Authority