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Innovation Diffusion in Major League Baseball: An Event History Analysis of Stadium Adoption

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INNOVATION DIFFUSION IN MAJOR LEAGUE BASEBALL:
AN EVENT HISTORY ANALYSIS OF STADIUM ADOPTION

By

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To my wife, parents, and parents-in-law

Thank for your support and sacrifice.
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ABSTRACT

Despite the popularity of innovation adoption and diffusion research in a variety of disciplines, there has been little knowledge of innovation adoption and diffusion in the area of sport management. This study attempted to link the Diffusion of Innovation Theory to a boom in the MLB stadium construction observed since Baltimore’s Oriole Park at Camden Yards. This stadium was constructed in 1992 and represents the start of the current era of baseball stadium construction. Through this study an attempt was made to identify and empirically test the determinants influencing the construction of MLB stadiums from both teams’ and city governments’ perspectives. In other words, what factors drive both a team and city government to adopt stadium construction? It was intended to justify the idea of a diffusion effect; that is, to show that MLB teams and city governments emulate other teams’ and cities’ construction of new stadiums to achieve some of the advantages observed from others’ constructions.

Given the longitudinal nature of the stadium construction process, event history analysis (EHA) was performed to test the significance of the determinant factors influencing the adoption of stadium construction from both teams’ and city governments’ perspectives. Overall, considering the observed time period (22 years) and the number of MLB teams and their cities adopting construction of a new stadium, the proposed model supported most hypotheses with a high Pseudo $R^2$ value of 0.48.

The empirical results provided practical implications to both sport franchise owners and city officials considering the construction of a new stadium by providing useful information about several ways to increase the likelihood of stadium construction adoption. The researcher contributed to the sport management literature by providing an initial effort to conceptually develop and then empirically test a model of innovation adoption and diffusion in the context of sport. Furthermore, the researcher also provided numerous opportunities for sport scholars to continue advancing our knowledge of innovation adoption and diffusion in sport by using the proposed research model.
CHAPTER 1
INTRODUCTION

Background of the Study

Today’s dynamic environments challenge firms to respond to market demands that are constantly changing. In this moment, consumers are becoming increasingly specific in their demands. In order to satisfy consumers’ discriminating demands, firms keep attempting to innovate with their products and themselves to survive in heavy competition.

The ability of a firm to innovate is a key to success in any business (Cardozo, McLaughlin, Harmon, Reynolds, & Millere, 1993). Indeed, the world’s most innovative companies, including Google, Apple and GE, have emphasized the importance of innovation as a key factor in determining a firm’s success (Little, 2010). For example, the consulting firm Arthur D. Little reported that 87% of the respondents participating in the 2009 Innovation Excellence Survey strongly believed that innovation played a key role in the fate of their firms (Kirchgeorg, Achtert, & Grobeschmidt, 2010). Arthur D. Little also reported that “top innovators typically achieve up to twice as many sales as the industry average, realize higher EBIT, and roll out new products twice as fast as their competitors” (p.15).

Similar to business firms, professional sports organizations also attempt to generate something new and interesting in order to attract consumers – who are also becoming more sophisticated – by observing innovative features utilized in other fields. Thus, innovative policies or products in the context of professional sports have consistently been requested beyond teams’ athletic performance. For example, one of the possible innovative policies adopted in Major League Baseball (MLB) is variable ticket pricing (VTP), referring to “changing the price of a sporting-event ticket based on the expected demand for that event” (Rascher, McEvoy, Nagel, & Brown, 2007, p. 407). Since this innovative ticket pricing policy was adopted from the airline industry, it has been widely used in MLB as well as in other professional sports leagues.

However, from the perspective of generating a team’s revenue and the size of a project, there is no project as important as construction of new ballparks. Moreover, sport financing scholars postulated that construction of new facilities is an innovation in that it allows teams to generate their revenue sources through the construction of luxury suites, club seatings, special seating arrangements, and new signage opportunities (Danielson, 1997; Rosentraub, 1997;
Hence, construction of facilities or major innovation of facilities could be the product of sports franchises’ innovative efforts in the context of professional sports.

In the past two decades, these sports franchises’ efforts have resulted in a high level of investment in professional major league facilities in the U.S. (Crompton, Howard, & Var, 2003). The report by the Sports Facility Reports (SFR) revealed the five professional sports leagues in the U.S., including Major League Baseball (MLB), the National Basketball Association (NBA), the National Football League (NFL), the National Hockey League (NHL), and Major League Soccer (MLS), cumulatively spent approximately $31 billion from 1989 to 2009 constructing venues. Furthermore, 103 venues of the five major sports leagues (approximately 87%) have been built or have been majorly renovated since 1989 and at least seven other venues are scheduled to be rebuilt in the next five years (The Sports Facility Report, 2010).

However, it is true a majority of venues constructed since 1989 have been fully or partially financed by city and state governments. More specifically, between 1990 and 2006, public subsidies for the four major league sport facilities ranged from $12 billion to $15 billion (Humphreys, 2006; Long, 2005). Of the 30 MLB franchises, 21 have received public subsidy of a new stadium between the years 1992 and 2010, with an average public subsidy of $238 million, or 57.8% of total baseball stadium construction costs (see Table 2-2). This trend corresponds to the emergence of local level private/public partnerships throughout the country since the 1980s. Watson (1995) writes:

During the past decade, local officials have become markedly more proactive in their quest to create economic development in their communities than at any other time in this century. They have been innovative in the ways in which they are intervening in the market to assist the private sector in building new business and creating jobs in their local area. (p. 1)

One of the representative types of these local level private/partnerships is the construction of professional sports facilities because it has been regarded as a representative large-scale urban development plan in the U.S., at least from the perspective of city officials (Chapin, 2004; Euchner, 1993; Rosentraub, 1997, 2003). This indicated subsidizing the construction of stadiums for professional sports teams is an innovative policy from the perspective of city officials.
Therefore, the fact that both a sport franchise and a city have been consistently involved in the construction of a new facility indicates we should consider the construction of a new facility as an innovative collaborative product from these two parties. In other words, without the collaboration of the team and the local government, several million dollars would not have been invested to construct a new professional facility. Therefore, it is essential to consider the perspectives of both the franchise and city to more fully understand the construction of major league facilities as a representative innovative policy of the franchise and city.

**Statement of the Problem**

The general topic of innovation adoption and diffusion has been widely studied across a number of disciplines including management, economics, marketing, and public administration research. This topic has yielded voluminous research whose purpose is to account for 1) why one organization is more likely than another to adopt an innovation, 2) what causes one organization to adopt an innovation, and 3) why the adoption of an innovation is spread to other organizations. However, surprisingly, there was a lack of empirical research on such adoption and diffusion of innovation in the sport management literature. Moreover, despite the great amounts of money invested in the construction of new facilities by both professional sport organizations and city governments, a review of past literature on professional sports facility financing has revealed the following limited number of research themes: 1) trends in sport facility investment (e.g., historical era of the proportion of public and private sector funding), 2) political and lawful process of public financing for the facility subsidy, 3) benefits of a new facility construction to the franchises and the cities hosting the team(s) (e.g., economic impact), and 4) alternative measures beyond economic impact (e.g., contingent valuation method).

Even though academic research of stadium financing has shown progress, past stadium financing research has built only limited knowledge of stadium financing issues. Furthermore, recent studies have still focused on the debate on the economic and noneconomic benefits of stadium financing. Thus, the researcher suggested the following question, regarded as one of the central questions in innovation adoption and diffusion research, must be addressed: What causes a MLB team and a city government to adopt the construction of a new stadium?
Purpose of the Study

The purpose of the current study was threefold: First, to identify the determinants influencing the construction of MLB stadiums from both teams and city governments’ perspective. In other words, what factors drive both a team and city government to adopt stadium construction? Second, to justify the idea of a diffusion effect; that is, to show that MLB teams and city governments emulate other teams’ and cities’ construction of new stadiums to achieve some of the advantages observed from others’ constructions, using the Diffusion of Innovation Theory (Rogers, 1983; 1993; 2003). The researcher attempted to link the Diffusion of Innovation Theory to a boom in the MLB stadium construction observed since Baltimore’s Oriole Park at Camden Yards. This stadium was constructed in 1992 and represented the start of the current era of baseball stadium construction. Lastly, to empirically test both determinants factors of construction of a new stadium related to MLB team and its host city along with diffusion effects to find the relationship with these factors and the construction of new stadiums, using an event history analysis.

Significance of the Study

The significance of this study lay in its focus on identifying and empirically testing factors influencing both teams and city governments’ adoption of the construction of sports facilities with a theoretical approach. It was important to note this study was a first attempt to identify and empirically test what determinants drive a sports franchise and a city government to adopt the construction of a professional sports facility. In fact, past literature on sport finance and economics focused on measuring the economic impacts, whether tangible or intangible, for cities, to provide justifications for public subsidy. For teams, the focus was on the effects on team attendance and value.

The empirical results provided practical implications to both sport franchise owners and city officials considering the construction of a new stadium. For example, the findings from the current study provided useful information about several ways to increase the likelihood of stadium construction adoption. In particular, the empirical evidence of the significant effect of election timing provided MLB teams with useful information about how they can more effectively develop acceptance strategies. Meanwhile, for city officials, this finding offered city
officials considering the adoption of stadium construction with an effective campaign strategy to maximize political gains generated from the adoption.

Another significance of this study lay in its new theoretical approach; that is, the Diffusion of Innovation Theory (Rogers, 1983; 1993; 2003), to account for the current boom in the construction of professional sports facilities. Despite the fact a number of disciplines utilize the Diffusion of Innovation Theory (Rogers, 1983; 1993; 2003) to explain the diffusion of innovative products, policies, or technology, little attention has been paid to the theory in sport management. Therefore, the current investigation made a significant contribution to sport finance and economics literature by demonstrating the theory of the diffusion of an innovation was applicable to a better understanding of stadium financing. Further, this study contributed to opening the possibility for additional research streams.

Lastly, the researcher offered contributions to the field of sport management in terms of methodological approach. Specifically, application of Event History Analysis can provide methodological insights for analysis of the factors influencing the construction of professional sports facilities from the perspective of both the teams and city governments. This statistical methodology has rarely been adopted in the area of sport management despite its popularity in other disciplines. Therefore, the advantages of event history analysis can provide opportunities to extend a range of empirical testing for sport management scholars, further expanding additional research subjects.

**Research Questions**

Drawing on the lack of research on stadium financing, this proposed study attempted to answer the following questions:

1. What is an organizational innovation in the context of MLB?
2. What are a MLB team’s determinants influencing the adoption of construction of a new stadium?
3. What are a city government’s determinants influencing the adoption of construction of a new stadium?
4. Is there a diffusion effect motivating a MLB team to adopt the construction of a new stadium?
5. Is there a diffusion effect motivating a city government to adopt the construction of a new stadium?

**Theoretical Framework**

Out of this vast scholarship in innovation, innovation research of interest to this dissertation is what causes organizations (e.g., MLB teams and their host cities) to adopt innovation (e.g., the construction of a new stadium). Studies in this line of innovation research have used two distinct perspectives to analyze organizational innovation, that is, the adoption perspective and the diffusion perspective (Kimberly & Evanisko, 1981). Kimberly and Evanisko (1981, pp. 85-86) describes these differing perspectives as follows:

The general theoretical issue from the adoption perspective is understanding what makes an organization responsive to change in its environment. The specific issue is understanding what makes one organization more receptive to managerial innovation than another. A normative question asks how an organization should be structured in order to enhance responsiveness in general and receptivity to managerial innovation in particular.

A theoretical issue in the diffusion perspective is understanding why and how an innovation—or group of innovations—spread in a population. A normative question, raised by organizations interested in promoting diffusion, asks how an innovation should be designed and marketed to enhance rapid and widespread acceptance.

The primary focus of these two distinctive perspectives was on investigating influential factors to adoption or diffusion. For example, the diffusion perspective has been interested in the factors influencing the spread of innovations (Wejnert, 2002). Meanwhile, the adoption perspective has been interested in answering why an individual or organization adopts an innovation, and what makes some adopters (individual, organizations, and countries) more innovative as compared to others (Wolfe, 1994). However, indeed, the determinants of innovation adoption and innovation diffusion research have been used together and further, very similar. Moreover, when examining the determinants of a certain innovative product, service, or
policy from multiple organizations with longitudinal data, the diffusion effect has been included as an influential determinant in various categories of adopters (e.g., firms, governments) (Berry & Berry, 2007; Krein, 1999; Mick, 1990). This trend may imply that both perspectives should be integrated to investigate the probability of adoption of new stadium construction.

As described previously, the majority of the existing MLB stadiums have partially or fully received public subsidy from local governments. This indicated the collaboration of the team and the local government for stadium construction was essential. Therefore, consideration of the perspectives of both the franchise and city was necessary in order to investigate factors influencing the adoption of the construction of major league facilities as a representative innovative policy of the franchise and city. However, due to the uniqueness of a stadium financing project involving both private and public sectors, little research existed about innovation adoption and diffusion, particularly in terms of an overarching conceptualization encompassing the perspectives of both the franchise represented as a private sector and city government represented as a public sector. Hence, the proposed study integrated a widely used research model each for business firms’ innovation and for governments’ innovation.

As the theoretical model for firms’ innovation (MLB teams’ construction of a new stadium), the proposed study employed Kimberly and Evanisko’s (1981) research model positing that organizational innovation adoption is influenced by three primary categories of determinants: (1) individual (the characteristics of organizational leader), (2) organizational (the characteristics of the organization), and (3) environmental (the characteristics of the context in which the organization operates and out of which it originally emerged). These three categories of determinants of innovation adoptions have been widely employed in subsequent firms’ innovation studies in a variety of disciplines. A number of firms’ innovation studies have sought influential factors of firms’ innovation adoption in terms of types of innovation (e.g., product, process), and attributes of industry (high-tech, low-tech).

Meanwhile, in public policy study, where local government’s subsidy for the construction of a MLB team’s stadium could be applied, a systematic approach has been observed to take account for the adoption of an innovation in various levels of governments, that is, Berry and Berry’s (1990) unified theory of policy innovation. Berry and Berry (1990) unified a model of state government innovation incorporating internal and regional influences. This model encompassed both diffusion effects viewing “state adoptions of policies as emulations of
previous adoptions by other states” and internal determinants positing that “the factors leading a jurisdiction to innovate are political, economic, or social characteristics internal to the state” (Berry & Berry, 2007, p. 224). More specifically, Berry and Berry (1990) proposed overall four categories of hypotheses in the unified theory. The first category of hypotheses was hypotheses concerning the motivation to innovate; the second was hypotheses concerning the obstacles to innovation; the third was hypotheses concerning resources for overcoming obstacles; the last was hypotheses concerning the regional diffusion effect. The Berry and Berry model has been primarily replicated by subsequent research in different areas of public policy at the city level as well as at the state level.

Although each model used different terminology, both models reflected both adoption and diffusion perspectives to analyze organizational adoption. Specifically, the three major categories of determinants model proposed by Kimberly and Evanisko (1981) did not label diffusion effects as an independent category. However, other empirical firm innovation studies included network externalities, defined as positive consumption externalities, as one of influential variables in the category of environmental determinants. This concept was very similar to the diffusion effect model in the unified theory of policy innovation. Thus, to clearly indicate the reflection of the perspectives of adoption and diffusion, the proposed model labeled adoption and diffusion perspectives, and under each perspective the determinants of each MLB team and its host city’s determinants of construction of a new stadium are listed. In other words, the proposed research model framed diffusion effects as one possible explanation for innovation adoption in order to reflect both adoption and diffusion perspectives.

Figure 1-1 is a brief diagram to combine the perspectives of both the franchise and city government under adoption and diffusion perspectives in order to explain what causes a MLB team and a city government to adopt the construction of a new stadium. The proposed research model posited the probability that a certain team and a city will adopt stadium construction in a certain year as a dependent variable. Various independent variables impacting the adoption of stadium construction in terms of perspectives of MLB team and its host city were listed.
FIGURE 1-1. The Proposed Research Model
Limitations of the Study

There were several limitations influencing the results of the current study. First, the researcher used two different measures for stadium adoption (dependent variable) due to two different decision processes to adopt stadium construction in city governments. The researcher used the year when the referendum was approved for MLB cities holding a referendum. For cities not holding a referendum, the year when teams and their host cities reached a final agreement was used as a dependent variable. The use of two different measures for stadium adoption might impact the results of the study.

Second, there might be the omission of important variables as well as failure to use more elaborate measures of the explanatory variables used in the study. For example, attitudes toward innovation and organizational structure linked to MLB teams were not tested due to data unavailability. Additionally, state-level variables influencing the adoption of stadium construction should be tested due to the aspects of the hierarchical administrative relationships between city and state governments. Indeed, several MLB cities gained assistance from their state government (Seattle, Milwaukee, Philadelphia, and New York).

A final limitation of the current study was associated with two different municipal government types. As reported in Table 5-2, while a majority of MLB cities were the mayor-council government type, several cities selected the council-manager government type. Major differences in these two types of municipal government are concerned with decision-making options. For example, the elected council tends to lead to policy decision in the council-manager government whereas the elected mayor plays a major role in policy decision in the mayor-council government. These different differences in decision-making options may influence the adoption of stadium construction. Moreover, several studies have maintained that innovation is more receptive in the council-manager government due to its co-operative nature than in the mayor-council government (Holden et al., 2003; Moon & deLeon, 2001; Norris & Campillo, 2000; Savra, 1990).

Definition of Key Terms

For purpose of the current study, the following key terms have been defined theoretically and operationally. Table 1.1 showed the definitions of the key terms used in this dissertation.
**TABLE 1-1**

Definition of Key Terms

<table>
<thead>
<tr>
<th>Key Terms</th>
<th>Definitions</th>
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<tbody>
<tr>
<td>Innovation</td>
<td>“An idea, practice, or object that is perceived as new by an individual or unit of adoption” (Rogers, 2003, p. 2). In this study, construction of a new stadium is considered an innovation in MLB.</td>
</tr>
<tr>
<td>Organizational Innovation</td>
<td>“The implementation of an idea—whether pertaining to a device, system, process, policy, program, or service—that is new to the organization at the time of adoption (Damanpour &amp; Even, 1984, p. 393).</td>
</tr>
<tr>
<td>Diffusion</td>
<td>“The process by which the adoption of innovation by member(s) of a social system is communicated through certain channels and over time triggers mechanisms that increase the probability of its adoption by other members who have not yet adopted it.” (Rogers, 2003, p. 20).</td>
</tr>
<tr>
<td>Adoption</td>
<td>Decision to construct a new stadium by a MLB team and its host city.</td>
</tr>
<tr>
<td>Product innovation</td>
<td>The production or introduction of new products and services, or modifications made to existing products or services to create new markets or sustain the organization’s current market position (Gopalakrishnan &amp; Damanpour, 1997)</td>
</tr>
<tr>
<td>Communication</td>
<td>“A process in which participants create and share information with one another in order to reach a mutual understanding” (Rogers, 2003, p. 5).</td>
</tr>
<tr>
<td>Communication process</td>
<td>“(1) an innovation, (2) an individual or other unit of adoption that has knowledge of, or has experienced using, the innovation, (3) another individual or other unit that does not yet have knowledge of, or experience with, the innovation, and (4) a communication channel connecting the two units” (Rogers, 2003, p. 18).</td>
</tr>
<tr>
<td>The innovation-decision process</td>
<td>“An information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation” (Rogers, 2003, p. 172).</td>
</tr>
<tr>
<td>Key Terms</td>
<td>Definitions</td>
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<tr>
<td>Social system</td>
<td>“A set of interrelated units engaged in joint problem solving to accomplish a common goal” (Rogers, 2003, p. 37).</td>
</tr>
<tr>
<td>Individual determinants</td>
<td>are characteristics of individual people, particularly the effects of organizational leaders on innovation adoption (Damanpour &amp; Schneider, 2006; Kimberly &amp; Evanisko, 1981). Length of job tenure is investigated as the individual determinant factor.</td>
</tr>
<tr>
<td>Length of job tenure</td>
<td>seeks to capture MLB team owners’ length of job service.</td>
</tr>
<tr>
<td>Organizational determinants</td>
<td>are characteristics of organizations (MLB teams) that are influential in innovation adoption (Kimberly &amp; Evanisko, 1981). Organizational slack resources are used as the organizational determinant in this study.</td>
</tr>
<tr>
<td>Organizational slack resources</td>
<td>refer to “the pool of resources in an organization that is in excess of the minimum necessary to produce a given level of organizational output” (Nohria &amp; Gulati, 1996, p. 1246). In this study, to capture MLB teams’ financial potential to construct new stadiums, MLB teams’ attendance percentage as a share of stadium capacity was used.</td>
</tr>
<tr>
<td>Environmental determinants</td>
<td>are characteristics of the context from which the organization emerged, and in which it continues to operate (usually called contextual or environmental determinants) (Baldrige &amp; Burnham, 1975; Damanpour &amp; Schneider, 2006; Kimberly &amp; Evanisko, 1981). In this dissertation, two types of competition were tested: 1) competitive pressures from a league-wide accepted trend of the adoption of stadium construction in MLB, and 2) competitive pressures from other professional sports teams sharing the same regional market with MLB teams in terms of MSA</td>
</tr>
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### TABLE 1-1 (Continued)

<table>
<thead>
<tr>
<th>Key Terms</th>
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<tbody>
<tr>
<td>Market competition</td>
<td>refers to “the degree of competition reflected in the number of competitors and the number of areas in which there is competition” (Miller, 1987, p. 35). In this study, two types of marketing competition are investigated: 1) competitive pressures from a league-wide accepted trend of adoption of stadium construction in MLB, and 2) competitive pressures from other leagues’ teams that MLB teams share a franchise with in terms of MSA.</td>
</tr>
<tr>
<td>Network externalities</td>
<td>“positive consumption externalities, whereby the value a user derives from a good increases with the number of other users of the same or similar good” (Schilling, 2002, p. 387). In this study, network externalities represented diffusion effects, specifically divisional diffusion effects.</td>
</tr>
<tr>
<td>Internal determinants</td>
<td>refer to “the factors leading a state government to innovate are political, economic, and social characteristics internal to the state” (Berry &amp; Berry, 1990, p. 396).</td>
</tr>
<tr>
<td>Regional diffusion</td>
<td>refers to “the influence of nearby states, assuming that states emulate their neighbors when confronted with policy problems” (Berry &amp; Berry, 1990, p. 396).</td>
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</table>

### Overview of Chapters

This study is organized as follows: Chapter 2 covers the literature of stadium financing, the theory of Innovation Diffusion, firms’ innovation and policy innovation. Based on a review of literature on firms’ innovation and policy innovation, the research model is proposed. In Chapter 3, the methods for this study are presented. This includes the research design, selection of testable explanatory variables with related hypotheses drawing on findings from the literature review, and data analysis methods with the mathematical equation of the research model. In Chapter 4, the results of the discrete-time hazard model used to investigate the study hypotheses are presented. In Chapter 5, the study findings are discussed based on the results of the data analysis. This includes a discussion of the findings in relation to each of the research hypotheses,
the theoretical and practical implications, and the limitations of the study with future research directions.
CHAPTER 2
LITERATURE REVIEW

Introduction

The purpose of this chapter is to outline relevant literature and theories in order to identify possible factors influencing MLB teams and city governments’ adoption of new stadium construction. This chapter is presented with four primary sections. In the first section, the researcher reviews the eras of major league sport facility construction in terms of changes in the proportion of public and private funding and the number of major league facilities in order to understand historical trends in the construction of major league facilities (Quirk & Fort, 1997; Siegfried & Zimbalist, 2000).

In the second section, the researcher discusses various impacts of major league facilities on the host city in the areas of economic impacts and intangible benefits with alternative valuation methods. This section attempts to seek justifications for public subsidy of major league facilities under the conditions in which many local governments have financially assisted construction costs of new facilities.

In the third section, the researcher presents Rogers’ Diffusion of Innovation Theory as a theoretical base. This section discusses why this theory was applicable to the proposed study with details of the theory. In brief, since Rogers’ Diffusion of Innovation Theory provides a mechanism of both adoption and diffusion process, the theory is sufficient to provide an understanding of a boom in the MLB stadium construction observed since a boom in the MLB stadium construction observed since Baltimore’s Oriole Park at Camden Yards was constructed in 1992.

In the last section, the researcher reviews the literature on firm and government innovation adoption and diffusion to serve not only for providing theoretical background of the proposed research framework, but also for identifying the influential factors in the adoption of new stadium construction. Then, the research model used in this dissertation is presented.

Historical Trends in Construction of Major Leagues Facilities

To understand the factors accounting for the boom in sport facility construction since 1990, it was essential to review the way in which current stadiums and arenas have evolved.
Major league facilities have been constructed or renovated over time and significant trend changes in terms of design, ability to generate revenue, purpose, and proportion of public subsidy have taken place (Quirk & Fort, 1997; Siegfried & Zimbalist, 2000). Using these changes as markers, Santo (2010) divided the historical trends in construction of major league facilities into four distinct eras, as follows:

1) The dawn of the modern professional sports facility: 1909-1942
2) The rise of the sport facility subsidy: 1945–1959
3) The era of subsides writ large: 1960–1989
4) The era of escalation and extravagance: 1990–present (p. 66)

The dawn of the modern professional sports facility: 1909–1942

Before 1909, MLB was the only professional league organized in its current format in the U.S., and thus the baseball stadium was the only type of major league facility (Long, 2004; Santo, 2010). The distinct feature in the construction of new sport facilities in this era was that the majority of new sports facilities were privately financed with the purpose of hosting a professional major league team (Long, 2004; Santo, 2010). As MLB and NHL became systematically organized and popular, teams became regarded as the representative fixtures in their host cities. This trend led prominent industrialists to become interested in purchasing teams and building substantial new stadiums and arenas (Long, 2004). More specifically, 21 major level sport facilities were constructed in this era, including 12 MLB stadiums and 7 hockey arenas (Santo, 2010). Comiskey Park (1910), Wrigley Field (1914), and the Montreal Forum (1926) were typical examples of the privately financed MLB stadiums (Santo, 2010).

Meanwhile, there were the first few examples of public-funded sport facilities including the Los Angeles Coliseum (1923), Chicago’s Soldier Field (1924), and Cleveland’s Municipal Stadium (1932). Unlike the privately financed facilities, these were constructed in order to attract the Olympic Games, and thus were publicly funded. These three cases caused the average public share of total spending to increase from 0% during the 1910s, to 67% at 1939 (Long, 2004).
The rise of the sport facility subsidy: 1945–1959

The aftermath of the Great Depression and World War II resulted in a momentary lull in new facility construction. Nonetheless, the rapid growth of population and great demand for new forms of leisure, including professional sports, caused team owners to increase the capacity of their facilities to capture this new demand (Long, 2004). Moreover, rapidly growing suburban cities began to attract major league teams and to commonly perceive sports facilities as civic representative infrastructure (Long, 2004). From team owners’ perspectives, in this pre-television era, insufficient revenue streams generated by the venues caused team owners to hesitate to construct a 100% privately financed stadium (Long, 2004). Therefore, team owners began to alarm city officials by relocating their franchises because of their strong position in the negotiation of public subsidy for new venues (Long, 2004). Accordingly, this era could be featured as the start of relocation of sports franchises, resulting in the rise of the sport facility subsidy.

The Boston Braves, as the first baseball team to relocate since 1903, moved to Milwaukee, which proposed a publicly funded County Stadium in 1953 (Danielson, 2001). As the Braves’ financial success was observed in a smaller market, a series of relocations among MLB teams was inspired. The St. Louis Browns (the Orioles in present) were relocated to Baltimore, subsidizing Memorial Stadium in 1954; in the following year, the Philadelphia Athletics moved into Municipal Stadium in Kansas City, which spent $2.5 million for renovation; Metropolitan Stadium in Bloomington, Minnesota was publicly funded and opened in 1956, hosting the Washington Senators, who became the Twins in 1961 (Santo, 2010).

Along with those teams in small markets, there were the biggest relocations of two large-market-based teams in the history of MLB in 1958: the New York Giants and Brooklyn Dodgers. The Giants’ move to San Francisco and the Dodgers’ move to Los Angeles occurred for different reasons. In case of the Giants, its local rivals, the Yankees and Dodgers, made the Giants less successful on financial and athletic performance and thereby, the promise of a publicly built stadium by the city of San Francisco was very attractive to the team. Meanwhile, the Dodgers, which were the most successful team in the National League, moved to Los Angeles without any financial subsidy for the construction of a new stadium (Danielson, 1997; Quirk & Fort, 1997).

These public subsidies for MLB stadiums spread to other major leagues as well. The Los Angeles Sports Arena, constructed with public subsidy in 1959, played a major role in attracting
the NBA Lakers from Minneapolis. The NFL Green Bay Packers received Lambeau Field, a city-funded stadium, in 1957, in consequence of threatening to force the franchise to move to Milwaukee. Baltimore’s Memorial Stadium, which caused the MLB Orioles to relocate, was also used as home to the new NFL Colts in 1953. Consequently, the successful use of public stadium development in the 1950s, purported to attract major teams, had an impact on establishing a quick expansion of public investment (Santo, 2010).

**The era of subsidies writ large: 1960–1989**

There are two distinct features differentiating this era from other eras. One is the most active expansions of franchises in each of the major leagues (Howard & Crompton, 2005; Santo, 2010). Specifically, 8 MLB teams were expanded in the 1960s and 2 teams in the 1970s; 4 NFL teams were expanded in the 1960s and 12 teams in the 1970s; 6 NBA teams were expanded in the 1960s, 8 teams in the 1970s, and 5 teams in the 1980s; 6 NHL teams were expanded in the 1960s and 9 teams in the 1970s. A total of 60 teams in the four major leagues were expanded during this era (Santo, 2010). This significant growth of franchise expansion coincided with a high level of public subsidies (Howard & Crompton, 2005).

During the 1960s and 1970s, voters consistently approved bond issues to support 100% of public subsidy for construction costs of new sports facilities (Long, 2004). Along with voters’ support, the federal government also permitted local governments’ financing and construction in urban areas under urban renewal policy by decreeing that sports facilities constituted civic infrastructure (Long, 2004). Accordingly, the majority of new sports facilities were 100% publicly funded during the 1960s and 1970s, except for Los Angeles’s Dodger Stadium (22% public), St. Louis’s Busch Stadium II (23% public), Boston’s Schaefer/Foxboro Stadium (100% private), and New York’s Madison Square Garden (100% private) (Long, 2005). More specifically, 49 of the 60 major league facilities constructed during this era were publicly financed and owned, while only eleven were privately financed and owned (Santo, 2010). However, it should be noted that public-private partnership characterized by teams’ substantial contribution to the venue development costs began to emerge in 1985 (Howard & Crompton, 2005).

The other feature observed during this era is changes in location and design elements of stadiums and arenas (Santo, 2010). In order to meet the desires of a suburbanizing population
and to develop new suburban areas, the location of stadiums and arenas built during this era changed from the city center to suburban areas providing sufficient parking spots. The design of multi-use facilities accommodating both football and baseball or both basketball and hockey was encouraged by governments in order to achieve some efficiencies of construction (Long, 2005). This utilitarian focus for the construction of sports facilities generated few amenities for fans like the most basic physical plant, without elaborate or memorable architectural features (Long, 2005; Santo, 2010). At this time, this was accepted because city officials operated their own facilities without any business mind for profitability. These inefficiencies of facility operation produced liabilities to taxpayers. Finally, a new paradigm for the use of public fund for sports facilities was stimulated prior to physical decay of existing facilities (Long, 2004).

The era of escalation and extravagance: 1990–present

An unprecedented transformation of the sports infrastructure in the United States has been witnessed during this era (Matheson, 2006). Although there are different dimensions of the eras in the evolution of sports facilities by different researchers, this era has been defined as the most prolific major league facility construction period in history (e.g., Alexander & Kern, 2004; Miller, 2007; Poitras & Hadley, 2006; Santo, 2010). More specifically, as reported in Table 2-1, 107 facilities of the 120 teams of the ‘big four’ professional sports leagues have been built or significantly renovated since 1990 (26 MLB, 27 NFL, 28 NBA, and 27 NHL teams). It is axiomatic how many more facilities have been constructed or renovated during this era, when compared with just sixty facilities constructed in the previous thirty-year period.

Along with this characteristic of the extraordinary proliferation in construction of major league facilities, there are also important characteristics observed distinguishing this era from the previous eras. First, substantial proliferation of the public-private partnership model was observed in this era (Howard & Crompton, 2005; Long, 2004; Rappaport & Wikerson, 2001). As taxpayers’ resistance to expensive public subsidy for new facilities increased, government officials had to find a solution to ameliorate taxpayers’ resistance. Moreover, it was not easy for government officials to deny a franchise’s constant pressure on construction of a new facility by threatening the possible movement of the franchise. Accordingly, to satisfy both taxpayers and teams, there was a substantial emergence of the public-private partnership model, which was found effective to both sides (Howard & Crompton, 2005). A typical method of this model was
that “team owners have increasingly contributed to the financing of publicly owned stadiums and arenas, and governments have shared in the development costs of facilities that are privately owned” (Santo, 2010, p. 74). However, it should be noted that a substantial quantitative increase in public assistance has still been observed in this era despite the significant contribution to new facilities from team owners (Rappaport & Wilkerson, 2001).

Second, there was the return of single-use facilities designed exclusively for one sport in this era (Santo, 2010). As noted previously, the use of the multi-use facilities accommodating both baseball and football with large capacity was dominant in the previous era. However, the multi-use facilities did not provide sufficient spaces for amenities, advertising, specialized seats, luxury suits and technological features. These obstacles led to limited revenue streams, which did not offset both teams’ and city governments’ investments. Moreover, corporate ownership as an emerging type of ownership, which is very profit-maximization-oriented, also gradually replaced private individuals in this era (Sherman, 1999). The new corporate owners may push for fresh single-use facilities including a variety of revenue generators in order to meet gradually increased expenses and to maximize profit expectations or investment returns.

From the fans’ perspective, too many seats in the outfield for baseball and behind the end zone for football games due to the large circular or square structures lead to a less intimate experience of the sporting events (Santo, 2010). These observed limitations of the multi-use facilities have led to the fact that no multi-use facility has been built since Toronto’s Roger Center (Sky Dome) constructed in 1989 (Santo, 2010). Meanwhile, multi-use facilities in the NBA and NHL remain more common because the similarity in the shapes of the playing surface for the two sports involved (Santo, 2010). However, some teams including the NHL Florida Panthers, the NBA Miami Heat, the NHL Coyotes, and the NBA Phoenix Suns have moved into separate facilities (Santo, 2010).

More importantly, the single-use stadium also enabled teams to generate more revenue by securing more capacity for advertising, concessions, parking, club seats, and luxury suites as well as by selling naming rights for one sport (Bast, 1998; Keating, 1999; Santo, 2010). Moreover, stadium-related revenue streams such as luxury suites, concessions, naming rights, advertising, club seats and parking are exempt from revenue sharing plans, which share gate receipts with other teams in MLB and the NFL (Easton & Rockerbie, 2005; Santo, 2010). As a
result, these financial advantages have driven the demand for single-use stadiums since 1990, especially in MLB and the NFL.

Along with these increased revenue streams, the construction of a new single-use stadium contributed to a significant increase in the franchise values of teams (Miller, 2007; Santo, 2010). According to *Forbes* and *Financial World* magazines, franchise values in the four major leagues have consistently increased at an average annual rate of 11.7 percent from 1991 to 2006 (Ziets & Haber, 2008). Although other drivers of franchise values exist, the presence of a new facility was found to be positively significant in the franchise values (Ziets & Haber, 2008). Miller (2007) found the franchise value of a team with its own stadium was higher than the value of a team playing in a publicly-owned stadium.

Lastly, as in the previous era, league expansion also impacted the recent sports facility construction boom beginning in 1990 (Santo, 2010). As shown in Table 2-1, new teams in the four major sports leagues have been added. More specifically, four teams in MLB, four teams in the NFL, three teams in the NBA, and nine teams in the NHL have been founded since 1990. Accordingly, to accommodate these new teams, 16 new facilities were built. This figure accounts for approximately 20% of the 79 facilities built since 1990. Several teams’ relocations were implemented, and thereby another 7 facilities have been built. However, it should be noted the majority of the facilities built since 1990 have been replacement facilities for teams already in place. In addition, among the replacement facilities built since 1990, most opened in the 1960s and 1970s, resulting in a sharp drop in the replacement cycle. According to Santo (2010), “the median age of facilities in use dropped from 21 years in 1989 to 13 years in 2009” (p. 81).

**Baltimore’s Oriole Park at Camden Yards**

As the first baseball stadium reflecting these potential advantages, Baltimore’s Oriole Park at Camden Yards represented the start of the current era of professional sport facility construction (Quirk & Fort, 1992; Richmond, 1993; Ritzer & Stillman, 2001). Moreover, this stadium has been evaluated as a new standard for baseball stadium development. More specifically, unlike prior a massive symmetrical design with large parking landscape which was the predominant design trend of ball parks, Camden Yards was the first MLB downtown "retro" ballpark. The stadium’s design incorporated not only "retro" features including “brick facades and exposed steel support beams to asymmetrical field layouts”, but also modern amenities such
as large premium and luxury seating arrangements: 4,631 club seats and 72 luxury suites (Seifried, 2005, p. 50). This innovative stadium generated the Orioles’ financial success. The average attendance was 26,823 in the decade prior to 1992 but in the five years since 1992, the average was 45,129. This surprising increase changed the team to one of the most financially successful teams in MLB (Hamilton & Kahn, 1996). The great success of Camden Yards with retro style has led the trend in the construction of more classic, fan-friendly MLB ballparks in downtown locations (e.g., Jacobs Field in Cleveland, Coors Field in Denver, Comerica Park in Detroit, and SBC Park in San Francisco) (Seifried, 2005).
<table>
<thead>
<tr>
<th>Table 2-1</th>
<th>Total Cost and Public Share of Funding for New Major League Sports Facilities</th>
<th>By Decade, Facility Type, and League</th>
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<td>79%</td>
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<td>30</td>
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<td>42%</td>
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TABLE 2-1 (Continued)

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*Notes:*
2) Number built includes new construction and major renovations.
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<thead>
<tr>
<th>Team</th>
<th>City</th>
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<th>Opened</th>
<th>Total Cost (M)</th>
<th>Avg. Public Share (%)</th>
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<td>Rogers Centre</td>
<td>1989</td>
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<td>Tropicana Field</td>
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<td>Baltimore</td>
<td>Oriole Park at Camden Yards</td>
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<th>Avg. Public Share (%)</th>
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<td>Pittsburgh Pirates</td>
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</tr>
<tr>
<td>New York Yankees</td>
<td>New York City</td>
<td>Yankee Stadium</td>
<td>2009</td>
<td>1500</td>
<td>32</td>
</tr>
<tr>
<td>Minnesota Twins</td>
<td>Minneapolis</td>
<td>Target Field</td>
<td>2010</td>
<td>544.4</td>
<td>72</td>
</tr>
<tr>
<td>Florida Marlins</td>
<td>Miami</td>
<td>New Marlins Ballpark</td>
<td>2012</td>
<td>515</td>
<td>76</td>
</tr>
</tbody>
</table>

Stadiums receiving public subsidy since 1992

<table>
<thead>
<tr>
<th>Total Cost (M)</th>
<th>Avg. Public Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,641</td>
<td>57.8</td>
</tr>
</tbody>
</table>

Notes:
1) Data sources from Sport Facility Report (2010)
2) R is a renovated stadium.
Economic Impact

An explosive increase in the construction of sports facilities since 1990 has led to an increase in research examining the economic effects on local and regional economies of such construction by asking whether the spending for the construction of new facilities outweighs the benefits generated from the construction. Accordingly, scholars examining stadium financing has focused on demonstrating economic, financial, and other benefits to teams as well as host cities. More specifically, the economic impact studies examining economic output (e.g., regional income, the number of jobs, a change in the employment rate) were mainly conducted in the 1990s and the early 2000s. Most of the sport economic scholars reach a consensus on the lack of economic impact on the local economy. Meanwhile, recent scholars have primarily investigated intangible consumption benefits, including psychic income and civic pride, generated by the construction as alternative methods (e.g., contingent valuation method). Accordingly, the following section will briefly review these main streams in the literature of stadium financing.

In the context of sport, economic impact is defined as “the net economic change in a host city that results from spending attributed to the sports facility” (Crompton, 2004, p. 42). Accordingly, an economic impact analysis was purported to measure the economic benefits (usually tangible) accruing to a host community (Crompton, 1995). According to Coates and Humphreys (1999) and Depken (2006), two distinct streams of economic impact literature have been conducted in the context of sport. The first assesses the value of a new stadium or franchise to the economic vitality of a city or region. The focus of this stream was on ante forecasts of the effects on the local economy when a city government constructed a new stadium or hosted a new franchise (also called prospective economic impact studies). Those studies (mostly consultant studies) in this stream were usually conducted by groups actively supporting proposed stadium projects sponsored by the team or the host city (Coates & Humphreys, 1999; Crompton, 1995, Miller, 2007; Zimbalist, 1998). Accordingly, the purpose of this analysis was typically to provide justification for public subsidy for the construction of a new facility in response to increasing pressures demonstrating the efficacy of public subsidy (Crompton, 1995). Not surprisingly, these studies consistently claimed the construction of new sports venues generated millions of dollars of economic output and hundreds of jobs in the host cities and regions (Miller, 2007). In one example of such a claim, a consultant study claimed the construction of a new NFL stadium in Arlington, Texas would result in more than $71 million in economic output (using 2010 dollars).
and will generate 457 jobs in the city of Arlington alone (Economic Research Associates, 2004). Furthermore, the report calculated the economic impact for Tarrant County would exceed $348 million and generate 2,222 jobs. The report also specifically stated expected economic outcome from the day-to-day operations of the stadium. It was reported more than $155 million in output and 226 jobs would be generated in the city of Arlington (Miller, 2007).

The second research stream was to conduct ex post evaluation of the impact (also called a retrospective economic impact study) of construction of a new stadium or the existence of sports franchises by using cross-section or time-series cross-section data collected from the economies of cities, regions, or metropolitan areas (Coates & Humphreys, 1999). It should be noted that economic impact studies of this stream have been conducted by academic scholars (Depken, 2006). In this stream, three primary questions are addressed: “First, does the existence of sports franchises and stadia influence the trend growth path of the local economy? Second, do changes in the sports environment induce significant, if short-lived, deviations from trend? Finally, is it effective to use a new stadium as the centerpiece of an urban economic development strategy?” (Coates & Humphreys, 1999, p. 605).

In this stream, two common features were observed which are different from the prospective economic impact studies (Depken, 2006; Humphreys, 2006). One feature was that these studies used econometric models of the various economic data or indicators including income or employment after venues have been constructed. The other was the results of these studies almost uniformly did not find any evidence that construction of sports facilities produced tangible economic benefits, in contrast with the positive results in the prospective economic impact studies (Depken, 2006; Humphreys, 2006). More specifically, this stream reached the uniform conclusion the construction of a new stadium or arena does not contribute to the local economy in terms of a) creating employment (Baade, 1996; Baade & Dye, 1988, 1990; Blair, 1992; Coates & Humphreys, 1999, 2000, 2001), b) increasing per capita income levels (Chema, 1996; Coates & Humphreys, 1999, 2000, 2001; Donnelly, 1988; Fort & Quirk, 1995; Johnson, 1986, 1991, 1983; Ozanian et al., 1995), and c) generating increased tax revenues (Coates & Humphreys, 1999, 2000, 2001; Noll & Zimbalist, 1997; Rosentraub, 1997, 1998, 1999; Rosentraub, Swindell, Przybylski, & Mullins, 1994; Siegfried & Zimbalist, 2000; Zimmerman, 1996).
Moreover, Humphreys (2006), and Siegfried and Zimbalist (2000) even found a negative economic impact on local economies (Humphreys, 2006; Siegfried & Zimbalist, 2000). With regard to these conflicting results, academic scholars pointed out possible flaws in the ex ante (prospective) economic impact literature. For example, Crompton (1995) reviewed the extensive ex ante (prospective) literature and found several flaws in the methodology. Other scholars also posited issues in the ex ante evaluation economic impact studies (e.g., Coates & Humphreys, 1999; Depken, 2006; Howard & Crompton, 2005; Noll & Zimbalist, 1997; Rosentraub, 1997; Zimbalist, 1998). There were several common errors and flaws suggested by these studies.

First was the misapplication or misinterpretation of the ‘multiplier’ effect, which “literally multiplies the direct spending by a certain factor to determine the estimated total economic impact” (Depken, 2006, p. 441). Basically, “the multiplier recognizes that changes in the level of economic activity created by visitors to a sports facility or event bring changes in the level of economic activity in other sectors and, therefore, create a multiple effect throughout the economy” (Crompton, 1995, p. 18). Ex ante economic impact studies typically utilized not only multipliers of three or more (Leeds & von Ahmen, 2004; Noll & Zimbalist, 1997), but also exceedingly exaggerated multipliers (Depken, 2006). Therefore, these methods led to a dramatically overestimated total economic impact of the construction of a new stadium.

Second, inclusion of local spectators, time-switchers and casuals also overestimated economic impact (Lee, 2001). Economic impact should include only cash flows injected into the local community economy by visitors, media, external government entities, or banks and investors from outside the community (Crompton, 1995; Depken, 2006; Howard & Crompton, 2004; Lee, 2001). Local spectators’ spending represented only a recycling of money that would have been spent for others in the community, not the circulation of new money (Siegfried & Zimbalist, 2000). In addition, expenditures by two types of nonlocal spectators should be excluded. One was nonlocal spectators, so-called time-switchers who may have been planning to visit to the host city but changed their schedule for visiting to attend the event. The other was so-called casuals who already may have been in the host city, attracted by other features. It was obvious that expenditures by these types of nonlocal spectators would not be generated from the new facility or the event (Crompton, 1995). Hence, it can be assumed the circulation of local money and expenditures by these two types of nonlocal visitors does not offer net economic stimulus to the community (Crompton, 1995).
Third, prospective economic studies usually estimated only positive aspects (Mazzarella, 2005). Most prospective economic research tends to report expected gross economic benefits, rather than net benefits without measure of substantial economic costs. Moreover, this type of research tends to exclude negative social effects such as traffic congestion, vandalism, environmental degradation, disruption of residents’ lifestyle, and so on.

Lastly, opportunity cost of public funding of sports facilities was overlooked. Opportunity cost is “the value of the best alternative not taken when a decision to expend government money is made” (Crompton, 1995, p.30). However, economic impact analyses on sports facilities typically did not consider any opportunity cost by considering all factors of production as having zero opportunity costs to a host city (Crompton, 1995). In other words, public spending for construction of sports facilities could lead to reduced public spending for infrastructure, education, and public health (Depken, 2006). As a result, public spending for sports facilities could reduce local income in the stead of an investment in the local economy (Crompton, 1995; Depken, 2006).

**Benefits beyond Economic Impact and Alternative Measure (CVM)**

Despite the fact the construction of a new facility has little or no impact on the host city’s economy, there has been still the continued proliferation of construction of major league facilities subsidized by the local government. Baade and Dye (1988) acknowledged that “measurable economic benefits to area residents are not large enough to justify stadium subsidies and the debate must turn to immeasurable intangible benefits like fan identification and civic pride” (p. 37). Eckstein and Delaney (2002) also posited that “as both elites and masses become aware of the specious economic claims, supporters of new [professional athletic venues] have had to justify public spending in other ways” (pp. 235-236). Noll and Zimbalist (1997) agreed these “immeasurable” benefits may be important: “whether the value of the external benefits of a major league team to consumers really does exceed stadium subsidies is uncertain, but by no means implausible” (p. 58).

Accordingly, the debate on the impact of new sports facilities has moved from economics to the concept of “public good externalities” generated by sports franchise or venues (Johnson & Sack, 1996). Various public good externalities of sports franchise (intangible benefits) have been proposed. For example, Crompton (2004) suggested four sources of public good externalities: a)
increased community visibility, b) enhanced community image, c) stimulation of other
development, and d) psychic income. Civic pride, a city’s national or regional identity, and one’s
quality of life were also considered (Kennedy & Rosentraub, 2000; Swindell & Rosentraub,
1998). More specifically, the mere presence of a professional sports franchise engendered a
significant amount of national media coverage for the host city. Furthermore, when a city’s MLB
team made the play-offs and advances to the World Series, community exposure on national
media would be further enhanced. Proponents of public subsidies for major league facilities
claimed the linkage between community exposure and team visibility can aid recruitment of
relocating businesses, resulting in positive economic benefit for the host city (Crompton, 2004).

In fact, many cities recognized that major sports events and teams were useful marketing
engines when employed as the new “Image Builders” for the community, making it more
attractive to tourists, businesses, and inhabitants (Burns & Mules, 1987; Crompton, 2004).
Moreover, several stadiums such as Green Bay’s Lambeau Field, Chicago’s Wrigley Field, and
Boston’s Fenway Park have had “existence value” which has historical significance process
(Willis & Garrod, 1998). These stadiums can be recalled as a symbolic embodiment of the city as
a whole to non-locals (Crompton, 2004; Euchner, 1993).

To demonstrate these intangible effects, several scholars developed a survey to measure
intangible benefits such as cultural identity (Swindell & Rosentraub, 1998), civic pride
(Schwester, 2007; Swindell & Rosentraub, 1998), the host city’s reputation (Schwester, 2007),
and national identity (Schwester, 2007), with a number of respondents in specific metropolitan
area. However, these methods failed to show numerical values of the effects. Hence, recently, by
employing contingent valuation method (CVM), sport management scholars have attempted to
quantify public good values in relation to professional sports franchises or stadiums.

The CVM is a widely used nonmarket valuation method, especially in environmental
cost-benefit analysis and environmental economics to measure social value of environmental
resources such as endangered species protection, national parks, and habitat conservation
(Mitchell & Carson, 1989; Cummings et al., 1986; Owen, 2006).
Mitchell and Carson (1989) explained “the CVM uses survey questions to elicit respondents’
preferences for public goods by finding out what they would be willing to pay for specified
improvements in them” (p. 2). The method is thus aimed at eliciting their willingness to pay
(WTP) in dollar amounts. It circumvents the absence of markets for public goods by presenting
consumers with hypothetical markets in which they have the opportunity to buy the good in question. Because the elicited WTP values are contingent upon the particular hypothetical market described to the respondent, this approach came to be called the contingent valuation method. The CVM survey usually consists of three parts: 1) a detailed description of the goods being valued along with a specific hypothetical scenario, 2) a question about the amount of compensation they would be willing to pay, and 3) questions about respondents’ personal information including age and income (Mitchell & Carson, 1989).

In the context of sports, CVM have been utilized to measure people’s WTP to build a stadium or to hold or bring a sport franchise to a specific city. Since Johnson and Whitehead (2000) first measured the projected cultural and psychic benefits generated by a minor league baseball stadium and a new basketball arena, the CVM research has extended to public good externalities of various major league sports or venues (e.g., Groothuis, Johnson, & Whitehead, 2004; Johnson, Mondello, & Whitehead, 2006, 2007; Johnson, Groothuis, & Whitehead, 2001; Owen, 2006; Santo, 2007). The premise of these studies was that if residents’ WTP exceeds the costs of a major league facility or retaining or attracting a sport franchise, it can be assumed this facility or franchise generates sufficiently valuable public goods and thus provides justification for public subsidy. However, results of these studies uniformly showed specific cases in which neither sports facilities nor teams provide enough value to the community for public subsidy of their cost to be justified.

Specifically, Johnson and Whitehead (2000) measured the projected cultural and psychic benefits generated by a minor league baseball stadium for Lexington, Kentucky and a new basketball arena for the University of Kentucky. They found public subsidies for both construction costs far exceeded the total public good values measured by the total WTP. These findings indicated a failure to justify public financing for sport facilities.

In a similar study, Johnson, Groothuis, and Whitehead (2001) surveyed residents of the Pittsburgh metropolitan area by asking how much they would be willing to pay for a new arena in order to prevent the Pittsburgh Penguins of the National Hockey League (NHL) from relocating. They found a per-resident WTP of $5.57, comprised of a non-use value of $4.08 and a use value of $1.49. As converted to the annual lower and upper bound aggregate WTPs, the public value of the team was estimated to be between $1,878,817 ($1,376,225 non-use and $502,592 use) and $5,277,575 ($3,865,800 non-use and $1,411,775 use) per year; when
adjusting for net-present value at an eight percent amortization rate over a 30-year period, WTP lower and upper bounds were estimated between $23,485,209 ($17,202,810 non-use and $6,282,399 use) as a lower bound and $65,969,688 ($48,322,500 non-use and $17,647,188 use) as an upper bound (Johnson, Groothuis & Whitehead, 2001). However, these values fell short of the construction costs estimated between $180 million to $229 million, indicating that the Penguins do not generate enough public good value to justify public funding.

These insufficient public good values of sports facilities using the CVM method have been also observed in the following research. Owen’s (2006) CVM investigation for professional sports teams in Minnesota and Michigan found the following aggregate WTPs: Twins ($71.3 million), Vikings ($217.7 million), and Wolves ($78.4 million) in Minnesota; Tigers ($57.7 million), Lions ($58.8 million), Pistons ($45.1 million), and Red Wings ($196.5 million) in Michigan. These results indicated the aggregate WTPs are not enough to cover the public expenditures.

In order to address the time issue of payments in the hypothetical CVM referred to as the temporal embedding and ordering effects in survey responses, Johnson, Mondello, and Whitehead’s (2006, 2007) CVM survey included the length of payment periods. Similar to previous CVM studies, they found the $36.5 million of public good value generated by the Jacksonville Jaguars did not provide justification for public expenditures.

Conclusion

As described previously, a comprehensive review of the literature on stadium financing revealed three main research themes including 1) historical trends in the construction of major league facilities, 2) the economic impact of such facilities, and 3) the intangible benefits of sports facilities and the alternative valuation of these intangible benefits. Although research interest in relation to stadium financing has substantially grown, there are still gaps in the stadium financing literature, specifically what causes a community to construct a major league facility, specifically a MLB stadium. This research question might be a basic question sport scholars should address in stadium financing because the understanding of what leads to the construction of a new stadium can extend to aspects of the currently proliferated construction of major league facilities.
The Innovation Adoption and Diffusion Literature

Innovation has been often regarded by industry and government leaders as well as academic researchers as a key strategic imperative in that it generates competitive advantage and thereby leads to successful organizational performance (Atuahene-Gima 1996; de Brentani 1989; Matthyssens, Vandenbempt, & Berghman, 2006; Roberts, 2002; Schumann, Prestwood, Tong & Vanston, 1994). All types of organizations including firms and governmental institutions recognize that innovative products, policies, and managements generate enhanced organizational outcomes (Cainelli, Evangelista, & Savona, 2004; Chaney & Devinney, 1992; Geroski & Machin, 1992; King & Tucci, 2002; Marvel & Lumpkin, 2007; Matthyssens, Vandenbempt, & Berghman, 2006; Mishra & Bhabra, 2001; Storey & Easingwood, 1999). Accordingly, this importance of innovation is often included in the mission statements of the world-wide leading firms (e.g., Apple, 3M, Accenture, P & G, and Nike). Along with these growing interests in industry innovation, since innovation research began in 1903 by the French sociologist Gabriel Trade, it has sparked interest by a number of academic scholars in a wide variety of scientific fields until recently (Rogers, 2003).

Out of this vast scholarship in innovation, innovation research of interest to this dissertation is what causes organizations (e.g., MLB teams and their host cities) to adopt innovation (e.g., the construction of a new stadium). Studies in this line of innovation research have used two distinct perspectives to analyze organizational innovation, that is, the adoption perspective and the diffusion perspective (Kimberly & Evanisko, 1981). Kimberly and Evanisko (1981, pp. 85-86) describes these differing perspectives as follows:

The general theoretical issue from the adoption perspective is understanding what makes an organization responsive to change in its environment. The specific issue is understanding what makes one organization more receptive to managerial innovation than another. A normative question asks how an organization should be structured in order to enhance responsiveness in general and receptivity to managerial innovation in particular.

A theoretical issue in the diffusion perspective is understanding why and how an innovation—or group of innovations—spread in a population. A normative question, raised by organizations interested in promoting diffusion, asks how an
innovation should be designed and marketed to enhance rapid and widespread acceptance.

These two distinctive perspectives have generated two discernible research streams in the organizational innovation literature: diffusion of innovation (DI) and organizational innovativeness (OI) research (Wolfe, 1994). The purpose of DI research was to explain rates and patterns of innovation adoption over time and/or space and its relationship to productivity and economy. This literature investigated “ways to foster faster adoption of existing innovations by the stakeholders, and making predictions about the likely outcome of any forthcoming innovations” (Wolfe, 1994, p. 23). Thus, a number of influential factors to diffusion have been proposed, such as (1) adopter characteristics, (2) the social network to which the adopters belong, (3) innovation attributes, (4) environmental characteristics, (5) the process by which an innovation is communicated, and (6) the characteristics of those who are promoting an innovation (Wolfe, 1994). Meanwhile, OI research was purported to answer such questions as why an individual or organization adopts an innovation, and what makes some adopters (individual, organizations, and countries) more innovative as compared to others. Hence, the literature in this research stream has attempted to discover the determinants of an organization’s propensity to innovate. A typical way of testing an organization’s propensity to innovate in this stream was survey data collection that did not generally capture diffusion effects over time (e.g., regional, national, or international interaction over time).

Although some scholars made a distinction between adoption and diffusion perspectives, the determinants of innovation adoption and innovation diffusion research have been used together and further, very similar. Moreover, when examining the determinants of a certain innovative product, service, or policy from multiple organizations with longitudinal data, the diffusion effect has been included as an influential determinant in various categories of adopters (e.g., firms, governments) (Berry & Berry, 2007; Krein, 1999; Mick, 1990). This trend may imply that both perspectives should be integrated to investigate the probability of adoption of new stadium construction.

To answer these research questions raised by diffusion and adoption perspectives, in fact, scholars have sought through the lens of various theories (Jeyaraj, Rottman, & Lacity, 2006). This indicated there has been no single theory covering these two perspectives. However, Rogers’
Diffusion of Innovation theory has provided a solid foundation synthesis of adoption and diffusion perspectives across diverse areas (Beatty, Shim, & Jones, 2001; Premkumar, Ramamurthy, & Nilakanta, 1994; Straub, 2009; Zhu, Dong, Xu, & Kraemer, 2006; Zhu, Kraemer, & Xu, 2006). Hence, this study employed Rogers’ Diffusion of Innovation theory as a major theoretical base.

In the following section, the researcher first discusses Rogers’ Diffusion of Innovation Theory as a theoretical base. Second, the theoretical models and the determinants of the business firm and government’s innovation adoption and diffusion are presented due to the fact that both an MLB team and its host city were involved in the construction of a new stadium. Lastly, a theoretical model for this dissertation is proposed based on the review of the theoretical models and the determinants used in the literature.

**Diffusion of Innovation Theory**

The Diffusion of Innovation Theory (Rogers, 1983; 1993; 2003) formalized by Everett M. Rogers has served as a fundamental theoretical base of innovation adoption and diffusion research in various disciplines, including management, marketing, public administration, communications, social psychology, technology, sociology, and so on. (Gopalakrishnan & Damanpour, 1997; Ramamurthy & Premkumar, 1995; Tornatzky & Klein, 1982). Due to the fact that various interpretations and usages were associated with the terms innovation, diffusion, and adoption by different researchers in various disciplines, it was necessary to begin the discussion with a review of definitions used in past literature (Lundblad, 2004; Mohr, 1969).

**Definitions**

Rogers (2003) defined innovation as “an idea, practice, or object that is perceived as new by an individual or unit of adoption” (p. 2). Meanwhile, at the organizational level, Damanpour and Evan (1984) defined innovation as “the implementation of an idea—whether pertaining to a device, system, process, policy, program, or service—that is new to the organization at the time of adoption (p. 393). This definition indicates whether its origin has been internally generated, borrowed from outside, or already used by other organizations in the same social structure, innovation should be new to the organization when it is implemented (Damanpour, 1987).
Diffusion can be described “as the process by which the adoption of innovation by member(s) of a social system is communicated through certain channels and over time triggers mechanisms that increase the probability of its adoption by other members who have not yet adopted it.” (Rogers, 2003, p. 20). Hence, diffusion may be useful for explaining why some firms or state (or local) governments adopt innovation far ahead of others; it may also be used as one possible explanation for innovation adoption.

Rogers (2003) defines adoption as “a decision to make full use of an innovation as the best course of action available” (p. 177). In his theory, adoption is an event in the diffusion process, termed as the innovation-decision process and thus, diffusion is composed of individual adoption (Straub, 2009). Furthermore, Rogers differentiated the adoption process from the diffusion process in that the diffusion process occurs within a population over time, whereas the adoption process, which was discussed later, pertains to an individual. Therefore, it was concluded that the adoption process is a subprocess of diffusion.

Types of Innovations

Several typologies of innovations have been suggested from numerous disciplines. In fact, there is no consensus in the typology of innovations because innovation has been defined from different perspectives (Damanpour & Schneider, 2006). However, three most frequently contrasting sets of types have been employed in this study: a) technical vs. administrative, b) product vs. process, and c) radical vs. incremental.

**Technical vs. Administrative.** Technical innovation is concerned with adoption of new technological advancement in products, services and production processes, relating to the basic work activities of an organization (Daft, 1978; Damanpour, 1991; Damanpour & Evan, 1984; Knight, 1967). At the micro level, the use of a new tool, technique, device, or system could be included in technical innovation (Damanpour, 1991).

Meanwhile, administrative innovation pertains to innovations generated from the alternation of organizational structure and administrative processes, which are indirectly related to the basic work activities of an organization. Thus, it is more directly related to organizational management ((Damanpour & Evan, 1984; Kimberly & Evanisko, 1981; Knight, 1967). This innovation is defined as “the implementation of an idea for a new policy pertaining to the
recruitment of personnel, the allocation of resources, the structuring of tasks, of authority, of reward” (Evan, 1966, p. 51).

**Product (or Service) vs. Process.** The areas and activities that innovation influences differentiate between product and process innovations (Gopalakrishnan & Damanpour, 1997). Product innovation represents the production or introduction of new products and services, or modifications made to existing products or services to create new markets or sustain the organization’s current market position (Gopalakrishnan & Damanpour, 1997; Utterback & Abernathy, 1975). Outputs or services that are new to an organization are areas of product innovation (Gopalakrishnan & Damanpour, 1997). In contrast, process innovation reflects introduction or improvements of new production process for products or services (Knight, 1967; Utterback, 1971). Specifically, process innovation is represented as the “tools, devices, and knowledge in throughout technology that mediate between inputs and outputs and are new to an industry, organization, or subunit” (Capon, Farley, Lehmann, & Hulbert, 1992, p. 56).

**Radical vs. Incremental.** The distinction between radical and incremental innovations are determined by the degree of change associated with it (Gopalakrishnan & Damanpour, 1997). Radical innovation deals with a non-routine but fundamental changes in the activities of an organization and represents a clear departure from existing practices. Meanwhile, incremental innovation is usually part of routine changes and thereby, it merely call for marginal departure from existing practices, not offering much deviation from present organizational activities (Dewar and Dutton, 1986; Ettlie, Bridges, & O'Keefe, 1984).

**Elements of Diffusion**

Rogers (2003) defined diffusion as “the process by which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system” (p. 11). This definition indicates four main elements exist in the diffusion of innovations. Rogers showed how individual adoptions combine to represent diffusion through the interactions of the four main elements (Straub, 2009). Thus, a detail of the four main elements of Rogers’ theory is presented.
The innovation

Rogers (2003) provided a useful set of five analytic classifications of the attributes influencing the potential adopters of an innovation, which is linked to diffusion: a) relative advantage, b) compatibility, c) complexity, d) trialability, and e) observability. He hypothesized an innovation’s rate of adoption by individuals increases as each of these attributes increases. More specifically, relative advantage is “the degree to which an innovation is perceived as better than the idea it supersedes” (p. 15); the greater the perceived relative advantage of an innovation, the more rapidly it will be adopted. Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters” (p. 15); if an innovation does not fit into an individual’s existing understanding or values, it will be more slowly adopted. Complexity is “the degree to which an innovation is perceived as difficult to understand and use” (p. 16); as a result, the simpler new ideas or technologies are to understand, the more quickly they will be adopted. Trialability is the degree to which an innovation can be assessed before being fully adopted and implemented; an innovation that is trialable indicates less uncertainty to the individual considering it for adoption. Lastly, observability is concerned with how the results of an innovation are visible to others; if it is easy for individuals to observe the results of an innovation, then others are more likely to adopt the innovation; one piece of evidence for the importance of observability is the fact innovations are more rapidly spread among firms under the same cluster, because non-adopters may feel unspoken peer pressure (Rogers, 2003).

Communication channels

The second element of Rogers’ diffusion of innovation theory is communication channels. Roger (2003) defined communication as “a process in which participants create and share information with one another in order to reach a mutual understanding” (p. 5). In his theory, the communication process involves “(1) an innovation, (2) an individual or other unit of adoption that has knowledge of, or has experienced using, the innovation, (3) another individual or other unit that does not yet have knowledge of, or experience with, the innovation, and (4) a communication channel connecting the two units” (p. 18). In general, either mass media or interpersonal channels are the most common ways of communicating for the information
exchange between people. Roger (2003) focused on the importance of interpersonal channels, which are more effective in adopting a new idea or product.

Roger (2003) also concentrated on the relationship between the source (i.e., an individual or an institution) of communication about the innovation and the rate of adoption. Diffusion research shows that a subjective evaluation of an innovation by a peer or the mass media, not on the basis of the scientific merits of its consequences, is a main source in adopting a new idea.

This important role of near peers in innovation adoption implies the diffusion process contains both the modeling and imitation by potential adopters from their network partners who have already adopted (Rogers, 2003). This also indicates active communication with their network partners is a main driver of diffusion of innovations. Hence, diffusion of innovation is described as a social process, relying on effective communication between two or more individuals who are similar in certain attributes such as beliefs, education, and socioeconomic status.

**Time**

As the third primary element of Rogers’ theory, he argued that adoption and diffusion are framed through the context of time (Straub, 2009). Rogers (2003) suggested three dimensions of the time aspect: the innovation-decision process, adopter categories, and the rate of adoption.

**The innovation-decision process** is “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation” (p. 172). This process indicates the timeframe from the potential adopters’ first recognition of the innovation through their final decision of innovation adoption or rejection. Rogers (2003) conceptualizes five stages within individuals along this continuum: 1) first knowledge of the innovation, (2) persuasion reflected as an attitude toward the innovation, (3) a decision to adopt or reject, (4) implementation of a new idea, and (5) confirmation of this decision. Rogers also suggests influential factors influencing the innovation-decision process in each stage. For example, characteristics of the decision-making individual (or unit) such as socioeconomic characteristics, personality variables, and communication behavior are influential factors at the stage of first knowledge. Perceived characteristics of the innovation including relative advantage, compatibility, complexity, trialability, and observability are those at the stage
of persuasion and these are also important factors deciding the rate of adoption as explained earlier.

**Adopter categories.** As shown in Figure 2-1, the theory suggests five categories of adopters consisting of 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards in terms of members’ innovativeness. Innovators, as the first member of a group to adopt an innovation, tend to be venturesome and not afraid of risk. They are able to cope with a higher level of uncertainty than their peers. Early adopters tend to be open to change, but not quite as risky in their adoption of an innovation as Innovators are. Members of early majority, usually making up one third of all members of a system, adopt new ideas a little earlier than the average member of a system. They tend to follow with more deliberateness in the decision-process to adopt innovation but they seldom lead. The late majority, also consisting of one third of the members in the system, adopts innovations after the average member of a system. Due to their skepticism about innovations, they tend to accept innovations once most others in their system have already adopted them. Thus, in their decision-making process, the pressure of peers and the weight of system norms are essential sources motivating them to adopt innovations. Finally, the laggards possess traditional views and almost no opinion leadership. Due to these characteristics, they tend to decide after observing successful consequences of innovation by other members of the social system, resulting in a long innovation-decision period.
Rate of adoption. Rogers (2003) defined the rate of adoption as “the relative speed with which an innovation is adopted by members of a social system” (p. 221). This rate is measured by the number of innovation adopters for a period of time. Most innovations follow an S-shaped rate of adoption, meaning that only a few individuals initially adopt the innovation (innovators); more and more individuals adopt the innovation as time moves on; eventually, the trajectory of the rate of adoption begins to decline as fewer and fewer individual non-adopters remain.

As discussed earlier, the five attributes of the innovation are significant predictors of the rate of adoption. Rogers reported these five attributes accounted for 49-87% of the variance in the rate of adoption of innovations. In addition, he posited the rate is also influenced by other factors as well, including the social system.
A Model of Five Stages in the Innovation-Decision Process

Social system

The social system is the last element of the diffusion process. Rogers (2003) defined the social system as “a set of interrelated units engaged in joint problem solving to accomplish a common goal” (p. 37). Rogers argued since all diffusion occurs within a social system, the innovation diffusion is influenced by the social structure or norms of the system. In this dissertation, all of the baseball teams within MLB boundaries and local governments under the U.S. administrative districts are units of the social system. These units (organizations) tend to share a common goal linking them together as a social system.

Innovations in organizations

Until this point, the theory of Diffusion of Innovation has been mainly concerned with the diffusion of innovations among individuals. However, it is true that many innovations are adopted by organizations. Thus, Rogers also addressed innovation diffusion within organizations,
including a number of characteristics influencing innovations. It should be noted that although Rogers discussed innovation diffusion within organizations, the portion of the discussion is small.

Rogers proposed independent variables related to organizational innovativeness. He categorized these variables as three: 1) individual (leader) characteristics, 2) internal characteristics of organizational structure, and 3) external characteristics of the organization. The category of individual characteristics includes leaders’ attitude toward change; the category of organizational structure contains centralization, complexity, formalization, interconnectedness, organizational slack, and size; lastly, the category of external characteristics of the organization includes system openness. A detail of each independent variable will be discussed later.

The line of organizational innovativeness, which is included in the adoption perspective literature, focuses on examining the correlation between these independent variables and organizational innovativeness with cross-sectional analysis. However, it should be noted due to the nature of cross-sectional analysis, there may be difficulties capturing diffusion effects which occur over time or space in his organizational innovativeness model.

Conclusion

Roger’s Diffusion of Innovation theory encompasses both diffusion and adoption perspectives in that it recognizes the adoption process, termed as the innovation-decision process in the theory, as a subprocess of diffusion. Rogers’ theory is still being actively employed in the research either directly or implicitly through its influence and integration into other theories. Due to the uniqueness of this study which should reflect both a MLB team and its host city’s perspectives on construction of a new stadium, it may be impossible to use Roger’s theory directly. In fact, Rogers’ theory has been modified or integrated with various theories in diverse disciplines. Hence, the following section discussed firm’s innovation and the most widely used theoretical model, with its determinants of innovation adoption, to reflect a MLB team’s perspective. Then, to reflect the host city’s perspective, policy innovation in governmental institutions theoretical models proposed, and its determinants were reviewed.

Innovation Diffusion and Adoption in Business Firms

In today’s turbulent business environment, all firms have been required to innovate their products, services, or strategies to create a sustainable competitive advantage (Vincent,
A great deal of innovation adoption and diffusion research has centered on identifying determinant factors to find what causes an organization (e.g., firm) to adopt such an innovation. However, as Wolfe (1994) noted, past research in this line of the literature did not show a systematic approach to find determinant factors of organizational adoption. Moreover, there was lack of explanatory power of determinant factors. For example, early research in this line of the literature focused on a single class of determinant factors (e.g., Hage & Aiken, 1967; Hage & Dewar, 1973).

However, since Kimberly and Evanisko (1981) first synthesized and empirically tested three general categories of determinant factors of individual, organizational, and contextual (or environmental) variables on organizational adoption, subsequent research has attempted to build an integrated model (e.g., Damanpour & Schneider, 2006; Russell, 1990; Wolfe, 1994). As shown in Figure 2-3, Kimberly and Evanisko’s (1981) theoretical model posited that organizational innovation adoption is influenced by three primary categories of determinants: (1) the characteristics of individual people (usually organizational leaders), (2) the characteristics of the organization (also usually called organizational determinants), and (3) the characteristics of the context from which the organization emerged, and in which it continues to operate (usually called contextual or environmental determinants) (Baldridge & Burnham, 1975; Damanpour & Schneider, 2006; Kimberly & Evanisko, 1981). Based on these three categories of determinants of innovation adoptions, a number of innovation studies in a variety of disciplines have sought influential factors to explain what drives an organization to adopt innovations. Hence, an extensive review of influential factors was implemented, specifically related to business firms’ innovation.
Individual determinants

As the first category of determinants influencing innovation adoption, characteristics of individual people, particularly the effects of organizational leaders, have been used as an influential factor in the literature (Damanpour & Schneider, 2006; Kimberly & Evanisko, 1981). Organizational and strategic leadership scholars have consistently found that organizational leaders play a major role in organizational outcomes by building capacity for change and innovation (Daft, 2001; Elenkov, Judge & Wright, 2005; Yukl, 1999). Moreover, since organizational leaders control resources and impose sanctions for major decisions, especially strategic decisions, they strongly influence innovation adoption (Damanpour & Schneider, 2006; Hage & Dewar, 1973; Sapolsky, 1967; Wilson, 1966).

Existing theoretical perspectives on adoption have identified and tested a number of individual determinants such as 1) job tenure, 2) educational background, 3) cosmopolitanism, 4) attitude toward innovation (openness to change), 5) gender, 6) nature of organizational involvement of leaders, and 7) length of leader service (Kimberly & Evanisko, 1981). Rather than reviewing all individual determinants used in previous research, Vincent, Bharadwaj, and Challagalla’s (2004) meta-analysis involving individual determinants of organizational innovation were reviewed.

Length of job tenure. There have been two arguments relating to the effect of length of job tenure on organizational adoption in the literature. The first argument is that organizational
leaders new to their positions are more likely to accept innovation due to the fresh perspectives they bring to their jobs (Huber & Glick, 1993). Moreover, in general, they receive pressure to show a radical increase in productivity gains in their early administration, thereby resulting in seeking or initiating innovations (e.g., product, service, and administrative process) which are observed in the same or different industry categories. Conversely, organizational leaders with longer job tenure are less likely to be open to new ideas or likely to hesitate to initiate or adopt something new to the organization (Damanpour & Schneider, 2006; Hambrick & Mason, 1984; Huber & Glick, 1993).

The second argument is that under the assumption that organizational leaders with longer tenure have undertaken and completed various assignments, they are also better able to provide legitimacy and knowledge of how to accomplish innovative projects (Kimberly & Evanisko, 1981). Moreover, their experience and skills would help address critical contingencies that their organizations may face during the adoption of innovation (Mumford, 2000). In fact, these different perspectives on the effect of the length of job tenure led to mixed results. More specifically, early research found a positive relationship between job tenure and innovation adoption (Rogers & Shoemaker, 1971); some research found no relationship between them (Damanpour, 1991; Kimberly & Evanisko, 1981; Rao & Drazin, 2002). However, a majority of the literature has empirically demonstrated that organizational leaders’ length of job tenure is negatively associated with innovation adoption (e.g., Ancona & Caldwell, 1992; Boeker, 1997; Campbell, 1993; Hambrick & Mason, 1984; Huber & Glick, 1993; Ibarra, 1993; Kahn & Manopichetwattana, 1989; Meyer & Goes, 1988; Scott & Bruce, 1994; Vincent et al., 2004).

**Educational background.** Since the process of the adoption of organizational innovation is complex and creates a sense of uncertainty, organizational leaders would be required to implement diverse approaches to solve problems and reduce uncertainty (Huber & Glick, 1993; Lee, Wong, and Chong, 2005). An organizational leader’s education level could aid in the understanding of problems that may arise in the process and provide specific knowledge to reduce uncertainty. These abilities would facilitate the adoption of innovation (Rogers, 2003). Moreover, the literature consistently found that organizational leaders with higher education levels were more open to adopting organizational innovation (Blind & Grupp, 1999; Campbell, 1993; Damanpour & Schneider, 2006; Faber & Hesen, 2004; Ibarra, 1993; Kahn & Manopichetwattana, 1989; Keister, 2002; Kimberly & Evanisko, 1981; Meyer & Goes, 1988;
Rogers & Shoemaker, 1971; Romijn & Albaladejo, 2002; Scott & Bruce, 1994; Soultaris, 2002; Zajac, Golden & Shortell, 1991). However, unlike the educational circumstances of 1970s and 1980s, it can be assumed that there is unlikely to be variance in educational levels for the current organizational leaders. Thus, the importance of the educational background of organizational leaders may be decreasing.

**Attitude toward innovation (or referred as openness to change).** While the above individual determinants are concerned with task-oriented or employee-oriented behaviors, this individual determinant is concerned with change-oriented behavior (Damanpour & Schneider, 2006). The change-oriented behavior has been recognized as one of the dimensions in studies of leadership behavior (Ekvall & Arvonen, 1991; Yukl, 1999). This leadership dimension captures the characteristics of executives who possess long-term perspective and appealing visions, and who encourage and accept new ideas (Egvall & Arvonen, 1991; Yukl, 1999).

Organizational innovation scholars have found that a favorable attitude towards innovation or change creates an organizational culture open to innovation by fostering a favorable climate toward innovation (Vincent et al., 2004). The organizational leaders’ favorable attitude towards innovation can lead to a greater allocation of resources for accomplishing organizational innovation. Moreover, if a firm’s decision-making is centralized at the top of the organization, a leader can provide a very powerful force for organizational innovation (Campbell, 1993; Chandy & Tellis, 1998; Day, 1994; Hage & Dewar, 1973; Dewar & Dutton, 1986; Kahn & Manopichetwattana, 1989; Kotabe, 1990; Meyer & Goes, 1988; Soultaris, 2002; Zmud, 1984).

A number of empirical studies including meta-analytical reports demonstrated the positive impact of favorable attitude toward innovation (e.g., Damanpour, 1991; Camison-Zornoza et al, 2008). Neal’s (1965) battery of items measuring values favoring change has been a typical measure of attitude toward innovation (Damanpour, 1991).

**Organizational Determinants**

Of all categories of determinant factors, organizational determinants have been pointed out as the primary determinants, thereby receiving much attention from the literature (Damanpour, 1987, 1991; Kim, 1980; Kimberly & Evanisko, 1981; Vincent et al., 2004). The resource-based view (RBV) argues that firms’ resources and internal capabilities play a major
role in achieving competitive advantages in the market (Barney, 1991). If firms carefully match their resources and capabilities to environmental conditions, firms that have superior resources and internal capabilities can be positioned as leading companies. The basic premise of the RBV posited that resources and capabilities are heterogeneous across firms and if firms have superior resources and capabilities, they achieve sustainable competitive advantages in the marketplace (Peteraf, 1993). Correspondingly, firms’ financial capabilities (e.g., profitability) to accept innovations have been used as one of the potential determinants of innovation adoption (Grant, 1991; Peteraf, 1993; Vincent et al, 2004; 2005).

Another important dimension of the organizational determinant of innovation adoption is organizational structure. Many organizational researchers have argued that the structural characteristics of an organization have a significant impact on its adoption behavior, whether they facilitate or inhibit adoption of an innovation (Kimberly & Evanisko, 1981). According to DeCanio, Dibble, Amir-Atefi (2000), organizational structure influences firms’ behavior through at least two channels. First, structure can influence companywide measures of performance including speed in adopting productivity-enhancing innovations or profitability. These performance characteristics, in turn, have an effect on firms’ behavior because competitive selection pressures act differently on organizations according to their performance. Second, the structure of the firm makes the employees or operating units act differently in response to changes in external circumstances by adjusting the firm’s internal patterns of communication and connectedness. Therefore, much attention has been paid to the effects of organizational structure on innovation adoption.

**Firm size.** Size of firm (or organizational size) has long been considered one of the most important organizational determinants influencing innovation adoption (Kimberly & Evanisko, 1981; Fama & Jensen, 1983; Damanpour, 1992; Lee & Xia, 2006; Camison-Zornoza et al, 2004). Firm size is often positively associated with innovation adoption. However, as Lee and Xia (2006) noted, a consistent relationship between firm size and innovation adoption has not been established, indicating mixed results in the relationship.

According to Damanpour (2010), two types of argument have been debated regarding the relationship between firm size and innovation. The first is that there is more expectation that small firms will adopt innovation due to the fact that aspects of their organizational structures differ greatly from those of large firms. It can be assumed that small organizations have a more
responsive climate for making quicker decisions to cope with environmental changes. Their organizational structure is less bureaucratic and more flexible in accepting and implementing organizational change (Chandy & Tellis, 2000; Dean, Brown, & Bamford, 1998; Nord & Tucker, 1987; Whetten, 1987). Moreover, small firms are able to utilize singular opportunities and enter new markets with innovative products (Damanpour & Aravind, 2006). Meanwhile, large organizations are more likely to adopt innovation due to their financial and technical capabilities. These capabilities can lead to hiring professional and skilled workers, spreading the risk of failure, and absorbing the costs of innovation (Chandy & Tellis, 2000; Hitt, Hoskisson & Ireland, 1990; Nord & Tucker, 1987). Furthermore, greater levels of diversity within the large organization can lead to a greater number of innovative ideas being developed (Boeker, 1997; Bolton, 1993).

Although each argument has received empirical support, several meta-analytical reviews have reported a positive effect of firm size on innovation (Camison-Zornoza et al., 2004; Damanpour, 1992; Lee & Xia, 2006; Vincent et al., 2004). For example, Damanpour’s (1992) meta-analytical review of 36 correlations from 20 empirical studies found a positive mean correlation between size and innovation ($r = .32$, $p<.05$); Camison-Zornoza et al. (2004) reported a positive relationship but with a smaller effect ($r = .15$, $p<.05$); Vincent et al.’s (2004) meta-analysis from 83 empirical studies from the period of 1980 through 2003 found that organizational size was positively related to innovation.

With regard to measures of firm size, a widely used measure of firm size is the number of employees (e.g., Baldwin, Gellatly, & Gaudreault, 2002; Ettlie et al., 1984; Fritsch & Meschede, 2001; Kraft, 1990; Martinez-Ros, 2000; Zahra et al., 2000). Other measures have been also used, including total assest (Gopalakrishnan & Damanpour, 2000), the firm’s market share (Cabagnols & Le Bas, 2002), sales (Arundel & Kabla, 1998; Cohen & Klepper, 1996; Lunn, 1987), and a ratio of the firm’s employment to industry employment (Bertschek, 1995).

**Organizational resources (or called slack resources).** Organizational slack refers to “the pool of resources in an organization that is in excess of the minimum necessary to produce a given level of organizational output” (Nohria & Gulati, 1996, p. 1246). Slack resources include all the resources an organization has such as redundant employees, unused capacity, and unnecessary capital expenditures as well as unexploited opportunities to increase outputs (Hage & Aiken, 1967; Nohria & Gulati, 1996). Thus, slack resources are used to capture organizational
resources available beyond required resources to maintain organization’s routine operations (Damanpour, 1991).

Slack resources enhance a firm’s capability to adopt an innovation in four ways. First, slack resources permit a firm to afford to purchase or develop innovations; second, surplus resources bear the costs of instituting innovations; third, they encourage a firm to explore innovative ideas by providing the means to fund implementation; lastly, slack resources absorb the risk of failure in adopting innovation or failure to realize the anticipated benefits of the innovation (Rosner, 1968).

Slack resources are often measured by financial indicators, such as a firm’s return on assets (Zahra, Ireland, & Hitt, 2000), quick ratio (defined as current assets, minus inventories, divided by current liabilities) (Herold, Jayaraman, & Narayanswamy, 2006), income relative to sales, (Lunn, 1987; Meisel & Lin, 1983) or cash flow (Kraft, 1990) reflecting internal financial capabilities. Overall, empirical studies have shown mixed results. For example, Damanpour’s (1991) meta-analysis of multiple innovation studies found a significant positive relationship between slack resources and innovation adoption; Herold et al. (2006) using the database in 350 U.S. companies reported a significantly positive association.

On the other hand, according to Damanpour and Aravind’s (2006) review, most studies in their sample slack resources were not significantly associated with innovations (both product and process innovations). These mixed results may be due to different characteristics of industry. For example, Lunn (1987) found that profit is positively associated with both product and process innovations in the high-technology industries while in the low-technology industries, a weaker effect of profit on product and insignificant effect on process innovation were found. Zahra et al. (2000) also found similar results to Lunn’s results for low-technology industries. These results are attributable to the fact that the high-technology industries usually need more resources for innovation but the low-technology industries do not (Damanpour & Aravind, 2006).

**Organizational structure.** Many organizational researchers have argued that organizational structural variables have received the most attention of any determinants in the organizational innovation literature (Kimberly & Evanisko, 1981; King, 1990; Wolfe, 1994). In organizational innovation research, organizational structural variables can be categorized into two major constructs – organizational complexity and bureaucratic control (Damanpour & Gopalakrishnan, 1998). Three commonly considered subcategories of each construct have been
examined as fundamental elements of that construct as follows: (1) specialization, functional
differentiation, and professionalism as the elements of organizational complexity; (2)
centralization and formalization as the elements of bureaucratic control (Damanpour, 1991).

More specifically, like the elements of organizational complexity, specialization reflects
the diversity of specialists employed in the organization. This provides the technological
knowledge base of the organization that can generate new ideas or foster innovations
(Damanpour, 1987; Vincent et al., 2004). A typical measure of this variable used in the literature
is the number of different occupational types or job titles that exist in an organization
(Damanpour, 1991).

Functional differentiation refers to the degree to which an organization is divided into
different subunits (Kimberly & Evanisko, 1981). It is expected that collaborations of different
subunits both elaborate on and introduce changes, resulting in implementation of organizational
innovation (Damanpour, 1991). Organizational design scholars have also used “horizontal
differentiation” (Aiken, Bacharach, & Frenchet, 1980), “structural differentiation” (Blau &
McKinley, 1979), and “departmentation” (Young, 1981) instead of functional differentiation.

The total number of units under the chief executive level has also been used to measure
functional differentiation. Professionalism represents the degree to which organizational
members have professional knowledge (Damanpour, 1991). Professionalism obtained from both
education and experience enables employees to facilitate boundary-spanning activity, self-
confidence, and a commitment to moving beyond the status quo (Pierce & Delbecq, 1977). This
variable is more significant for technological innovations requiring more professional knowledge
than for administrative innovations (Daft, 1978; Evan & Black, 1967; Zmud, 1984). There have
been two measures of this variable used in the literature: the number or percentage of
professional staff members with a high educational degree and an index showing degree of
professional training of firm employees (Aiken & Hage, 1971; Kaluzny, Veney, & Gentry, 1974).

Using these sub-constructs capturing organizational complexity, Damanpour’s meta-
analytical research (1991) reported positive and significant association with innovation adoption;
Vincent et al. (2004) also found a positive relationship between complexity and innovation in
their meta-analysis; a more recent meta-analytical report conducted by Camison-Zornoza et al,
2008) found a positive association in various types of innovation (e.g., radical, incremental,
process, product, technical, and administrative innovations).
On the other hand, Zaltman, Duncan, and Holbek (1973) argued that complexity is rather negatively associated with innovation adoption, specifically at the implementation stage. They claimed that greater diversity can create conflict and discord in the decision-making process, while at the same time bringing a variety of knowledge or sources, which can increase awareness of innovations and cross-fertilization of ideas at the initiation stage.

As the elements of bureaucratic control, centralization is “the extent to which authority and decision-making is concentrated at the top of the organizational hierarchy” (King, 1990, p. 32). This variable discourages organizational adoption because it reduces active exchange of ideas and knowledge by narrowing communication channels (Cardinal, 2001; Nord & Tucker, 1987). On the other hand, other scholars argued that centralized authority is often necessary to overcome organizational opposition to organizational change (Dewar & Dutton, 1986). These conflicting rationales may lead to mixed results regarding the effect of centralization. For example, Vincent et al.’s (2004) meta-analysis reported an insignificant relationship between centralization and innovation while Damanpour’s (1991) meta-analysis found a negative relationship between them. Moreover, Kimberly and Evanisko (1981), and Daft (1982) argued that there is a different view of the effect of centralization in terms of types of innovations: decentralized authority structures inspire technical innovation adoption, whereas in centralized structures, administrative innovations are more frequently adopted. The degree of firm employees’ participation in decision making or the degree of authority and freedom firm employees should have to make their own decisions, and using survey items are typical measures of centralization (Damanpour, 1991).

Formalization is “the degree of emphasis placed on following rules and procedures in role performance” (King, 1990, p. 32). The reliance on rules and procedures limit organizational flexibilities and hinder employees’ creativity, and thereby inhibiting innovation (Jansen, Van Den Bosch, & Volberda, 2006; Vincent et al., 2004). Similar to centralization, this variable was also found to have different effects on innovation adoption due to different attributes of technological and administrative innovations. Technological innovations were negatively related to adoption due to formalization’s rigidity and authority while administrative innovations were positively related because of their focus on rules and management (Daft, 1982). The presence of rule manuals and job descriptions has been used as a typical measure of formalization (Damanpour, 1991).
Organizational Culture. Although various definitions of organizational culture have existed, considerable overall agreement defines organizational culture as “a set of cognitions shared by members of a social unit” (O’Reilly, Chatman, & Caldwell, 1991, p. 491); to say this more fully, organizational culture can be described as “a system of shared values and beliefs that produce norms of behavior and establish an organizational way of life” (Koberg & Chusmir, 1987, p. 397).

The importance of organizational culture is derived from its impact on outcomes at both the organizational (organizational effectiveness) and individual (job satisfaction, organizational commitment, and ethical behavior) levels (e.g., Cameron & Freeman, 1991; Denison & Spreitzer, 1991; Lund, 2003; Smirich, 1983; Sosa & Sagas, 2006). This importance has resulted in producing a number of studies on organizational culture in the management literature and examining the effect of organizational culture on various outcomes including organizational innovation.

Due to the attributes of innovation such as its complex process and uncertainty of success, innovation is fostered more effectively in firms with an innovative culture, rather than organizations traditionally planned, organized, and guided by formal rules and procedures (Russel, 1990). In a dynamically changing business market, organizational culture serves not only as an effective way of motivating and directing the solution of unstructured problems, but also as a supplement to structure and as a complement to leadership (Hauser, 1998). Therefore, organizational culture is essential for assessing the organization’s potential for innovation.

However, despite the importance of the role of a firm’s culture, a few empirical studies have been conducted in the area of organizational culture and innovation (McLean, 2005; Hauser, Tellis, & Griffin, 2006; Oldham & Cummings, 1996). The existing literature has consistently found the positive effect of organizational culture (e.g., Dressler, 2005; Jaskyte & Kisieliene, 2006; Jaskyte & Dressler, 2004; Lau & Ngo, 2004).

Several scales to measure organizational culture have been proposed. For example, the developmental culture scale of the Michigan Competing Values framework created by Quinn (1988) was used to reflect a culture with an orientation toward growth and innovation (e.g., Lau & Ngo, 1996; 2004); the Organizational Culture Profile (OCP) developed by O’Reilly, Chatman, and Caldwell (1991) that has received much attention from the organization theory was used.
This instrument, specifically, forms seven value dimensions: innovative, aggressive, outcome-oriented, stability-oriented, people-oriented, and team-oriented (O’Reilly et al., 1991).

**Environmental (or contextual) factors.**

Many scholars have posited that innovation is a means of creating a dynamic capability to cope with environmental uncertainty (Eisenhardt & Martin 2000; Teece, Pisano & Shuen 1997). Moreover, a dynamically changing market requires firms to keep innovating their products or themselves in order to respond to rapidly changing market demands (Meyer & Goes, 1988; Nohria & Gulati, 1996). The role of external environment in organizational innovation adoption has received a great deal of attention in the literature (Damanpour, 1996; Damanpour & Schneider, 2006; Light 1998; Tidd, 2001). Therefore, scholars in the literature on organizational innovation have found important environmental or contextual determinants relating to the market or sector within the organizational operations, or within cultural, societal, political or geographical conditions (Camison-Zornoza et al., 2004; Kimberly & Evanisko, 1981; Kling, 1990; Pierce & Delbecq, 1977; Tornatzky & Fleischer, 1990; Wejnert, 2002).

Like other determinants, a number of environmental variables have been introduced to test their effect on innovation adoption. The researcher reviews influential environmental factors frequently used in business organizations such as market structure (e.g., competition), environmental turbulence, network externalities, appropriability conditions, and market growth (Cohen & Levin, 1989; Damanpour & Aravind, 2006; Nohria & Gulati, 1996).

**Market competition.** Market competition has been widely used in innovation adoption as one of the most important environmental determinants. (Bernstein & Gauthere, 1998; Kimberly & Evanisko, 1981; Utterback, 1974). It refers to “the degree of competition reflected in the number of competitors and the number of areas in which there is competition” (Miller, 1987, p. 35). Competition creates strong incentives to obtain information and knowledge, thereby providing firms with more exposure to new ideas or products (Metcalfe, 2006).

In highly competitive markets, organizational leaders face immense pressure to scan their business environment or other industries to apply any other innovative or superior alternatives to their current management (Vincent, et al., 2004). For example, non-adopters of a certain innovation that is adopted by others may feel pressures on adopting it because non-adoption of a certain innovation may cause them to lose their sustainable market position (Frambach &
Schillewaert, 2002). In particular, when the non-adopters observe competitive advantages caused by early adoption, they may face the mounting pressures.

A number of empirical studies have demonstrated the positive effects of market competition on innovation adoption but some exceptions exist. For example, Baldwin et al. (2002) found that competition positively influenced product and process innovations among small number of competitors, whereas there were insignificant effects among large number of competitors.

Meanwhile, scholars in the industrial organization literature found a positive association with innovation adoption for both high levels of industry concentration and low levels (Baldwin & Scott, 1987; Kamien & Schwartz, 1982). Kimberly and Evanisko (1981) also found a positive impact, as measured by the presence of other hospitals in the area. In the marketing literature, Gatignon and Robertson (1989) found that higher levels of competition foster innovation adoption but the effect is insignificant in the low levels. Lastly, Vincent et al.’s (2004) meta-analysis found that competition had a positive impact on product innovation.

Various measures of competition have been suggested but a typical measure is the number of competitors in the sector (Baldwin et al., 2002; Miller, 1987). Percentage of innovative firms in the sector (Cabagnols & Le Bas, 2002) and average gross profit market of the industry (Bertscheck, 1995) are also considered as alternative measures.

Environmental Uncertainty (or Environmental Turbulence). Turbulence refers to “volatility or difficult to predict discontinuities in an environment” (Halebian & Finkelstein, 1993, p. 845). Environmental turbulence creates an environment characterized by uncertainty (Vincent et al., 2004). This environmental uncertainty fosters both a firm’s external linkages and the rate of change in strategy or policy in those linkages, ultimately leading to innovation (Aldrich, 1979; Emery & Trist, 1965; Ettlie, 1983).

Environmental uncertainty is operationalized with two distinct dimensions: environmental complexity and variability (Boyd & Fulk, 1996; Duncan, 1972; Ettlie & Bridges, 1982; Tosi, 1992). Environmental complexity (also known as heterogeneity) reflects “the diversity and interdependence of environmental factors that organizations have to contend with” (Sia, Teo, Tan, & Wei, 2004, p. 255); environmental variability (also referred to as dynamism or environmental volatility) is “the rate and volume of changes in the environmental factors” (p. 256). The attribute of these dimensions would require firms or top managers to collect and

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process information, such as emerging trends, threats, and opportunities increasing their complex environment. Moreover, rapid and large volume of changes could generate uncertainty about prediction with regard to outcomes, and thereby these dynamic environments require firms to devote greater time and effort for information processing and for potential opportunities (Daft, Sormunen, & Parks, 1988; Milliken, 1987).

In fact, the organizational design literature has empirically demonstrated that environmental uncertainty influences organizational structure, strategy, and performance. Furthermore, the innovation literature has consistently found that innovation is positively associated with environmental uncertainty because firms are more likely to pursue more aggressive strategies as uncertainty increases (Bhide, 2000; Miller & Friesen, 1982; Ozsomer, Calantone, & Di Bonetto, 1997; Russell & Russell, 1992).

In addition, a widely used measure of environmental uncertainty is perceived environmental uncertainty among top managers assessed by scale items. Interestingly, top managers’ perceptions and beliefs about the environment had a significantly greater impact on top management decision making than actual environmental realities (Isabella & Waddock, 1994).

**Network externalities.** It could be argued that firms may aggressively adopt an innovation when other interrelated firms have adopted the focal innovation. In other words, the number of other adopters who have shown enhanced performance may influence the value of an innovation and its adoption probability (Frambach & Schillewaert, 2002). In the literature, these external contingencies have been conceptualized as network externalities or critical mass (Cool & Fish, 1998; Katz & Shapiro, 1994; Kraut, Rice, Cool, & Fish, 1998; Markus, 1990; Rogers, 1991). Thus, network externalities are defined as “positive consumption externalities, whereby the value a user derives from a good increases with the number of other users of the same or similar good” (Schilling, 2002, p. 387).

In the context of inter-organizational relationships, network externalities facilitate the rate of adoption and speed of diffusion when the intrinsic utility of an innovation increases when a firm’s competitors also use the innovation (Frambach & Schillewaert, 2002). This phenomenon can serve to apply contextual pressures to late majority and laggards who adopt an innovation late during the diffusion process in a social system (Greve, 1998). Thus, it is expected that as the
number of competitors who have adopted an innovation increases, there will be the higher probability that non-adopters will adopt the innovation.

Indeed, although substantial theoretical works on network externalities has been done in economics, empirical research regarding firms’ innovation adoption appears to be very limited (Schilling, 2002). On the other hand, the literature on policy innovations, which will be discussed later, has examined the effect of network externalities termed as the “diffusion effect.”

**Innovation in Public Policy**

Innovative public policies or programs recognized as the important actions of government have been a major interest of the scholars in political science and public administration. In this line of inquiry, innovation has been defined as a “program or policy which is new to [the state] adopting it” (Walker, 1969, p. 881). This definition indicates that the focus of the study of policy innovation is on the adoption of policy that is new to the jurisdiction, whether or not the policy has been previously enacted by other governments (Berry & Berry, 2007). Hence, the central research question of policy innovation is to investigate the conditions causing a government to adopt a new program or policy (Berry & Berry, 1990). At various levels of governmental authority, such as regional or local levels within the U.S., policy innovation and adoption (Aiken & Alford, 1970; Bingham, 1977; Crain, 1966; Lubell, Schneider, Scholz, & Mete, 2002; Midlarsky, 1978) has been examined, and further, policy innovation and adoption has also been examined across countries (Brooks, 2005; Brown et al., 1979; Collier & Messick, 1975; Gilardi, 2005; Heclo, 1974; Kraemer, Gurbaxani, & King, 1992; Tolbert & Zucker, 1983; Simmons, 2000; Simmons & Elkins, 2004). A wide range of policies or programs have also received attention, including innovations such as adoption of lotteries, tax reform, death penalty reform, charter school legislation, law or regulatory related reforms, and so on.

**Walker’s (1969) Seminar Work**

The research literature for the diffusion of an innovation in public policy starts with Walker’s (1969) seminal article, sparking in the field an infusion of research on the diffusion of innovative policies among American states. Walker (1969) investigated the relative speed and the spatial patterns of adoption of new programs among American states by creating an innovation
score for each state. The innovation score was created based on the analysis of 88 different programs enacted prior to 1965.

Specifically, Walker (1969) evaluated each state’s innovation score in terms of how quickly each state adopted 88 different innovative programs (or policies) in a variety of policy areas including welfare, health, and education. Furthermore, he tested correlations between this state’s innovation scores and five social-economic factors (population, concentrations of urban population, per capita incomes, manufacturing/farm output, illiteracy rate, and median school year) and two political factors (legislative appointment and degree of party competition for governorship). He found that states with larger populations, higher concentrations of urban population, and higher levels of manufacturing adopt programs more rapidly. Also, the relationship with political variables was found to be significant, but the relationship was weaker when social-economic variables were introduced into the model.

More importantly, Walker (1969) investigated the spatial pattern of diffusion. He hypothesized that regional clusters among states exist and that interstate competition generated from within these regional clusters inspires non-policy-adopters to adopt other states’ innovative policy by observing relative advantages when compared to the previously adopted policy. Walker empirically tested these hypotheses using factor analysis and his findings supported his hypotheses. Based on the demonstration of this diffusion effect, various diffusion models (e.g., regional diffusion, leader-laggard, isomorphism, and vertical influence models) have been developed. Berry and Berry (2007) argued that at least one of the following reasons explains why states emulate each other in all diffusion models.

First, “states learn from one another as they borrow innovations perceived as successful elsewhere.” (p. 225). For policymakers facing complex problems, emulation of other states’ innovations can be a simple method for the solutions because evidence exists for those innovations successfully adopted by other states. Second, “states compete with each other” (p. 225). Economic advantage or disadvantage observed from other states’ adopted innovations facilitate or inhibit non-adopters’ decision to adopt innovations. Lastly, according to Walker (1969), there is the pressure that all states have to conform to nationally or regionally accepted standards despite the autonomy that states possess in a federal system. Hence, widely adopted innovative policies by other states act as pressure on states that have not adopted such, thereby leading to adoption of the innovation. It should be noted that this diffusion effect has been used
as one explanation for innovation adoption in the united theory of Berry and Berry (1990), which will be discussed later.

**Mohr’s (1969) Theory of Organizational Innovation**

As another seminal work in policy innovation scholarship, Mohr’s (1976) theory of organizational innovation, specifically within public health agencies, has provided a theoretical foundation for an internal determinants model. Mohr investigated to identify internal determinants influencing diffusion of new public health policies among public health agencies. Based on 93 public agencies’ responsiveness to changes in public health problems, Mohr argued that “the likelihood that an organization would innovate would be a function of (a) the motivation to innovate, (b) obstacles to innovation, and (c) availability of resources to overcome obstacles to innovation” (p. 111). He further claimed that “the motivation to innovate interact[s] with both the strength of obstacles and the amount of resources available in influencing the changes of adoption” (p. 123).

More specifically, findings from his analysis indicated that when obstacles are relatively great and resources small, a high degree of motivation is not enough to produce innovation. However, when obstacles to innovation decrease and resources increase, the impact of motivation on the likelihood of innovation significantly increases. Conversely, when the degree of motivation is low, the amount of resources and the strength of obstacles have little influence on the likelihood of innovation. In addition, Mohr found a strong positive relationship between the size of the organization and both its motivation to innovate and its resources for overcoming obstacles to innovation.

**Unified Theory of Policy Innovation**

The demonstration of Walker’s spatial pattern of diffusion and identification of Mohr’s determinants influencing diffusion of policy innovation have provided a theoretical base for two types of models explaining policy innovation; respectively, that is, internal determinants and diffusion models. The internal determinants models argue that “the factors leading a state government to innovate are political, economic, and social characteristics internal to the state” (Berry & Berry, 1990, p. 396). Meanwhile, the regional diffusion models focus on “the influence of nearby states, assuming that states emulate their neighbors when confronted with policy
problems” (p. 396). It should be noted that these two types of models were segregated prior to the 1990s. In other words, the internal determinant approach typically excluded regional influence, whereas the regional diffusion approach did not specify the role of internal state characteristics (Berry & Berry, 1990).

However, Berry and Berry (1990) argued that the application of a single model, either internal determinants or diffusion model, cannot provide a plausible explanation of policy innovation. They argued that a state is not likely to blindly emulate its neighbors’ policies or programs without any considerations of its own political or economic conditions. This critical conceptual weakness of the use of a single model was addressed by Berry and Berry (1990) by unifying these two types of models.

Berry and Berry (1990) conceptualized the diffusion process into Mohr’s (1969) theory of organizational innovation that “the probability of government innovation is directly related to (1) the motivation to innovate, inversely related to (2) the strength of obstacles to innovation, and directly related to (3) the availability of resources for overcoming such obstacles” (p. 114). They maintained that policy adoptions by neighboring states (regional diffusion/external approach) provided critical information (a resource) and reduced uncertainty (an obstacle) to the state considering whether or not to adopt (Berry & Berry, 1990). In other words, observed advantages or disadvantages from policy adopted by nearby states can be used as “experimental laboratories” by the deciding state (Elazar, 1972). Thus, diffusion was framed as one “possible explanation for innovation” in the unified theory (p. 396).

As displayed in Figure 2-4, to empirically test their unified theory policy innovation, Berry and Berry (1990) examined what causes the U.S. states to adopt lotteries, using event history analysis. In their study, as internal determinants factors, proximity to elections was measured for a state governor’s motivation to innovate; state per capita income was used to measure the availability of state resources; the degree to which a single party controls institutions of government reflected obstacles to innovation. Lastly, the number of neighboring states that had previously adopted the lottery was used to test a regional diffusion effect. Their empirical analysis offered the idea that these three critical internal determinants and regional diffusion significantly explained the probability of states’ lottery adoption.

Since Berry and Berry’s seminal work, subsequent empirical studies have extended to identifying influential factors of policy innovation diffusion in a wide range of policies or
programs with the use of more advanced methodology (Alm, McKee, & Skidmore, 1993; Berry, 1994; Berry & Berry, 1992, 1994).

**FIGURE 2-4**
Berry and Berry’s (1990) Unified Model of Policy Innovation

**The Proposed Research Model**

Due to the uniqueness of the construction of a new stadium, the perspectives of the MLB teams and their host cities should be considered together in order to explain what factors influence the adoption of construction of a new stadium. However, as described earlier, there has been no single theoretical innovation adoption and diffusion model covering both business firms’ and governments’ innovation. As outlined earlier, the literature on businesses firms’ innovation has employed the three major categories of determinants of organizational adoption while the literature on policy innovation has widely accepted the unified theory of policy innovation. Hence, rather than employing a single theoretical model to explain both MLB teams and their host cities’ perspectives, the proposed research model integrated the three major categories of organizational adoption determinants accounting for MLB teams’ perspectives – individual, organizational, and environmental – with the unified theory of policy innovation which consists of two major categories of determinants (internal and diffusion models).
More specifically, one part of the research model used in this dissertation was based on the three major categories of determinant factors including individual, organizational, and environmental, which were proposed by Kimberly and Evanisko (1991). The research model reflected MLB teams’ perspectives on construction of their new stadiums in three general categories of determinant factors: 1) the characteristics of the top executive as the individual determinant, 2) the characteristic of MLB teams, reflecting their internal resources and capabilities, and 3) the characteristics of the environment the MLB teams are facing.

The other part of the research model used in this study employed the unified theory of policy innovation (Berry & Berry, 1990), incorporating the internal determinants and diffusion effects. The proposed research model integrated explanations for a city’s adoption of construction of a new stadium into four factors of the internal determinants and one factor of the diffusion effects: 1) city policymakers’ motivation for innovation, 2) obstacles to innovation, 3) resources to overcome obstacles to innovation as the internal determinants, and 4) regional diffusion effect as the diffusion model.

These two different models reflected both adoption and diffusion perspectives to analyze organizational adoption. Although the three major categories of determinants model proposed by Kimberly and Evanisko (1981) did not label diffusion effects as an independent category, one of the variables used in the category of environmental determinants in other empirical firm innovation studies was network externalities. This concept is very similar to the diffusion effect model in the united theory of policy innovation. Thus, to clearly indicate the reflection of the perspectives of adoption and diffusion, the proposed model labeled adoption and diffusion perspectives, and listed under each perspective the determinants of each MLB team and its host city for construction of a new stadium. The proposed research model was presented as follows:
FIGURE 2-5
The Proposed Research Model with Hypotheses
In this chapter, the researcher reviewed the literature relevant to this study. A comprehensive review of the literature on stadium financing revealed the lack of a research question related to what causes a MLB team and its host city to adopt stadium construction. Due to the uniqueness of stadium financing involving both MLB teams and their host cities, each party’s perspective should be considered together. Thus, to reflect a MLB team’s perspective, the researcher employed Kimberly and Evanisko’s (1981) firms’ innovation adoption model, synthesizing three primary categories of determinant factors on organizational adoption. Meanwhile, to reflect a city government’s perspective, the researcher employed Berry and Berry’s (1990) unified model of policy innovation which conceptualizes the diffusion process into Mohr’s (1969) theory of organizational innovation focusing on internal determinants. Therefore, to explain both adoption and diffusion perspectives on stadium adoption, Rogers’ Diffusion of Innovation Theory was used as a primary theoretical base in that the theory provided a mechanism of both adoption and diffusion process. Throughout the review of literature on factors influencing firms’ innovation and policy innovation adoption, the researcher attempted to identify possible determinant factors influencing the adoption of stadium construction.

In the next chapter, the research methods are presented. This section details selection and operationalization of the explanatory variables with related hypotheses, and the research design including the sampling and time frames, data sources, and data analysis.
CHAPTER 3
METHODS
Introduction

In this chapter, the researcher outlines the research methods used to empirically test the proposed model incorporating perspectives of MLB teams and their host cities regarding determinants of the construction of MLB stadiums. First, this chapter begins with selection of testable variables with related hypotheses drawing on findings from the literature review. Second, the research design is presented, including descriptions of the sampling and time frames, data sources, and measure of variables with the proposed event history analysis model of adoption of new stadiums. Lastly, data analysis methods with the equation of the proposed model are presented.

Selection of Variables and Hypotheses

As outlined in Chapter 2, a variety of variables of determinants in terms of each class of determinants, from firms’ and governments’ perspectives, have been empirically tested to examine the propensity of firms or governmental institutions to adopt innovations. However, it was impossible to test all variables used in the literature in this single study. Above all, due to the longitudinal nature of the stadium construction process, the proposed study used panel data. This approach could not use static data measured by survey item scales including variables related to attitude toward innovation, organizational structure, culture, and environmental turbulence for MLB teams. Moreover, unavailability of data related to MLB teams should be considered.

Explanatory variables related to MLB team

Length of job tenure. There have been two conflicting positions regarding the effect of job tenure in the literature. One is that top executives new to their positions or authority are more likely to accept innovation due to the fresh perspective they bring to their job (Huber et al., 1993). The other argument is that top executives with longer tenure are assumed to have much experience from a variety of projects undertaken, and thus will be more likely to adopt innovations. These different perspectives led to mixed results but a majority of the literature has empirically found a negative association between organizational leaders’ length of job tenure and innovation adoption. Thus, the following hypothesis was generated:
H1: Owners new to their position and to management are more likely to adopt stadium construction than owners with longer tenure.

Organizational resources (or called slack resources). Despite the substantial public share in construction of a new stadium, MLB teams still contribute to approximately 42.2% of total construction cost (see Table 2-2). This indicates that organizational resources available beyond the sources required for teams’ routine operations, called slack resources, are required within MLB teams. Past literature used various measures of slack resources, including firms’ return on assets, quick ratio, income relative to sales, and cash flow. However, these financial indicators for MLB teams are not open to the public. Hence, as an alternative measure, the proposed study used teams’ annual attendance percentage as a share of stadium capacity. This measure could be used as an indicator not only reflecting team revenue, but also forecasting demand. For example, an MLB team may see the necessity for a new stadium if tickets are frequently sold out. Accordingly, the following hypothesis was presented:

H2: As attendance percentage increases, an MLB team will be more likely to decide to construct a new stadium.

Market Competition. Needless to say, the professional sport market has continued to expand, with new sport leagues being generated and the number of teams within the leagues increasing. Thus, there is fierce competition for survival among teams within a league and among the different leagues. This competition in turn places competitive pressure on MLB teams. For example, MLB teams with old stadiums may feel pressure to conform to the league-wide accepted trend of constructing new stadiums or enacting major innovations. Moreover, MLB teams in cities with other professional sports teams including the NFL, NBA, and NHL face higher competitive pressures to sharpen their competitive edge or sustain their competitive advantage. The literature has consistently demonstrated the positive effect of market competition and competitive pressures on innovation adoption. Accordingly, this dissertation tested the following hypotheses:
H_{3a}: As the number of MLB teams adopting construction of a new stadium increases in the league, other MLB teams playing in old stadiums will be more likely to decide to construct a new stadium.

H_{3b}: MLB teams in cities with other professional sports teams including the NFL, NBA, and NHL will be more likely to decide to construct a new stadium.

**Divisional diffusion effects (or network externalities).** As discussed earlier, diffusion effects have been conceptualized as network externalities in the literature of firms’ innovation. This variable is prone to be more influential if there are active inter-organizational relationships or an obvious boundary of the business cluster, whether it is geographical or not. It is considered that all teams are included under the apparent business cluster, the MLB league. The league is divided into the American League and the National League, and each league is further subdivided into three divisions (East, Central, and West). Teams in the same division compete with many more games in order to be advanced to the Division Series. This leads to two important implications.

One is the generation of divisional rivalry, which also reflects geographical perspectives. In a regular business market, competence of rival firms significantly influences a firm’s innovative behavior (Athreye, 2000). The other implication is that a number of regular season games between teams in the same division leads to more frequent communications between teams’ top executives or owners. As outlined in Chapter 2, Roger (2003) focused on the importance of interpersonal channels, which are more effective in adopting a new idea or product. Thus, the diffusion is pursued as potential adopters imitate their network partners who have already adopted (Rogers, 2003). Further, within the same division, top executives or owners with old stadiums have more opportunities to observe the competitive advantages of new stadiums constructed by other teams. Thus, the following hypothesis was derived:

H_{4}: MLB teams are more likely to decide to construct a new stadium as the number of stadium construction adoption by divisional rivals increases.
Explanatory Variables Related to MLB Team’s Host Cities

**Proximity to election reflecting the motivation to innovate.** A number of policy innovation studies have focused on the motivation of public officials to adopt innovations (e.g., Berry & Berry, 1990, 1992; Mikesell, 1978; Mintrom, 1997; Walker, 1996). Of course, the primary goal of elected officials is to be reelected in the next election. This critical aspect of the political environment has made policymakers eager to show considerable achievement during their tenure, and ultimately improve their chances for reelection (Berry & Berry, 2007). Moreover, politicians gain incentives to adopt new policies at times within the election cycle that are most advantageous politically (Berry & Berry, 1992). This indicates that policymakers are eager to adopt favorable policies toward their citizens to maximize political advantages, as time until the next election decreases. Empirical research findings in policy innovations also support this assertion, especially in cases of popular policies such as lotteries (Berry & Berry, 1990).

Although there is controversy regarding the economic or noneconomic effects of construction of a stadium, both local policymakers and citizens generally do not want the team to leave the city. Accordingly, the following hypothesis was generated:

**H\textsubscript{C1}:** The closer the next city election is, the more likely city officials will decide to construct a new stadium.

**Political ideology as obstacles to innovation.** Two types of political propositions suggested by the literature on taxing and spending have been used as influential determinants of policy innovation adoption (Berry & Berry, 1992). One is the political orientation in control of government, assuming that “the greater the control of government institutions by a liberal party, the more likely a state is to adopt a new tax” (p. 719). This proposition is based on the belief that liberal parties are supportive of high taxes to inspire economic development. This proposition is applicable to policymakers’ political orientation, assuming that liberal policy makers are more inclined to be change-oriented than conservative policymakers (Moon & deLeon, 2001).

The other proposition pertains to a unified party control of government, hypothesizing that “states in which the governorship and both houses of the legislature are controlled by the same political party are more likely to adopt a tax than states in which governmental institutions...
are under divided party control, regardless of which party is in power” (Susan & Hansen, 1983, pp. 153-54). The basis for the proposition stems from the belief that a unified government can have a propulsive force by removing the need for compromise between two parties, especially in the case of the adoption of a controversial mandatory tax (Berry & Berry, 1990). However, due to data unavailability for the unified party control of government at municipal level, this proposition was not tested.

Hc2: Cities with a less liberal ideology will be less likely to decide to construct a new stadium.

City’ fiscal health as resources to overcome obstacles to innovation. As discussed in the section of firms’ innovations, slack resources reflect the capability of the potential adopter to innovate. Similar to firms’ innovation, city governments are also required to have slack resources to undertake new policies. In particular, in the case of new policies requiring major expenditures, the role of governmental slack resources is more critical for innovation. Moreover, as shown in Table 3-1, most MLB stadiums have been financed, using bonds issued by the city, and sales tax increases. Accordingly, the following hypothesis was derived:

Hc3: Cities with higher levels of fiscal health will be more likely to decide to construct a new stadium.

Regional diffusion effect. The regional diffusion mode has been widely used as a potential determinant of state policy innovations (Berry & Berry, 1990; Gray, 1973; Walker, 1969). This model posited that “states are influenced primarily by those states geographically proximate” (Berry & Berry, 2007, pp. 228-229). Both learning and competition have been used as theoretical rationales for why states emulate each other in the adoption of policies (Berry & Berry, 2007). A number of empirical findings support that the number of neighboring states that have already adopted a policy positively influences potential adopters to innovate (Berry & Berry, 1990; Mintrom, 1997; Balla, 2001). As an extension of this premise and the empirical findings, the proposed study examines the regional diffusion influence among MLB teams’ host cities. Thus, the following hypothesis is presented:
H04: Cities with more neighbors that have adopted stadium construction are more likely to decide to construct a new stadium.

**Research Design**

**Sampling and Timeframe**

The sampling frame for the proposed study included 28 MLB teams franchised in 26 cities in the United States. The Toronto Blue Jays and the San Francisco Giants were excluded in the sampling due to data unavailability for the city of Toronto and the inappropriateness, for this study, of the Giants’ 100% privately financed stadium.

As shown in Table 3-1, the timeframe for analysis was the period 1989 through 2010. The reason for the selected timeframe was that the Baltimore Orioles’ Camden Yards, decided to construct in 1989 and opened in 1992, has been evaluated as the start of the current era of professional sport facility construction constructed in terms of its innovative design and great success. Of the 28 MLB teams, 21 (75.5%) teams have built a new stadium or largely renovated their old stadiums in this timeframe.
<table>
<thead>
<tr>
<th>Team</th>
<th>City</th>
<th>Opened</th>
<th>Adoption</th>
<th>Total Cost (M)</th>
<th>Avg. Public Share (%)</th>
<th>Facility Financing by Governments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore Orioles</td>
<td>Baltimore</td>
<td>1992</td>
<td>1989</td>
<td>110</td>
<td>96</td>
<td>$137 M in lease revenue bonds and $60 M in lease revenue notes issued by the Maryland Stadium Authority</td>
</tr>
<tr>
<td>Cleveland Indians</td>
<td>Cleveland</td>
<td>1994</td>
<td>1990</td>
<td>175</td>
<td>48</td>
<td>$117 M provided by countywide sin taxes on alcohol ($3/gallon on liquor, 16 cents/gallon on beer) and cigarettes (4.5 cents/pack) for 15 years.</td>
</tr>
<tr>
<td>Texas Rangers</td>
<td>Arlington</td>
<td>1994</td>
<td>1991</td>
<td>191</td>
<td>71</td>
<td>$135 M in bonds sold by the Arlington Sports Facilities Development Authority</td>
</tr>
<tr>
<td>Colorado Rockies</td>
<td>Denver</td>
<td>1995</td>
<td>1990</td>
<td>215</td>
<td>78</td>
<td>$168 M provided by one-tenth of 1% sales tax within the six-county area surrounding Denver</td>
</tr>
<tr>
<td>Atlanta Braves</td>
<td>Atlanta</td>
<td>1996</td>
<td>1992</td>
<td>235</td>
<td>100</td>
<td>built for the 1996 Summer Olympics at a cost of $209 M.</td>
</tr>
<tr>
<td>Arizona Diamondbacks</td>
<td>Phoenix</td>
<td>1998</td>
<td>1994</td>
<td>354</td>
<td>67</td>
<td>$238 M through a .25% increase in the county sales tax from April 1995 to November 1997 and $15 M in bonds that is being paid off with stadium-generated revenue</td>
</tr>
<tr>
<td>Seattle Mariners</td>
<td>Seattle</td>
<td>1999</td>
<td>1996</td>
<td>517</td>
<td>66</td>
<td>Washington State: .017% sales tax from the sale of sports lottery scratch games ($3 M/year guaranteed) and from the sale of commemorative ballpark license plates King county: .5% sales tax on food and beverages in restaurants, taverns, and bars; 2% sales tax on rental car rates; 5% admission tax on events at the new ballpark.</td>
</tr>
<tr>
<td>Team</td>
<td>City</td>
<td>Opened</td>
<td>Adoption</td>
<td>Total Cost (M)</td>
<td>Avg. Public Share (%)</td>
<td>Facility Financing by Governments</td>
</tr>
<tr>
<td>---------------------</td>
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<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Detroit Tigers</td>
<td>Detroit</td>
<td>2000</td>
<td>1996</td>
<td>361</td>
<td>32</td>
<td>$115 M through a 2% car rental tax and a 1% hotel tax, and money from Indian casino revenue.</td>
</tr>
<tr>
<td>Houston Astros</td>
<td>Houston</td>
<td>2000</td>
<td>1996</td>
<td>265</td>
<td>68</td>
<td>$180 M provided by a 2% hotel tax and a 5% rental car tax</td>
</tr>
<tr>
<td>San Francisco Giants</td>
<td>San Francisco</td>
<td>2000</td>
<td>1997</td>
<td>325</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Milwaukee Brewers</td>
<td>Milwaukee</td>
<td>2001</td>
<td>1996</td>
<td>414</td>
<td>75</td>
<td>$310 M through a five-county, one-tenth of a percent sales tax increase</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$72 M infrastructure costs provided by the city ($18 M), the county ($18 M), and the state ($36)</td>
</tr>
<tr>
<td>Pittsburgh Pirates</td>
<td>Pittsburgh</td>
<td>2001</td>
<td>1998</td>
<td>237</td>
<td>70</td>
<td>$197 M provided by the state, county, and city as part of an $809 M sports facilities/convention center financing proposal including Heinz Field for the Steelers.</td>
</tr>
<tr>
<td>Cincinnati Reds</td>
<td>Cincinnati</td>
<td>2003</td>
<td>1996</td>
<td>291</td>
<td>96</td>
<td>$261 M through the half-percent sales tax increase approved by voters</td>
</tr>
<tr>
<td>San Diego Padres</td>
<td>San Diego</td>
<td>2004</td>
<td>1999</td>
<td>285</td>
<td>57</td>
<td>Financed through hotel taxes, $75.4 M from the City Center Development Corp., and $21 M from the Port of San Diego. An additional $171.8 million was required for land acquisition and infrastructure.</td>
</tr>
<tr>
<td>Team</td>
<td>City</td>
<td>Opened</td>
<td>Adoption</td>
<td>Total Cost (M)</td>
<td>Avg. Public Share (%)</td>
<td>Facility Financing by Governments</td>
</tr>
<tr>
<td>------------------</td>
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<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>St. Louis Cardinals</td>
<td>St. Louis</td>
<td>2006</td>
<td>2002</td>
<td>365</td>
<td>12</td>
<td>$45 M provided by St. Louis County through a long-term loan</td>
</tr>
<tr>
<td>Kansas City Royals (R)</td>
<td>Kansas City</td>
<td>2008</td>
<td>2006</td>
<td>250</td>
<td>90</td>
<td>$250 M collected through a 3/8-cent increase in the county sales tax for renovation of Kauffman Stadium</td>
</tr>
<tr>
<td>Washington Nationals</td>
<td>Washington</td>
<td>2008</td>
<td>2006</td>
<td>611</td>
<td>100</td>
<td>$611 generated by issuing bonds collected by in-stadium taxes on tickets, concessions and merchandise, and a new tax on businesses</td>
</tr>
<tr>
<td>New York Mets</td>
<td>New York City</td>
<td>2009</td>
<td>2004</td>
<td>860</td>
<td>19</td>
<td>$89.7 M provided by the City of New York and $74.7 million provided by the State of New York</td>
</tr>
<tr>
<td>Minnesota Twins</td>
<td>Minneapolis</td>
<td>2010</td>
<td>2007</td>
<td>544.4</td>
<td>72</td>
<td>$392 M raised from bonds issued by Hennepin County, which will be financed through a .15% sales tax increase</td>
</tr>
<tr>
<td>Florida Marines</td>
<td>Miami</td>
<td>2012</td>
<td>2008</td>
<td>515</td>
<td>76</td>
<td>Miami-Dade County:$347 million coming from tourist related taxes and bond money, and $12 million for road and utility repairs. City of Miami: $13 million in addition to covering the cost of land and demolition.</td>
</tr>
</tbody>
</table>

Notes:
1) Data sources from Sport Facility Report (2010)
2) R is a renovated stadium
An Event History Analysis Model of Adoption of New MLB stadium

The following equation represented the EHA model of adoption of a new MLB stadium combining these 9 hypotheses:

\[
ADOPT_{i,t} = f (b_1 OWNERTENURE_{i,t} + b_2 ATTENDANCE_{i,t-1} + b_3 LEAGUEPRESSURE_{i,t} \\
+ b_4 COMPETITOR_{i,t} + b_5 DIVISIONDIFFU_{i,t} + b_6 ELECTION_{i,t} \\
+ b_7 DEMOCRAT_{i,t} + b_8 REPUBLICAN_{i,t} + b_9 INDEPENDENT_{i,t} + \\
b_{10} INCOME_{i,t-1} + b_{11} REGIONDIFFU_{i,t})
\]

**Dependent Variable (ADOPT_{i,t})**

\(ADOPT_{i,t}\) represented the probability that team \(i\) will decide to construct a new stadium or implement a major innovation in year \(t\), measured as the year the team begins to construct. This dependent variable was a dichotomous variable, indicating whether or not a team had decided to construct or renovate a stadium during the timeframe. Thus, this variable was coded 1 if the event (decision to construct a new stadium) occurred and 0 otherwise. Data on the year of each team’s stadium construction was obtained from the Sport Facility Report (2010).

**Determinants Variables**

The determinant variables used in this study corresponded with the 9 hypotheses presented above. A specific measure of each variable with data sources was described as follows:

**Length of job tenure (OWNERTENURE_{i,t}).** \(OWNERTENURE_{i,t}\) denoted team \(i\) owners’ length of job service in year \(t\). This variable was a continuous variable and was coded in terms of the number of years owners have served over time. \(OWNERTENURE\) represents types of owner whether team Data for these variables were drawn from each MLB team website.

**MLB team’s slack resources (ATTENDANCE_{i,t-1}).** \(ATTENDANCE_{i,t-1}\) reflected MLB teams’ financial potential to construct new stadiums. This variable was measured by annual attendance percentage as a share of stadium capacity, in team \(i\) in year \(t-1\). Data for these variables were drawn from ESPN.com.

**Market competition (LEAGUEPRESSURE_{i,t}, COMPETITOR_{i,t}).** Two measures of market competition were used in the analysis. \(LEAGUEPRESSURE_{i,t}\) represented competitive pressures
from a league-wide accepted trend of construction of new stadiums. This variable was
operationalized by the cumulative number of construction projects of a new stadium over time
from 1992 in the league. On the other hand, \( COMPETITOR_{i,t} \) reflected competitive pressures
from other professional sports teams sharing the same regional market with MLB teams in terms
of metropolitan statistical areas (MSA). This variable was measured as the number of other
major sport leagues’ teams including the NFL, NBA, and NHL that MLB team \( i \) shared the same
regional market with, in year \( t \). Data for these variables were drawn from Sport Facility Report
(2010) and ESPN.com

**Divisional diffusion effects** \( (DIVISIONDIFFU_{i,t}) \). \( DIVISIONDIFFU_{i,t} \) reflected divisional
diffusion influence on the probability that a team will construct a new stadium or implement a
major innovation. This variable was measured as the number of teams previously playing with
team \( i \) in the same division that also adopted stadium construction prior to year \( t \). This variable
was input by the researcher according to the construction adoption dates of each team in terms of
its division.

**Proximity to elections** \( (ELECTION_{i,t}) \). \( ELECTION_{i,t} \) reflected the influence of city
election timing on the decision to construct or renovate a stadium. This variable was
dichotomous, taking 1 in the previous year of a city election and 0 in all other years. Data for this
variable were calculated based on the records of city elections from each city’s website and the
World Almanac.

**Political ideology** \( (DEMOCRAT_{i,t}, REPUBLICAN_{i,t}, INDEPENDENT_{i,t}) \). These three
variables were used to represent a city political condition according to the three dominant
political affiliations. These variables denoted the degree to which government institutions are
controlled by a liberal party. \( DEMOCRAT_{i,t} \) was operationalized with a dichotomous variable,
coding 1 if the mayor is a democrat and 0 otherwise. \( REPUBLICAN_{i,t} \) was operationalized with a
dichotomous variable, coding 1 if the mayor is a republican and 0 otherwise. \( INDEPENDENT_{i,t} \)
was operationalized with a dichotomous variable, coding 1 if the mayor is an independent and 0
otherwise. Data for these three variables were collected from the World Almanac and the
Municipal Year Book.

**City fiscal health** \( (INCOME_{i,t−1}) \). \( INCOME_{i,t−1} \) represented the fiscal health of each
MLB’s host city as a potential determinant of the decision to construct a new stadium. This
variable was measured by real per capita income, in city $i$ in the previous year. Data for this variable were obtained from the report by the U.S. Census, adjusted for inflation.

**Regional diffusion effect** ($\text{REGIONDIFFU}_{it}$). This variable reflected regional diffusion influence among MLB teams’ host cities in terms of the number of neighboring cities that have already constructed a stadium. This variable was measured as the number of cities in the same or neighboring states that have already adopted the construction of a new MLB stadium prior to the year of measurement (See Appendix). The variable was input according to the construction for each city.

**Data Analysis Methods**

Given the longitudinal nature of the stadium construction process, event history analysis (EHA), also commonly called survival analysis, hazard modeling, or duration analysis, was employed as the primary statistical method to test the proposed hypotheses. According to Coleman (1981), event history analysis are defined in terms of three attributes: “(1) data units (ex., individuals or organizations) move along a finite series of states; (2) at any time point, changes (events) may occur, not just at certain time points; and (3) factors influencing events are of two types, time-constant and time-dependent” (p. 1).

The usefulness of EHA for the proposed study can be derived from several advantages over traditional logistic regression techniques (Bennett, 1999; Box-Steffensmeier & Jones, 2004). First, EHA allows researchers to examine time-varying covariates (independent variables) that may change their value during the observation period. On the other hand, logistic regression approach lacks a way to incorporate time-varying covariates (Mills, 2011). For this reason, EHA makes it possible to perform a truly dynamic analysis and thus, often referred to as dynamic or process models (Mills, 2011). In this study, a set of time-varying covariates was incorporated in order to investigate their influence on the adoption of stadium construction.

Second, EHA has its ability to account for censored cases while logistic regression commonly does not consider any cases that have yet to experience the event of interests at the end of observation period, resulting in sample bias. In this study, the observation period is from 1989 and 2010, and thus there may be teams (or their host cities) that have not yet constructed a new stadium by the end of the observation, which is called a censored observation (right
censored observations in this case). By using information from both censored and uncensored observations, EHA is able to decrease the possible bias of parameter estimates.

Due to these advantages of EHA, EHA has been considered an ideal methodology for estimating the coefficients of an innovation model (Box-Steffensmeier & Jones, 2004). Moreover, it allows researchers to investigate the effects of various determinants factors on the occurrence of an event (e.g., construction of a new stadium) in a longitudinal process (Singer & Willett, 2003). This statistical approach has been widely employed in the policy innovation literature since Berry and Berry (1990) first employed it to empirically test their unified theory of policy innovation (Berry & Berry, 2007).

In this chapter, the researcher outlined the research methods used to empirically test the proposed research model incorporating perspectives of MLB teams and their host cities on stadium adoption. As outlined in Chapter 2, a variety of determinant variables have been empirically tested to examine the propensity of firms or governmental institutions to adopt innovations. Considering unavailability of data, the researcher selected important explanatory variables inflecting stadium adoption with related hypotheses. Lastly, event history analysis (EHA) was identified as a primary statistical analysis due the longitudinal nature of the stadium adoption process with descriptions of the usefulness of EHA for this study. In the next chapter, the results of this study are reported.
CHAPTER 4
RESULTS

Introduction

The primary purpose of this chapter is to provide a statistical analysis of the data used to examine the study hypotheses. First, I mathematically formalize a discrete-time event history analysis (EHA) model with explanation for important concepts in EHA. Second, results from the non-parametric EHA as a preestimation are reported to provide a snapshot of the data. Third, descriptive statistics, correlation matrix, and multicollinearity statistics are reported. Finally, results from the logit discrete-time EHA model specified to test the proposed hypotheses are then reported with interpretation of the coefficients.

Formalizing a Discrete-Time EHA Model

Before formalizing a discrete-time EHA model, important concepts in EHA should be discussed. EHA is focused on the concept of the risk set, which is “the set of individuals who are at risk of event occurrence at each point in time” (Allison, 1984, p. 16). In this study, the risk set was MLB teams and their host cities deciding upon constructing a new stadium. Another important concept is the hazard rate which is derived from risk or the risk set. The hazard rate is the fundamental quantity used to assess the risk of event occurrence (Singer & Willett, 2003). More specifically, the hazard rate (or function), often denoted by \( h(t_{ij}) \), is defined as the conditional probability that individual \( i \) will experience the event in time period \( j \), given that the individual did not experience it in any earlier time period (or is at risk at the time) (Singer & Willett, 2003).

In this study, it is the conditional probability that a MLB team and its host city will decide to construct a new stadium at time \( j \), given they have not previously decided to construct it. Thus, as teams and their cities decide to construct a new stadium, they drop out of the risk set, resulting in a decrease in the hazard rate. It should be noted the hazard rate is an unobserved variable and therefore, discrete-time EHA uses a dummy variable as the observed dependent variable, coded one when an event occurs, zero otherwise. Due to the nature of this dichotomous variable, logit or probit estimation was used and then the estimated coefficients can be transformed to odds ratio (Berry & Berry, 1990).
As a first step to formalize a discrete-time EHA model, the hazard function should be specified. The hazard function for a MLB team and its city $i$ to decide to construct a new stadium in time period $j$, given that a MLB team and its city did not decide to construct it at any time before $j$, is mathematically expressed as:

$$h(t_{ij}) = \Pr[T_i = j \mid T_i \geq j]$$ (1.1)

where $\Pr[T_i = j]$ represents the probability that a MLB team and its city $i$ will decide to construct a new stadium in time period $j$ and $\Pr[T_i \geq j]$ represents the probability that a MLB team and its city $i$ will decide to construct a new stadium before time period $j$. But because the decision to construct a new stadium is inherently conditional—the decision can be made only if it has not already been made—$T$ can be characterized by its conditional probability (Singer & Willett, 2003).

The following function indicates inclusion of covariates $x_i$ (independent variables) into the hazard function (1). It is accomplished by treating the probability of failure as conditional on survival as well as covariates:

$$h(t_{ij}) = \Pr[T_i = j \mid T_i \geq j, x_{ij}]$$ (1.2)

One of the most commonly used functions of a discrete-time EHA model is the logit function. The logit hazard function represents the effect of covariates on the hazard or risk of experiencing an event (adoption of stadium construction), which has the following form:

$$\logit[\lambda_i(t)] = \log \frac{\lambda_i(t)}{1 - \lambda_i(t)} = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_k x_{ik}$$ (1.3)

$\lambda_i$ is specified as the log-odds ratio of the probability of event occurrence (e.g., adoption of construction) to the probability of non-occurrence (non-adoption of construction). The logit coefficients, $\beta_k$, are interpreted in terms of their relationship to the log-odds of an event occurrence. When $\beta_k > 0$, it indicates the log of the odds ratio increases as the covariate
increases, and when $\beta_k < 0$ it decreases. Due to the difficulties in intuitively interpreting log-odds ratios, the predicted probability of an event occurrence is used, which has the following mathematical form:

$$
\lambda_i = \frac{e^{\beta x}}{1 - e^{\beta x}}
$$

where $\exp(\beta'x)$ represents the exponentiated logit parameters for a given covariate (Mills, 2011).

**Preestimation Results**

As preestimation, the hazard rate and cumulative hazard rate were measured to describe the overall shape of the hazard of adoption of stadium construction when there are no effects of covariates (independent variables). Figure 4-1 and Table 4-1 below presented the occurrence of events, and estimates of the empirical hazard rate of stadium construction adoption. Again, the hazard rate reflects the likelihood that the adoption of stadium construction will occur in a particular year, to a particular team, given the MLB team and its host city is still at risk of adopting construction of a new stadium.

As can be deduced from Figure 4-1 and Table 4-1, the hazard rate fluctuated throughout most of the time period under analysis. More specifically, in 1989, the start year of analysis, 28 teams and their host cities were in the risk set that did not experience the decision to construct a new stadium. Over the time period of analysis, the risk set decreased as MLB teams and their host cities decided to construct new stadiums. The hazard rate peaked in 1996 and then rapidly declined. Another peak is observed in 2006 and the rate again rapidly declined. This decline resulted from both the event process itself, whereby MLB teams were removed from analysis as they adopted stadium construction, and censoring at the end of the analysis period to account for the significant number of MLB teams that had not adopted it.
Note: Time (1 = 1989, 2 = 1990, ..., 22 = 2010)

Figure 4-1
Baseline Hazard Curve of Adoption of Stadium Construction
### Table 4-1

**Hazard Rates for Adoption of Stadium Construction**

<table>
<thead>
<tr>
<th>Year (time)</th>
<th>Teams(Cities) Adopting Stadium Construction</th>
<th>Number of Adoptions</th>
<th>Cumulative Adoptions</th>
<th>Risk Set</th>
<th>Hazard Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989 (1)</td>
<td>BAL (Baltimore)</td>
<td>1</td>
<td>1</td>
<td>28</td>
<td>0.036</td>
</tr>
<tr>
<td>1990(2)</td>
<td>CLE(Cleveland), COL (Denver)</td>
<td>2</td>
<td>3</td>
<td>27</td>
<td>0.074</td>
</tr>
<tr>
<td>1991(3)</td>
<td>TEX(Arlington)</td>
<td>1</td>
<td>4</td>
<td>25</td>
<td>0.040</td>
</tr>
<tr>
<td>1992(4)</td>
<td>ATL (Atlanta)</td>
<td>1</td>
<td>5</td>
<td>24</td>
<td>0.042</td>
</tr>
<tr>
<td>1993(5)</td>
<td></td>
<td>0</td>
<td>5</td>
<td>24</td>
<td>0.042</td>
</tr>
<tr>
<td>1994(6)</td>
<td>ARI (Phoenix)</td>
<td>1</td>
<td>6</td>
<td>23</td>
<td>0.043</td>
</tr>
<tr>
<td>1995(7)</td>
<td>CIN (Cincinnati), DET (Detroit), HOU (Houston), MIL (Milwaukee), SEA (Seattle)</td>
<td>5</td>
<td>11</td>
<td>22</td>
<td>0.227</td>
</tr>
<tr>
<td>1996(8)</td>
<td></td>
<td>0</td>
<td>11</td>
<td>22</td>
<td>0.227</td>
</tr>
<tr>
<td>1997(9)</td>
<td>PIT (Pittsburgh)</td>
<td>1</td>
<td>12</td>
<td>17</td>
<td>0.059</td>
</tr>
<tr>
<td>1999(11)</td>
<td>SDP (San Diego)</td>
<td>1</td>
<td>13</td>
<td>16</td>
<td>0.063</td>
</tr>
<tr>
<td>2000(12)</td>
<td></td>
<td>0</td>
<td>13</td>
<td>16</td>
<td>0.063</td>
</tr>
<tr>
<td>2001(13)</td>
<td>PHI (Philadelphia)</td>
<td>1</td>
<td>14</td>
<td>15</td>
<td>0.067</td>
</tr>
<tr>
<td>2002(14)</td>
<td>STL (St. Louis)</td>
<td>1</td>
<td>15</td>
<td>14</td>
<td>0.071</td>
</tr>
<tr>
<td>2003(15)</td>
<td></td>
<td>0</td>
<td>15</td>
<td>14</td>
<td>0.071</td>
</tr>
<tr>
<td>2004(16)</td>
<td>NYM (New York), NYY (New York)</td>
<td>2</td>
<td>17</td>
<td>13</td>
<td>0.154</td>
</tr>
<tr>
<td>2005(17)</td>
<td></td>
<td>0</td>
<td>17</td>
<td>13</td>
<td>0.154</td>
</tr>
<tr>
<td>2006(18)</td>
<td>KCR (Kansas City), WSN (Washington D.C.)</td>
<td>2</td>
<td>19</td>
<td>11</td>
<td>0.182</td>
</tr>
<tr>
<td>2007(19)</td>
<td>MIN (Minneapolis)</td>
<td>1</td>
<td>20</td>
<td>9</td>
<td>0.111</td>
</tr>
<tr>
<td>2008(20)</td>
<td>FLA (Miami)</td>
<td>1</td>
<td>21</td>
<td>8</td>
<td>0.125</td>
</tr>
<tr>
<td>2009(21)</td>
<td></td>
<td>0</td>
<td>21</td>
<td>8</td>
<td>0.125</td>
</tr>
<tr>
<td>2010(22)</td>
<td></td>
<td>0</td>
<td>21</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:** ARI = Arizona Diamondbacks; ATL = Atlanta Braves; BAL = Baltimore Orioles; CIN = Cincinnati Reds; CLE = Cleveland Indians; COL = Colorado Rockies; DET = Detroit Tigers; FLA = Florida Marlins; HOU = Houston Astros; KCR = Kansas City Royals; MIL = Milwaukee Brewers; MIN = Minnesota Twins; NYM = New York Mets; NYY = New York Yankees; PHI = Philadelphia Phillies; PIT = Pittsburgh Pirates; SDP = San Diego Padres; SEA = Seattle Mariners; STL = St. Louis Cardinals; TEX = Texas Rangers; WSN = Washington Nationals. Censored teams: Boston Red Sox, Chicago Cubs, Chicago White Sox, Los Angeles Angels, Los Angeles Dodgers, Oakland Athletics, Tampa Bay Rays.
Descriptive Statistics

To provide a glimpse of the data prior to performing advanced statistics, as shown in Table 4-2, the researcher presented descriptive statistics for the dependent and explanatory variables analyzed, containing 367 observations over 22 years (1989 through 2010). Descriptive statistics reported overall means and standard deviations for the observation time period and each year.

Table 4-2

Descriptive Statistics for the Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team determinants:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OWNERTENURE</td>
<td>332</td>
<td>12.67</td>
<td>10.30</td>
<td>1.00</td>
<td>43.00</td>
</tr>
<tr>
<td>ATTENDANCE</td>
<td>327</td>
<td>58.44</td>
<td>19.17</td>
<td>20.64</td>
<td>100.00</td>
</tr>
<tr>
<td>LEAGUEPRESSURE</td>
<td>367</td>
<td>11.47</td>
<td>6.44</td>
<td>2.00</td>
<td>23.00</td>
</tr>
<tr>
<td>COMPETITOR</td>
<td>367</td>
<td>3.23</td>
<td>1.96</td>
<td>1.00</td>
<td>8.00</td>
</tr>
<tr>
<td>DIVISIONDIFFU</td>
<td>367</td>
<td>1.71</td>
<td>1.30</td>
<td>0.00</td>
<td>5.00</td>
</tr>
<tr>
<td>City determinants:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELECTION</td>
<td>367</td>
<td>0.26</td>
<td>0.44</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>DEMOCRAT</td>
<td>367</td>
<td>0.73</td>
<td>0.44</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>REPUBLICAN</td>
<td>367</td>
<td>0.16</td>
<td>0.36</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>INDEPENDENT</td>
<td>367</td>
<td>0.11</td>
<td>0.32</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>INCOME</td>
<td>360</td>
<td>30437.06</td>
<td>9096.73</td>
<td>17816.00</td>
<td>62427.00</td>
</tr>
<tr>
<td>REGIONDIFFU</td>
<td>367</td>
<td>0.77</td>
<td>0.94</td>
<td>0.00</td>
<td>3.00</td>
</tr>
<tr>
<td>TIME</td>
<td>367</td>
<td>9.06</td>
<td>5.93</td>
<td>1.00</td>
<td>22.00</td>
</tr>
<tr>
<td>TIME²</td>
<td>367</td>
<td>117.18</td>
<td>127.90</td>
<td>1.00</td>
<td>484.00</td>
</tr>
<tr>
<td>TIME³</td>
<td>367</td>
<td>1791.55</td>
<td>2584.22</td>
<td>1.00</td>
<td>10648.00</td>
</tr>
</tbody>
</table>

Note. OWNERTENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUEPRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONDIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONDIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium; TIME, TIME², TIME³ = time cubic specification
Table 4-3 provides correlations between the metric variables. As shown in Table 4-3, most of the variables were significant and showed no high level of correlation but several variables were highly correlated. For example, most of the high correlations were related to time variables including TIME, TIME², and TIME³, which often occurred in using panel data. One notable high correlation was between INCOME and LEAGUEPRESSURE. However, aspects of INCOME and LEAGUEPRESSURE were totally different and there would be each variable’s specific influence on adoption of stadium construction. Thus, it remained important to consider these two variables separately.

Next, the tolerance and variance inflation factor (VIF) statistics were used to test multicollinearity. Multicollinearity between independent variables can cause convergence problems for maximum likelihood estimation in logistic regression (Cohen, Cohen, West, & Aiken, 2003). As shown in Table 4-4, most of the variables had values greater than 0.10 for the tolerance and less than 10 for the VIF, indicating no severe multicollinearity. However, several variables such as LEAGUEPRESSURE, TIME, TIME², and TIME³ had a problem with multicollinearity. Time variables were usually expected to have a problem with multicollinearity when used with time-varying independent variables (covariates) in EHA. In this study, all variables were time-varying variables. Thus, the LEAGUEPRESSURE variable was the most problematic. However, keeping this variable would provide insight into competitive pressure on MLB teams from a widely-accepted trend of stadium construction adoption in the league may drive adoption of stadium construction. Furthermore, comparison the effect of this variable with the effect of division diffusion effects would provide implications about the role of a social system and communication channels that Rogers’ (2003) innovation diffusion theory focuses on.
Table 4-3
Correlation Matrix for the Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ADOPT</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. OWNERTENURE</td>
<td>-.05</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ATTENDANCE</td>
<td>-.14</td>
<td>.08</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. LEAGUEPRESSURE</td>
<td>.07</td>
<td>-.09</td>
<td>.32</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. COMPETITOR</td>
<td>-.08</td>
<td>.22</td>
<td>.20</td>
<td>.16</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. DIVISIONDIFFU</td>
<td>.20</td>
<td>-.07</td>
<td>.37</td>
<td>.76</td>
<td>.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. ELECTION</td>
<td>.15</td>
<td>-.03</td>
<td>-.01</td>
<td>.03</td>
<td>-.01</td>
<td>.04</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>-.01</td>
<td>.03</td>
<td>-.18</td>
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<td>-.05</td>
<td>.04</td>
<td>.13</td>
<td>.40</td>
<td>.07</td>
<td>-.09</td>
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<td></td>
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<tr>
<td>10. INDEPENDENT</td>
<td>-.05</td>
<td>.08</td>
<td>-.10</td>
<td>.10</td>
<td>-.05</td>
<td>.11</td>
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<td>11. INCOME</td>
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<td>.41</td>
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<td>-.02</td>
<td>.08</td>
<td>-.07</td>
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<tr>
<td>12. REGIONDIFFU</td>
<td>.09</td>
<td>-.17</td>
<td>.24</td>
<td>.71</td>
<td>.05</td>
<td>.49</td>
<td>.03</td>
<td>-.06</td>
<td>.04</td>
<td>.03</td>
<td>.64</td>
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<td>-.09</td>
<td>.35</td>
<td>.99</td>
<td>.16</td>
<td>.74</td>
<td>.01</td>
<td>-.17</td>
<td>.12</td>
<td>.09</td>
<td>.90</td>
<td>.74</td>
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</tr>
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<td>14. TIME²</td>
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<td>.39</td>
<td>.93</td>
<td>.15</td>
<td>.69</td>
<td>.01</td>
<td>-.13</td>
<td>.09</td>
<td>.08</td>
<td>.88</td>
<td>.75</td>
<td>.97</td>
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<td>.03</td>
<td>-.11</td>
<td>.40</td>
<td>.85</td>
<td>.13</td>
<td>.63</td>
<td>.01</td>
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<td>.07</td>
<td>.06</td>
<td>.84</td>
<td>.73</td>
<td>.90</td>
<td>.98</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note.
1) * p < .05; ** p < .01; *** p < .001
2) OWNERTENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUEPRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONDIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONDIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium; TIME, TIME², TIME³ = time cubic specification
Table 4-4
Multicollinearity Statistics for the Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>OWNERTENURE</td>
<td>.851</td>
</tr>
<tr>
<td>ATTENDANCE</td>
<td>.701</td>
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<tr>
<td>LEAGUEPRESSURE</td>
<td>.019</td>
</tr>
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<td>COPETITOR</td>
<td>.578</td>
</tr>
<tr>
<td>DIVISIONDIFFU</td>
<td>.338</td>
</tr>
<tr>
<td>ELECTION</td>
<td>.960</td>
</tr>
<tr>
<td>DEMOCRAT</td>
<td>.331</td>
</tr>
<tr>
<td>REPUBLICAN</td>
<td>.375</td>
</tr>
<tr>
<td>INCOME</td>
<td>.119</td>
</tr>
<tr>
<td>REGIONDIFFU</td>
<td>.415</td>
</tr>
<tr>
<td>TIME</td>
<td>.006</td>
</tr>
<tr>
<td>TIME²</td>
<td>.002</td>
</tr>
<tr>
<td>TIME³</td>
<td>.005</td>
</tr>
</tbody>
</table>

Note. OWNERTENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUEPRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONDIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONDIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium; TIME, TIME², TIME³ = time cubic specification.

Time Specification

Prior to estimating the EHA logit model, it was necessary to specify time. As shown in Figure 4-1, it was hard to determine whether the hazard rate has a specific form of linear, quadratic, or cubic time. Thus, these three forms of time specifications were tested in order to examine which specification of time may better fit the data. Thus, as shown in Table 4-5, a series of the logit hazard regression analyses with three cumulative forms of time specifications were performed. Results showed that linear and quadratic time specifications were not significant but
cubic time specification was found to be significant. This result provided that time cubic specification would be the most appropriate fit for the model.

Table 4-5

Results from a Series of the Logit Hazard Regression Analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>Linear time specification</th>
<th>Quadratic time specification</th>
<th>Cubic time specification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>$b$</td>
<td>$b$</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.41</td>
<td>0.43</td>
<td>0.48</td>
</tr>
<tr>
<td>TIME</td>
<td>-0.59</td>
<td>-1.36*</td>
<td>-3.70***</td>
</tr>
<tr>
<td>TIME$^2$</td>
<td>0.02</td>
<td>0.21**</td>
<td></td>
</tr>
<tr>
<td>TIME$^3$</td>
<td></td>
<td>0.01*</td>
<td></td>
</tr>
<tr>
<td>OWNERTENURE</td>
<td>0.06</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td>ATTENDANCE</td>
<td>-0.10***</td>
<td>-0.10***</td>
<td>-0.11***</td>
</tr>
<tr>
<td>LEAGUEPRESSURE</td>
<td>-0.01</td>
<td>0.36</td>
<td>0.80</td>
</tr>
<tr>
<td>COMPETITOR</td>
<td>-0.47*</td>
<td>-0.44*</td>
<td>-0.54*</td>
</tr>
<tr>
<td>DIVISIONDIFFU</td>
<td>2.10***</td>
<td>2.13***</td>
<td>2.32***</td>
</tr>
<tr>
<td>ELECTION</td>
<td>1.04</td>
<td>1.02</td>
<td>1.42*</td>
</tr>
<tr>
<td>DEMOCRAT</td>
<td>1.55</td>
<td>2.13</td>
<td>2.91</td>
</tr>
<tr>
<td>REPUBLICAN</td>
<td>2.86</td>
<td>3.72</td>
<td>4.86*</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.00*</td>
<td>0.00*</td>
<td>0.00*</td>
</tr>
<tr>
<td>REGIONDIFFU</td>
<td>1.51*</td>
<td>1.41*</td>
<td>1.45*</td>
</tr>
<tr>
<td>Intercept</td>
<td>-5.65</td>
<td>-5.29</td>
<td>-5.29</td>
</tr>
</tbody>
</table>

Note.
1) * $p<.05$; ** $p<.01$; *** $p<.001$
2) STATA automatically omitted INDEPENDENT because of collinearity
3) OWNERTENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUEPRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONDIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONDIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium.
Results from the Logit Hazard Regression Analysis

Overall, considering the observed time period (22 years) and the number of MLB teams and their cities adopting construction of a new stadium, the proposed model supported most hypotheses with a high Pseudo $R^2$ value of 0.48. This indicated that 48 percent of the variance was explained by the proposed model, corresponding to Cohen’s guidelines of large effect size (Cohen, Cohen, West & Aiken, 2003). The chi-square ($70.17, p < .001$) indicated the model fit the data significantly better than the model only with the intercept.

Explanatory variables (hypotheses) reflecting a MLB team perspective.

Five MLB teams’ conditions (explanatory variables) were hypothesized to increase the likelihood of the adoption of stadium construction. Of the five variables, as reported in Table 4-6, the ATTENDANCE, COMPETITOR, and DIVISIONDIFFU variables were found to be statistically significant factors in MLB teams and their host cities’ adoption of stadium construction. Comparatively, OWNERTENURE and LEAGUEPRESURE were not. The specific results were presented as follows:

Length of job tenure (OWNERTENURE). It was hypothesized that team owners new to their position and to management were more likely to decide to construct new stadiums than owners with longer tenure. As reported in Table 4-6, the coefficient on the OWNERTENURE was a positive 0.06 with a standard error of 0.04 but found to be not statistically significant at the $p > .05$ level. Thus, this result did not support Hypothesis T1, indicating an insignificant association with stadium construction adoption.

Organizational resources (ATTENDANCE). The coefficient for the organizational slack resources variable measured as teams’ annual percentage as a share of stadium capacity was -0.11, with a 95% confidence interval bounded by -0.17 and -0.05, indicating statistical significance at the $p < .001$ level. Results indicated MLB teams with a lower level of financial capacity were more likely to decide to construct a new stadium, bringing an opposite direction of the association against Hypothesis T2. As reported in Table 4-6, conversion of the ATTENDANCE log odds coefficient to an odds ratio (0.89) indicated a one unit increase in attendance percentage decreased the odds of stadium construction adoption by a factor of 0.89, controlling for other variables. Stated in percentages and more intuitively, the chance to adopt
stadium construction was lowered by 10.64%, which is calculated as 100*[exp (-0.11) -1] (Mills, 2011), for a one-unit increases in teams’ annual attendance percentage.

**Market competition** (LEAGUEPRESSURE, COMPETITOR). Two variables (hypotheses) were used to test market competition: 1) competitive pressures from a league-wide accepted trend of the adoption of stadium construction in MLB, and 2) competitive pressures from other professional sports teams sharing the same regional market with MLB teams in terms of MSA. The coefficient for the LEAGUEPRESSURE variable was 0.80, with a standard error of 0.47 but found to be not statically significant at the $p > .05$ level, indicating no support for Hypothesis T3a.

On the other hand, the COMPETITOR variable was statistically significant at the $p< .05$, but negative, indicating the opposite direction of the relationship with the adoption of stadium construction. This result indicated MLB teams with a small number of sports teams from other major leagues in the same MSA were more likely to decide to construct a new stadium than those with a large number of sports teams from other major leagues. Conversion of the COMPETITOR log odds coefficient to an odds ratio (0.58) indicated for every unit increase in the number of competitors, the odds of deciding to construct a new stadium decreased by 0.58, holding all other variables constant. Stated in percentages and more intuitively, the probability to adopt stadium construction was lowered by 41.71%, which was calculated as 100*[exp (-0.54) -1] (Mills, 2011), as one unit increases in the number of competitors.

**Divisional diffusion effects** (DIVISIONDIFFU). It was hypothesized that as the number of MLB teams in the same division decided to construct a new stadium increased, MLB teams were more likely to decide to construct a new stadium. The coefficient for the DIVISIONDIFF variable was 2.32, with a standard error of 0.55 and was found to be positively significant at the $p < .001$ level. Thus, this result was consistent with Hypothesis T4. Conversion of the DIVISIONDIFFU log odds coefficient to an odds ratio (10.18) indicated for every unit increase in the number of MLB teams adopting stadium construction in the same division, the odds of deciding to construct a new stadium increased by 10.18, holding all other variables constant. Stated in percentages and more intuitively, the probability to adopt stadium construction was lifted by 918.18%, which was calculated as 100*[exp (2.32) -1] (Mills, 2011), for one unit increase in the number of MLB teams adopting previously in the same division.
Explanatory variables (hypotheses) reflecting a city government perspective

Four city conditions were hypothesized to reflect a city government perspective on adoption of stadium construction. Of the hypotheses (explanatory variables), ELECTION, REPUBLICAN, INCOME, AND REGIONDIFFU were found to be statically significant but DEMOCRAT and INDEPENDENT were not. Specific results were presented as follows.

Proximity to election (ELECTION). It was hypothesized the closer the next election, the more likely city officials were to decide to construct a new stadium, focusing on the influence of election timing on the decision. The coefficient for the ELECTION variable was 1.42, with a standard error of 0.67 and was found to be positively significant at the at the $p < .05$ level, supporting Hypothesis C1. As expected, the significant positive coefficient for the ELECTION variable implied the decision to construct a new stadium was most likely in the previous year of a mayoral election than in other years. Conversion of the ELECTION log odds coefficient to an odds ratio (4.15) indicated the odds of the decision to construct a new stadium are 4.15 times higher for the previous year of a mayoral election in comparison to other years in the election cycle.

Political ideology (DEMOCRAT, REPUBLICAN, INDEPENDENT). To present a city political condition, it was hypothesized that cities with a less liberal ideology were less likely to decide to construct a new stadium, operationalized with three dummy variables according to the three dominant political affiliations (i.e., Democrat, Republican, and Independent). Interestingly, of these three variables, only the REPUBLICAN variable was statistically significant and positive, not supporting Hypothesis C2. This result indicated cities with a republican mayor were more likely to decide to construct a new stadium than cities with a democrat or independent mayor. Conversion of the REPUBLICAN log odds coefficient to an odds ratio (129.15) indicated the odds of deciding to construct a new stadium are 129.15 times higher for cities with republican mayors than those with democrat or independent mayors.

City’s fiscal health (INCOME). It was hypothesized that cities with higher levels of fiscal health measured as per capita income were more likely to construct a new stadium. The coefficient for the INCOME variable was 0.00, with a standard error of 0.00 and was found to be positively significant at the at the $p < .05$ level, supporting Hypothesis C3. Conversion of the INCOME log odds coefficient to an odds ratio (1.00) indicated for every unit increase in per capita income, the odds of deciding to construct a new stadium increased by 1.00, holding all
other variables constant. Stated in percentages and more intuitively, the probability to adopt
stadium construction was lifted by 0.02%, which is calculated as $100\times[\exp (0.00) - 1]$ (Mills, 2011), as one unit increases in per capita income.

**Regional diffusion effects** (REGIONDIFFU). This variable was utilized to assess the
impact of regional diffusion among MLB teams’ host cities in terms of the number of contiguous
neighboring MLB cities that have already constructed a new stadium. The coefficient for the
regional diffusion variable was 1.45, with a 95% confidence interval bounded by 0.07 and 2.83,
indicating a statistically significant relationship with the adoption of stadium construction at the
$p < .05$ level. This result was consistent with Hypothesis C4, which presumed diffusion
pressures would positively influence policy adoption as policymakers drew affirming lessons
from their neighboring cities that had previously adopted the policy.

Conversion of the REGIONDIFFU log odds coefficient to an odds ratio (4.28) indicated
for every unit increase in the number of contiguous neighboring MLB cities having already
adopted stadium construction, the odds of deciding to construct a new stadium increased by 4.28,
holding all other variables constant. Stated in percentages and more intuitively, the chance to
adopt stadium construction was increased 328.41%, which was calculated as $100\times[\exp (1.45) - 1]$ (Mills, 2011), for a one-unit increase in the number of contiguous neighboring MLB cities
having already adopted stadium construction.
Table 4-6
Results from the EHA Logit Hazard Modeling

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (Log odds)</th>
<th>SD</th>
<th>Odds ratio</th>
<th>Z</th>
<th>p-value</th>
<th>95% conf. interval</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OWNERTENURE</td>
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<td>0.04</td>
<td>1.06</td>
<td>1.43</td>
<td>0.15</td>
<td>-0.02</td>
</tr>
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<td>0.89</td>
<td>-3.83</td>
<td>0.00</td>
<td>-0.17</td>
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<td>0.00</td>
<td>1.24</td>
</tr>
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<td>3.40</td>
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</tr>
<tr>
<td>ELECTION</td>
<td>1.42*</td>
<td>0.67</td>
<td>4.15</td>
<td>2.11</td>
<td>0.03</td>
<td>0.10</td>
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<td>-0.88</td>
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<td>129.15</td>
<td>2.28</td>
<td>0.02</td>
<td>0.68</td>
</tr>
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<td>1.97</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>REGIONDIFFU</td>
<td>1.45*</td>
<td>0.71</td>
<td>4.28</td>
<td>2.06</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>TIME</td>
<td>-3.70***</td>
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<td>-2.89</td>
<td>0.00</td>
<td>-6.23</td>
</tr>
<tr>
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<td>0.21**</td>
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<td>0.05</td>
</tr>
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<td>TIME³</td>
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<td>0.99</td>
<td>-2.26</td>
<td>0.02</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

Note.
1) * p < .05; ** p < .01; *** p < .001
2) STATA automatically omitted INDEPENDENT because of collinearity
3) OWNERTENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUEPRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONDIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONDIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium; TIME, TIME², TIME³ = time cubic specification.
In this chapter, the results from the event history analysis logit hazard modeling indicated the proposed research model supported most hypotheses with a high Pseudo $R^2$ value of 0.48. Considering the observed time period (22 years) and the number of the stadium adoptions (21 adoptions), the support for the research model was strong. More specifically, of the five MLB teams’ explanatory variables, the ATTENDANCE, COMPETITOR, and DIVISIONDIFFU variables were found to be statistically significant factors in the adoption of stadium construction. Comparatively, OWNERTENURE and LEAGUEPRESURE were not. Meanwhile, of the six city governments’ explanatory variables used to test four hypotheses, ELECTION, REPUBLICAN, INCOME, AND REGIONDIFFU were found to be statically significant while DEMOCRAT and INDEPENDENT were not.

In the next chapter, the study findings from the results are discussed. Implications and contributions to scholarship and practice, limitations, and recommendations for future research directions are presented as well.
CHAPTER 5
DISCUSSION

Introduction

The purpose of this chapter is to discuss the study findings and the chapter is divided into several sections. First, a discussion of the findings in relation to each of the research hypotheses is provided. Second, the theoretical and practical implications are discussed, along with the study’s contributions to scholarly understanding and professional practice. Third, the limitations of the study as well as recommendations for future research directions are presented. Lastly, this chapter concludes with a brief summary of the research findings and a recap of the contributions this study makes to the extant sport and economic literatures.

Discussion of Findings

The researcher investigated what factors or conditions drive MLB teams and their host cities to decide to construct a new stadium by integrating two research models: the firms’ innovation model and the policy innovation model. More specifically, the current study provided empirical evidence the probability of deciding to construct a new stadium was influenced by a proposed set of selected explanatory variables relative to MLB teams’ conditions and their host cities’ conditions. The following sections include a discussion of the research findings relative to MLB teams’ conditions as well as relative to their host cities’ conditions. Both sections were guided by the proposed theoretical framework (see Figure 2-5).
Table 5-1
Summary of Findings by Variables (Hypotheses)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$b$</th>
<th>Findings</th>
<th>Direction of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expected</td>
</tr>
<tr>
<td><strong>Team determinants:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OWNER TENURE ($H_{T1}$)</td>
<td>0.06</td>
<td>Nonsignificant</td>
<td>–</td>
</tr>
<tr>
<td>ATTENDANCE ($H_{T2}$)</td>
<td>-0.11</td>
<td>Significant</td>
<td>+</td>
</tr>
<tr>
<td>LEAGUE PRESSURE ($H_{T3a}$)</td>
<td>0.80</td>
<td>Nonsignificant</td>
<td>+</td>
</tr>
<tr>
<td>COMPETITOR ($H_{T3b}$)</td>
<td>-0.54</td>
<td>Significant</td>
<td>+</td>
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<tr>
<td>DIVISIONAL DIFFU ($H_{T4}$)</td>
<td>2.32</td>
<td>Significant</td>
<td>+</td>
</tr>
<tr>
<td><strong>City determinants:</strong></td>
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<td></td>
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<tr>
<td>ELECTION ($H_{C1}$)</td>
<td>1.42</td>
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<td>+</td>
</tr>
<tr>
<td>DEMOCRAT ($H_{C2}$)</td>
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<td>REPUBLICAN ($H_{C2}$)</td>
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<td>+</td>
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<tr>
<td>REGIONAL DIFFU ($H_{C3}$)</td>
<td>1.45</td>
<td>Significant</td>
<td>+</td>
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</tbody>
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Note.

1) STATA automatically omitted INDEPENDENT because of collinearity
2) OWNER TENURE = MLB team owners’ length of job service; ATTENDANCE = attendance percentage as a share of stadium capacity; LEAGUE PRESSURE = the cumulative number of adoption of stadium construction in the league; COMPETITOR = the number of other professional sports teams sharing the same regional market with MLB teams in terms of MSA; DIVISIONAL DIFFU = the number of MLB teams in the same division that have decided to construct a new stadium; ELECTION = proximity to elections; DEMOCRAT = democrat mayor; REPUBLICAN = republican mayor; INCOME = city’s per capita income; REGIONAL DIFFU = the number of contiguous neighboring MLB cities that have already constructed a new stadium; TIME, TIME$^2$, TIME$^3$ = time cubic specification

Findings from a MLB team perspective

The firms’ innovation adoption model was part of the proposed theoretical framework guiding this study. This model included four categories of determinant factors: (a) individual (length of job tenure), (b) organizational (slack resources), (c) environmental (competitive pressures from a league-wide accepted trend of adoption of stadium construction and from other professional leagues’ teams), and (d) a diffusion effect (divisional diffusion effects). Each category of factors was tested in order to reflect a MLB team’s perspective on the adoption of stadium construction.
Length of job tenure as the individual determinant (OWNERTENURE). As a category of individual determinants in the firms’ innovation model, length of MLB owners’ job tenure was tested. It was hypothesized that owners new to their position and to management were more likely to adopt stadium construction than owners with longer tenure. Empirical results of analysis did not support this hypothesis. Although this result conflicted with the research hypothesis, it was not unexpected because there was no consensus on this topic in the extant firms’ innovation literature. Indeed, as mentioned in Chapter 2, there have been mixed results reported about the impact of job tenure status on the adoption of stadium construction. For example, Damanpour’s (1991) meta-analysis, Kimberly and Evanisko (1981), and Rao & Drazin (2002) each found no relationship between managerial tenure and firms’ innovation adoption. Furthermore, Vincent et al.’s (2004) contemporary meta-analysis from 83 empirical studies from the period of 1980 through 2003 showed a correlation of zero. Thus, this result confirmed the limited prior research findings on the insignificant influence of the length of job tenure on firms’ innovation adoption.

One possible explanation for this result can be addressed by answering the following question: Who is a leading stakeholder in the decision process of stadium construction? The current study assumed the owner’s role was dominant in deciding to construct a new stadium because the owner of a sport team is usually the final decision-maker. Thus, the owner’s length of job tenure was hypothesized to be influential to innovation adoption. Yet, in the literature about firms’ innovation adoption, a number of studies have also focused on top executives’ job tenure, such as presidents and managers, rather than firm owners (e.g., Ancona & Caldwell, 1992; Bharadwaj & Menon, 2000; Boeker, 1997; Campbell, 1993; Davila, 2003; Ibarra, 1993; Kahn & Manopichertwatana, 1989; Kimberly & Evanisko, 1981; Meyer & Goes, 1988; Rao & Drazin, 2002; Scott & Bruce, 1994; van Riel, Lemmink, & Ouwersloot, 2004). The use of top executives’ tenure may indicate who is a more influential person in business decisions, regardless of the fact he or she is not the final decision-maker. In the context of MLB, a president is typically more involved in business management than general managers and therefore, in the process of stadium construction, a MLB team president may be more influential than any other management personnel, including owners and general managers.

Organizational resources (slack resources) as the organizational determinant (ATTENDANCE). The negative influence of home attendance percentage on the probability to
adopt stadium construction indicated that MLB teams’ financial capabilities lowered the probability of innovation adoption. This finding lends weight to the assumption that MLB teams use the construction of a new stadium as a springboard to boost team revenues from attendance increases as well as increases in supplemental revenues (e.g., parking and concessions). In other words, low attendance percentage may conversely inspire teams to construct a new stadium because of its expected revenue streams. In fact, the attendance demand literature has discussed the possibility that new facilities attract fans, with a number of researchers labeling this phenomenon as a “honeymoon” or “novelty effect” (McEvoy, Nagel, & DeSchriver, 2005). Indeed, several studies have included evidence of new stadiums having a positive impact on MLB attendance demand (Clapp & Hakes, 2005; Coates & Humphreys, 2005; McEvoy et al., 2005; Zygmont & Leadley, 2005). Of note, in Coates and Humphreys’ (2005) estimation of novelty effects for three professional sport leagues (i.e., MLB, NFL, and NBA), MLB was found to be most strongly impacted by the construction of new stadiums.

This position was plausible because MLB teams usually received a long-term loan to cover construction costs. The long-term loan indicated there was no need to allocate a large amount of financial resources for construction in the short-term. Thus, from a long-term perspective, MLB teams may believe higher revenues generated from the new facility will eventually offset the high construction costs.

Another possible explanation for the negative effect of organizational slack resources (measured as attendance percentage) was how this concept is measured. As previously mentioned in Chapter 2 organizational slack resources were usually measured by financial indicators, which, in the case of MLB teams, were not available to the public. These factors included a firm’s return on assets, quick ratio, income relative to sales, and/or cash flow. Thus, a measure of annual attendance percentage as a share of stadium capacity may not reflect the MLB teams’ actual financial capability.

**Market competition as the environmental determinant** (LEAGUEPRESSURE, COMPETITOR). Two types of market competition were tested: competitive pressure from a league-wide accepted trend of new stadium construction and competitive pressure from other leagues’ teams sharing franchises with MLB teams in terms of MSA. Interestingly, the league pressure measured with the cumulative number of stadium construction adoption in the league was not found to significantly influence adoption of stadium construction. This finding indicated
MLB teams did not have pressure from a league-wide accepted trend of stadium construction adoption.

There may be two possible explanations for this finding. One was that the perception of “new” stadiums may have been diluted over time. The timeframe used in the current study was 22 years (1989 through 2010). Thus, as time goes, MLB teams that have not adopted stadium construction may not regard early constructions as “new” stadiums. In other words, the number of adoptions over time in the league has not been accumulated from the perspective of MLB teams not adopting stadium construction. Accordingly, the long period may dilute pressure from a league-wide accepted trend of stadium construction adoption by weakening the recognition about “new” stadiums. Moreover, as shown in Table 4-1, the number of teams adopting construction of a new stadium was evenly distributed except for the year of 1996 when 6 teams adopted new stadiums. The second explanation for this result may pertain to a divisional effect. This explanation will be discussed in detail in the next subsection by comparing with a significant positive influence of a divisional diffusion effect.

Competitive pressure generated from rivalry against other professional sports teams sharing the same regional market in terms of MSA was found to negatively influence the adoption. A possible implication from this result may be in relation to the cities’ limited availability to accept all professional teams’ construction proposals in the cities. Therefore, if MLB teams are located in cities with fewer other professional sports teams, there may have an increased likelihood of new stadium adoption when compared to cities with a greater number of professional sport teams.

**Divisional diffusion effects** (DIVISIONDIFFU). Of the variables linked to MLB teams, the divisional diffusion effect variable was found to most strongly influence the adoption of new stadium construction. This result supported the notion that network externalities were more influential to facilitate innovation adoption when there are active inter-organizational relationships. Thus, it can be concluded that most active inter-organizational relationships occur within the teams in the same division.

This result also provided interesting findings when compared to the insignificant effect of market pressure generated from a league-wide accepted trend of construction adoption. As mentioned in Chapter 2, Rogers’ (2003) innovation diffusion theory focuses on the role of a social system and communication channels by stating all diffusion occurs within a social system.
This indicated active communication with network partners was a main driver of innovation diffusion. The contradictory results of the league pressure and divisional diffusions may be the product of different degrees of pressures in terms of which social system or communication networks MLB teams more heavily rely.

For example, under the MLB league representing a large social system, an increased number of the adoption of stadium construction may not generate sizeable social bandwagon pressure to conform. Meanwhile, under the division representing a smaller social system, an increased number of the adoption of stadium construction in the same division may reinforce the bandwagon pressure among potential divisional rivals (Abrahamson & Rosenkopf, 1997). In other words, to potential adopters, it may be less important which teams have adopted stadium construction in the MLB league and more important to which teams have adopted stadium construction in the same division. Indeed, in a regular business market, competence of rival firms increases the likelihood of innovation adoption (Athreye, 2000). Moreover, as Rogers (2003) stressed, the different degrees of communications generated as a result of which social system (the league vs. the division) MLB teams are located may result in the contradictory findings of league pressure and divisional diffusions.

Findings from a city perspective on adoption of stadium construction

As the other part of the proposed research model, Berry and Berry’s (1990) unified model of policy innovation was applied to investigate the explanatory variables (conditions) influencing stadium construction adoption by the local government of a MLB host city. Four city conditions were hypothesized to reflect a city government perspective on the adoption of stadium construction. Results of the statistical analysis indicated the variables of ELECTION, REPUBLICAN, INCOME, and REGIONDIFFU were positively related to an increase in the probability of stadium construction adoption.

Proximity to election (ELECTION). As the motivation of public officials to adopt innovations, proximity to mayoral election was used. The positive influence of proximity to election on adoption of new stadium construction supported previous evidence that policy makers were eager to adopt favorable policies to maximize political advantages in proximity to election (Berry & Berry, 1990). However, according to Berry and Berry (1992), in cases of adoption taxing and spending policies, these policies are most likely to be adopted in a year
immediately following elections. This position by Berry and Berry (1992) is grounded in the assumption the general public will forget the government’s unpopular action before the next election. Empirical findings from several studies supported this logic (e.g., Ashworth, Geys, & Heyndels, 2006; Berry & Berry, 1992; Mikesell, 1978; Poterba, 1994, Royed & Borelli, 1999; Tuft, 1978; Yoo,1998).

One possible explanation for this finding may stem from public officials’ perceptions about the consequences of stadium construction adoption. When evaluating both outcomes of the adoption and non-adoption, public officials may think that political advantages from the adoption can overcome taxpayer resistance. In other words, political disadvantages from the possible movement of the franchise caused by the non-adoption may outweigh political disadvantages from taxpayer resistance caused by the adoption.

**Political ideology** (DEMOCRAT, REPUBLICAN, INDEPENDENT). To represent a city’s political condition, the political orientation of a city’s mayor was operationalized with three dummy variables according to the three dominant political affiliations (i.e., Democrat, Republican, and Independent). Interestingly, only the Republican variable was statistically significant and positive. Furthermore, the magnitude of the effect was noteworthy ($b = 4.86$). This result suggested city governments with a republican mayor were more likely to adopt stadium construction than those with other political orientation. Considering the number of observations in terms of the political orientation (269 democrats, 57 republicans, and 41 independents), the effect was surprising. This result was inconsistent with prior findings that a liberal public official may favor higher taxes as a means to inspire economic development.

One possible explanation for this result was that although a major resource for construction of a new stadium is from higher taxes (e.g., property, sales taxes), political partisanship was not applicable to policy adoption at the local level. In fact, many policy adoption studies have examined state-level policy. Thus, a state governor’s political affiliation was considered to test the ideology proposition. Furthermore, according to Ferreira and Gyourko (2009), a mayor’s political partisanship, whether he or she is a democrat or a republican, does not influence the allocation of local public spending. Although this study did not directly investigate specific policy adoption in terms of a mayor’s political partisanship, this study’s findings show a lack of partisan impact at the local level.
City’s fiscal health (INCOME). The positive influence of a city’s fiscal capacity on the adoption of stadium construction supported a traditional view that higher levels of fiscal capacity increased the likelihood of adopting innovative policies (Berry & Berry, 2007; Bevia & Iturbe-Ormaetxe, 2002; Mooney & Lee, 1995; & Menendez, 2002; Walker, 1969). However, considering a value of the coefficient (.0001), the influence of city’s fiscal capacity is negligible on adoption of stadium construction. In other words, this finding may suggest that a city’s fiscal capacity is not a major consideration in deciding to adopt stadium construction.

One explanation for this result was that a major resource for construction comes from an increased in tax over a long time period. Thus in similarity to MLB teams, city governments may not feel pressure to allocate a large amount of budget resources for construction of a new stadium in the short-term. This payment method may provide city governments with an acceptable tolerance for stadium financing, meaning city governments’ fiscal capacities are less critical in deciding whether or not a new stadium should be constructed.

Regional diffusion effects (REGIONDIFFU). Results indicated that as the number of contiguous neighboring cities that previously adopted new stadium construction increases, the likelihood of the adoption increases. This result provided a strong confirmation of extant literature about the general diffusion pattern associated with regional partners (Grossback, Nicholson-Crotty, & Peterson, 2004). In short, policy adoptions by neighboring states provided critical information about the value of policies. This information reduced the uncertainty of success in the policies to the deciding state (Berry & Berry, 1990). Findings from this result also extended the proposed theoretical rationales for regional diffusion effects to local level governments.

Implications and Contributions

Theoretical Implications and Contributions

As a preliminary attempt to investigate innovation adoption and diffusion in MLB, one marked contribution of the current study was the integration of firms’ innovation model with the unified theory of policy innovation. The current study was a first attempt to integrate the firms’ innovation model into the governments’ innovation model in order to explain what factors or conditions drive MLB teams and their host city governments to adopt stadium construction. For the firms’ innovation model reflecting the perspective of MLB teams, the current study
employed Kimberly and Evanisko’s (1981) research model consisting of three primary categories of determinants. For the governments’ innovation model reflecting the perspective of MLB teams’ host cities, the current study used Berry and Berry’s (1990) unified theory of policy innovation. The unique nature of stadium construction involving both teams and their host cities made it possible to integrate each party’s innovation model in order to reflect each party’s conditions influencing the adoption of stadium construction. Overall, research evidence found that 48% of the variance was explained by the proposed model, indicating a successful integration of these two models. Thus, the current study advances the current literature by providing an integrative innovation model reflecting both private and public sectors.

 Secondly, this study offered strong empirical evidence for the appliability of the concepts of innovation diffusion in the context of sports. Although the topic of innovation diffusion has yielded a voluminous library of research across a number of disciplines, insufficient empirical attention has been directed toward the concepts of innovation diffusion in the context of sports. In fact, past stadium financing literature on sport management has primarily investigated the economic impacts of stadium construction to provide justifications for public subsidy. The current study demonstrated the diffusion effects operationalized as divisional diffusion for MLB teams and regional diffusion for their host cities. Furthermore, the magnitudes of the reported effects were found to be stronger than other significant variables, indicating they had an important role in the adoption of stadium construction. Therefore, the current investigation made a significant contribution to the sport management literature by demonstrating the concept of innovation diffusion was pertinent to researchers seeking to have a thorough understanding of stadium construction.

 Third, much of the previous literature on policy adoption has focused on state-level policies, rather than local-level in the U.S. As one part of the research model, the current study applied Berry and Berry’s (1990) unified model of policy innovation for state governments to local governments’ innovation adoption. In terms of the number of significant variables, the current study demonstrated the applicability of Berry and Berry’s model to a local government level. Accordingly, this study contributed to the sport and economic literatures as well as the policy innovation literature by expanding the scope of policy innovation diffusion to include local governments.
Lastly, a successful application of Event History Analysis in the study provided methodological insights for analysis of the proposed research model. All told, minimal attention has been paid to this statistical analysis in the area of sport management. The successful execution of EHA in this study laid foundation for future application of this distinct data analysis approach to sport-based studies.

**Practical Implications and Contributions**

The findings from the current study provided useful information about several ways to increase the likelihood of stadium construction adoption. In particular, the findings linked to city governments’ conditions provided MLB teams with useful information about how they can more effectively develop acceptance strategies.

For example, the empirical evidence of the significant effect of election timing provided MLB teams with the importance of timing for MLB teams’ stadium construction proposals. The empirical evidence that city governments are more likely to construct a new stadium in the previous year of a mayoral election than other years in the election cycle provided key information for MLB teams about when they should submit a stadium construction proposal to a city government. Additionally, by making an issue of new stadium construction in proximity to an election, MLB teams may be able to pressure their host cities to adopt the construction proposal or reach a final agreement for stadium construction at some point in the future.

Also, the significant effect of regional diffusion provided MLB teams with information about when MLB teams should initiate their stadium construction plan. This finding indicated MLB cities sought critical information and reduced uncertainty by referring to the adoption of stadium construction by their neighboring MLB cities (i.e., those cities already adopting new stadium construction). Thus, by referring to how many neighboring cities adopt construction of a new stadium, MLB teams may be able to better determine when their construction plan should be initiated.

Meanwhile, for city officials, the significant influence of proximity to election provided useful information about the timing of adoption of stadium construction. Prior empirical studies have consistently found that elected public officials adopt favorable policies as the next election is closer. Therefore, this finding offered city officials considering the adoption of stadium
construction with an effective campaign strategy to maximize political gains generated from the adoption.

Limitations and Future Research Direction

There were several limitations influencing the results of the current study. The first limitation pertained to issues about the measurement of variables. One issue was in relation to a measure of the decision to construct a new stadium; this specified measure was used as a dependent variable. Generally, there were two different decision processes to adopt stadium construction in city governments (see Table 5-2). One was to hold a referendum and the other was to reach a final agreement between the city government and the team in terms of the negotiation process. The current study used the year when the referendum was approved for MLB cities holding a referendum. For cities not holding a referendum, the year when teams and their host cities reached a final agreement was used as a dependent variable. Although this operationalization seemed to be reasonable, the use of two different measures for stadium adoption might impact the results of the study.

Second, even though the proposed model explained approximately half (48%) of the variance, another limitation might be the omission of important variables as well as failure to use more elaborate measures of the explanatory variables used in the study. For example, in the category of individual determinants in firm’s innovation, decision-makers or executives’ attitudes toward innovation (referred as openness to change) was considered to be one of the important factors influencing organizational adoption. Meanwhile, in the category of organizational determinants, organizational structure, represented as organizational complexity and bureaucratic control, has received the most attention of any determinants in the organizational innovation literature (Kimberly & Evanisko, 1981; King, 1990; Wolfe, 1994). For MLB teams’ fiscal capacity measured as attendance percentage as a share of stadium capacity, future research should find an alternative measure of this variable to accurately reflect a team’s fiscal capacity to construct a new stadium.

There may also be omitted variables linked to city governments. The current study focused on the role of city governments on adoption of stadium construction. However, state governments’ roles should also be considered due to the aspects of their hierarchical administrative relationships. Indeed, several MLB cities (e.g., Seattle, Milwaukee, Philadelphia,
and New York) that adopted stadium construction gained assistance from their state government. Even though this study assumed the role of city government is critical, a state government perspective also should be considered by adding state-level variables to the research model. Thus, a potential extension of this study would be identifying state-level variables influencing the adoption of stadium construction.

A third limitation of the current study was associated with two different municipal government types. Several studies have pointed out the differences between the mayor-council government and the council-manager government, which are two predominant forms of municipal government (e.g., Moon & deLeon, 2001; Svara, 1990). As reported in Table 5-2, while a majority of MLB cities were the mayor-council government type, several cities selected the council-manager government type. Major differences in these two types of municipal government are concerned with decision-making options. In other words, who is the primary decision-maker? For example, the elected council tends to lead to policy decision in the council-manager government whereas the elected mayor plays a major role in policy decision in the mayor-council government. Although this study used elected public officials’ motivation, including mayor and council members (measured as the proximity to election), there may be different perspectives on stadium construction in terms of the government type. Additionally, several studies have maintained that managerial reform and innovation are more receptive in the council-manager government due to its co-operative nature than in the mayor-council government (Holden et al., 2003; Moon & deLeon, 2001; Norris & Campillo, 2000; Savra, 1990).

A fourth limitation was the current study was solely focused on the investigation of significant factors influencing adoption of stadium construction in the decision stage of the innovation-decision process. Rogers (2003) conceptualized five stages of the innovation-decision process: 1) first knowledge of the innovation, 2) persuasion reflected as an attitude toward the innovation, 3) a decision to adopt or reject, 4) implementation of a new idea, and 5) confirmation of this decision. However, it is highly likely there are different influential factors and/or different levels of importance assigned to each of factor influencing innovation adoption during various stages in the innovation adoption process. As a result, it would be beneficial to examine the influence of various factors at each stage in the process in future studies, especially at the implementation stage because this stage represents the completion of new stadium construction.
Fifth, the proposed research model integrating MLB teams and city governments perspectives on adoption of stadium construction should be tested using other professional leagues’ (i.e., NFL, NBA, NFL, and MLS) and colleges’ stadium construction. Replication of the proposed research model in other sport leagues is needed to validate the empirical results of the study. Moreover, due to the unique aspects of each league, there may be different salient factors influencing the adoption of stadium construction. Thus, future investigations should consider identifying and empirically testing influential factors reflecting the distinct aspect of each professional sport league in the U.S.

A final limitation of the current study was the researcher did not differentiate how the salience of factors changes over time. Once again, Rogers (2003) suggested five categories of adopters consisting of 1) innovator, 2) early adopters, 3) early majority, 4) late majority, and 5) laggard in terms of members’ innovativeness. It can be assumed, in terms of each category of adopters representing the phases of diffusion, there will be changes in the salience of factors as diffusion spreads. In other words, there will be a different degree of importance of factors in terms of each category and each phase of diffusion. Thus, future research should investigate which team(s) is identified in each category of adopters as well as what factors are more salient to the adoption of stadium construction.
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<th>Team</th>
<th>City</th>
<th>Types of local governments</th>
<th>Adoption Year</th>
<th>Referendum</th>
<th>Year (Result)</th>
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<td>Arizona Diamondbacks</td>
<td>Phoenix</td>
<td>Council-Manager</td>
<td>1994</td>
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<td>Atlanta Braves</td>
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<td>1992</td>
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<td>Baltimore Orioles</td>
<td>Baltimore</td>
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<td>1989</td>
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<td>Mayor-Council</td>
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<td>Mayor-Council</td>
<td>1990</td>
<td></td>
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<td>Colorado Rockies</td>
<td>Denver</td>
<td>Mayor-Council (consolidated city-county with a mayor)</td>
<td>1990</td>
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<td>Detroit Tigers</td>
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<td>1996 (passed)</td>
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<td>Miami</td>
<td>Mayor-Council (Commission)</td>
<td>2008</td>
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<td>Houston</td>
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<td>Council-Manager</td>
<td>2006</td>
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<td>Anaheim</td>
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<td>Types of local governments</td>
<td>Adoption Year</td>
<td>Referendum Yes/No</td>
<td>Year (Result)</td>
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<td>Minneapolis</td>
<td>Mayor-Council</td>
<td>2007</td>
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<td>New York Mets</td>
<td>New York City</td>
<td>Mayor-Council</td>
<td>2004</td>
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<td>New York Yankees</td>
<td>New York City</td>
<td>Mayor-Council</td>
<td>2004</td>
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<td>2001</td>
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<td>1997 (defeated)</td>
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<td>San Diego</td>
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<td>1999</td>
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<td>St. Louis Cardinals</td>
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<td>2002</td>
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<td>St. Petersburg</td>
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<td>1991</td>
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<td>Washington</td>
<td>Mayor-Council</td>
<td>2006</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Information compiled from Sports Facility Reports (2010), each city’s website, and Komisarchik & Fenn (2010)*
Conclusion

Due to the fact innovation adoption and diffusion have long been explored in various disciplines, it was surprising only minimal research has been directed to this topic from an organization perspective in sport management. Using MLB teams involved in the construction of new stadiums and their host cities, the current study investigated the adoption and diffusion of an innovative product in the context of sports. Specifically, the current study demonstrated an attempt to identify and empirically test the determinants influencing the construction of MLB stadiums in terms of the integrated research model reflecting the teams’ and city governments’ perspectives. In sum, what factors drive both a team and city government to be willing to construct a new stadium was examined in this study.

Additionally, the current study also sought to justify the notion of a diffusion effect (i.e., demonstrating that MLB teams and their host cities emulated other teams’ and their host cities’ construction projects in order to achieve several of the same advantages observed from these projects). The results indicated the proposed research model was strong in terms of the number of significant variables and the value of R-square. The current study contributed to the sport management literature by providing an initial effort to conceptually develop and then empirically test a model of innovation adoption and diffusion in the context of sport. Furthermore, the proposed model also provided numerous opportunities for sport scholars to continue advancing our knowledge of innovation adoption and diffusion in sport.
### APPENDIX A

**Lists of MLB Cities and Their Neighbors**

<table>
<thead>
<tr>
<th>Team</th>
<th>City</th>
<th>State</th>
<th>Neighboring State (Teams located)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Diamondbacks</td>
<td>Phoenix</td>
<td>Arizona</td>
<td>CA (LAA, LAD, OAK, SDP, SFG), CO (COL)</td>
</tr>
<tr>
<td>Atlanta Braves</td>
<td>Atlanta</td>
<td>Georgia</td>
<td>FL (FLA, TBR)</td>
</tr>
<tr>
<td>Baltimore Orioles</td>
<td>Baltimore</td>
<td>Maryland</td>
<td>PA (PHI, PIT)</td>
</tr>
<tr>
<td>Boston Red Sox</td>
<td>Boston</td>
<td>Massachusetts</td>
<td>NY (NYM, NYY)</td>
</tr>
<tr>
<td>Chicago Cubs</td>
<td>Chicago</td>
<td>Illinois</td>
<td>IL (CHW), MO (KCR, STL), WI (MIL)</td>
</tr>
<tr>
<td>Chicago White Sox</td>
<td>Chicago</td>
<td>Illinois</td>
<td>IL (CHC), MO (KCR, STL), WI (MIL)</td>
</tr>
<tr>
<td>Cincinnati Reds</td>
<td>Cincinnati</td>
<td>Ohio</td>
<td>MI (DET), OH (CLE), PA (PHI, PIT)</td>
</tr>
<tr>
<td>Cleveland Indians</td>
<td>Cleveland</td>
<td>Ohio</td>
<td>MI (DET), OH (CIN), PA (PHI, PIT)</td>
</tr>
<tr>
<td>Colorado Rockies</td>
<td>Denver</td>
<td>Colorado</td>
<td>AZ (ARI)</td>
</tr>
<tr>
<td>Detroit Tigers</td>
<td>Detroit</td>
<td>Michigan</td>
<td>IL (CHC, CHW), MI (DET), OH (CIN, CLE), WI (MIL)</td>
</tr>
<tr>
<td>Florida Marlins</td>
<td>Miami</td>
<td>Florida</td>
<td>GA (ATL), FL (TBR)</td>
</tr>
<tr>
<td>Houston Astros</td>
<td>Houston</td>
<td>Texas</td>
<td>TX (TEX)</td>
</tr>
<tr>
<td>Kansas City Royals</td>
<td>Kansas City</td>
<td>Missouri</td>
<td>IL (CHC, CHW), MO (STL)</td>
</tr>
<tr>
<td>Los Angeles Angels</td>
<td>Anaheim</td>
<td>California</td>
<td>AZ (ARI), CA (LAD, OAK, SDP, SFG)</td>
</tr>
<tr>
<td>Los Angeles Dodgers</td>
<td>Los Angeles</td>
<td>California</td>
<td>AZ (ARI), CA (LAA, OAK, SDP, SFG)</td>
</tr>
<tr>
<td>Milwaukee Brewers</td>
<td>Milwaukee</td>
<td>Wisconsin</td>
<td>MN (MIN), IL (CHC, CHW), MI (DET)</td>
</tr>
<tr>
<td>Minnesota Twins</td>
<td>Minneapolis</td>
<td>Minnesota</td>
<td>MI (DET), WI (MIL)</td>
</tr>
<tr>
<td>Team</td>
<td>City</td>
<td>State</td>
<td>Neighboring State (Teams located)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------</td>
<td>------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>New York Mets</td>
<td>New York City</td>
<td>New York</td>
<td>MA (BOS), NY (NYY), PA (PHI, PIT)</td>
</tr>
<tr>
<td>New York Yankees</td>
<td>New York City</td>
<td>New York</td>
<td>MA (BOS), NY (NYM), PA (PHI, PIT)</td>
</tr>
<tr>
<td>Oakland Athletics</td>
<td>Oakland</td>
<td>California</td>
<td>AZ (ARI), CA (LAA, LAD, SDP, SFG)</td>
</tr>
<tr>
<td>Philadelphia Phillies</td>
<td>Philadelphia</td>
<td>Pennsylvania</td>
<td>NY (NYM, NYY), OH (CIN, CLE), PA (PIT)</td>
</tr>
<tr>
<td>Pittsburgh Pirates</td>
<td>Pittsburgh</td>
<td>Pennsylvania</td>
<td>NY (NYM, NYY), OH (CIN, CLE), PA (PHI)</td>
</tr>
<tr>
<td>San Diego Padres</td>
<td>San Diego</td>
<td>California</td>
<td>AZ (ARI), CA (LAD, LAA, OAK, SFG)</td>
</tr>
<tr>
<td>Seattle Mariners</td>
<td>Seattle</td>
<td>Washington</td>
<td></td>
</tr>
<tr>
<td>St. Louis Cardinals</td>
<td>St. Louis</td>
<td>Missouri</td>
<td>IL (CHC, CHW), MO (KCR)</td>
</tr>
<tr>
<td>Tampa Bay Rays</td>
<td>St. Petersburg</td>
<td>Florida</td>
<td>GA (ATL), FL (FLA)</td>
</tr>
<tr>
<td>Texas Rangers</td>
<td>Arlington</td>
<td>Texas</td>
<td>TX (HOU)</td>
</tr>
<tr>
<td>Washington Nationals</td>
<td>Washington</td>
<td>District of Columbia</td>
<td>PA (PHI, PIT)</td>
</tr>
</tbody>
</table>
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BIOGRAPHICAL SKETCH

Sungil Hong is a doctorate student in the Department of Sport Management at the College of Education of the Florida State University. He graduated from the Korea University with a Bachelor of Science degree in Asian History. He worked for the Hyundai Unicorns Pro Baseball Club as a marketing director in Korea. He received a Master of Science degree in Sport Administration from the University of Louisville. He has refereed publications in the *International Journal of Sport Management and Marketing* and the *International Journal of Human Movement Science* as well as one manuscript under review in the *International Journal of Sport Finance*. The primary goal of his research is to improve the quantity and quality of understanding of sport finance and economic research. Areas of particular interest include: (a) demand in sport, (b) stadium financing, and (c) innovation diffusion in professional sports.