Innovation Diffusion in Major League Baseball: An Event History Analysis

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In today’s turbulent economic environment, most businesses have been required to innovate their products, services, or strategies in order to create/maintain a sustainable competitive advantage (Vincent, Bharadwaj, & Challagalla, 2004, 2005). Professional sport organizations are no exception. Similar to industry firms, they too have been required (by the demands of the market) to generate something new and interesting in order to attract consumers. In terms of scope and revenue generation, no project may be more important to sport organizations than new facilities (e.g., new arena or ballpark). Consequently, it may be appropriate to view the construction of cutting-edge facilities by professional sport teams as the product of their innovative efforts in a professional sport context.

In particular, over the past two decades there has been an exceptionally high level of investment in professional major league baseball (MLB) facilities in the United States (Crompton, Howard, & Var, 2003). In fact, this particular era has been defined as the most prolific major league facility construction period in US history (e.g., Alexander & Kern, 2004; Poitras & Hadley, 2006; Santo, 2010). More specifically, since 1992, of the 30 MLB teams, 26 teams have constructed a new stadium or significantly innovated an existing one.

A great deal of innovation adoption and diffusion research has centered on identifying determinant factors. This has been done to find what causes an organization to adopt a particular innovation. Early studies in this line of research used a single class of determinants. For example, 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. Their conceptual model illustrated the position 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). Therefore, based on these three categories of determinants of innovation adoptions, this study seeks to identify influential factors explaining what drives a MLB team to adopt construction of a new stadium.

The purpose of the current study is two-fold. First, the proposed study attempts to identify and empirically test the determinants influencing the construction of MLB stadiums from the teams’ perspectives. In short, examining what factors drive both a team and city government to be willing to construct a new stadium. Second, this study seeks to justify the notion of a diffusion effect (i.e., demonstrating that MLB teams emulate other teams’ construction projects to achieve some of the same advantages observed from these projects). This diffusion effect has been framed as one possible explanation for policy innovation adoption as an independent variable (Berry & Berry, 2007).

The sample used in this study include 25 MLB teams. The Baltimore Orioles (96%), the Atlanta Braves (100%), the Cincinnati Reds (96%), the Kansas City Royals (90%), and the Washington Nationals (100%) are excluded because their stadiums were almost 100% publicly financed. The timeframe for analysis is the period 1989 through 2010. The reason for the selected time frame is that the Baltimore Orioles’ Camden Yards began construction in 1989 and opened in 1992; this period has been labeled as the start of the current era of professional sport facility construction and innovation (Quirk & Fort, 1992; Richmond, 1993; Ritzer & Stillman, 2001). Given the longitudinal nature of the stadium construction process, event history analysis (EHA), also commonly called survival analysis, hazard modeling, or duration analysis, is employed as the primary statistical method to test the following model:

\[ \text{ADOPT}_{it} = f (b1\text{JOB}_{it} + b2\text{RESOURCE}_{it} + b3\text{COMP}_{it} + b4\text{DIFF}_u_{it}) \]

ADOPT\(_{it}\) represents the probability that team \(i\) will decide to construct a new stadium in year \(t\), measured as the year the team begins to construct. This dependent variable is a dichotomous variable, indicating whether or not a
team had decided to construct a new stadium during the timeframe.

Determinants Variables: Length of owners’ job tenure as an individual determinant \((b1JOB_{i,t})\). Even though there was a conflicting argument relating to the effect of length of job tenure, a number of studies empirically supported that organizational leaders new to their positions are more likely to accept innovation due to the fresh perspectives they bring to their jobs (Huber et al., 1993). This variable is a continuous variable and is coded in terms of the number of years owners have served over time.

MLB team’s organizational resources as an organizational determinant \((b2RESOURCES_{i,t})\). In the literature of firms’ innovation, firms’ return on assets (ROA), income relative to sales, or cash flow are used as a measure of organizational resources. However, these financial indicators are not available for MLB teams. Hence, as an alternative measure, this study uses teams’ annual attendance percentage as a share of stadium capacity. This can be used as an indicator not only reflecting team revenue, but also forecasting demand.

Market competition as an environmental determinant \((b3COMP_{i,t})\). The literature on firm’s innovation has consistently demonstrated the positive effect of market competition and competitive pressures on innovation adoption. This variable reflects competitive pressures from other leagues’ team that MLB team shares a franchise with, measured as the number of other major sport leagues’ teams including the NFL, NBA, and NHL, that the MLB team shares the franchise with.

Divisional diffusion effects \((b4DIFFU_{i,t})\). Teams in the same division compete with many more games to be advanced to the Division Series. This has two important implications. One is the generation of divisional rivalry. 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. Rogers’ diffusion of innovation theory focuses on the importance of interpersonal channels, which are more effective in adopting a new idea or product. This variable is measured as the number of teams previously playing with team \(i\) in the same division that also constructed a new stadium prior to year \(t\).