Performance Matters…or does it? An Investigation of NL Team Performance on Attendance for the 2011 MLB Season

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"Take me out to the ball game; take me out to the crowd." A century later, the "crowd" in Jack Norworth's 1908 classic seventh inning stretch song is nothing more than a memory for many Major League Baseball (MLB) teams. Many MLB teams regularly play in front of less than capacity crowds and thus struggle to effectively generate local revenues (comprised primarily of ticket sales, local television rights, concessions, advertising, and parking). In addition, the sport product is perishable; if a seat to a sporting event goes unsold, the organization's opportunity to sell that seat is lost and the revenue can never be recovered.

Recognizing that all MLB games are not "created equal," the Colorado Rockies in 1998 became the first MLB team to use variable ticket pricing (VTP) strategies. Brown, Rascher, Nagel, and McEvoy, (2010) gave the following definition for VTP: "A method of placing various values on entry to games, with higher initial prices for highly demanded games and lower prices for lower demanded games" (p. 452). By 2008, nearly two-thirds of MLB teams used some form of VTP. VTP can be thought of as a static pricing model (once prices are set, they do not change) in which the prices are set based on expected demand rather than based on the actual demand for the event. This can be interpreted as a major limitation of VTP as the attractiveness, and therefore demand, of the product changes as a season progresses. To overcome this perceived limitation, one option is the implementation of a more complex and real-time pricing strategy termed dynamic ticket pricing (DTP). To take into account factors that cannot be determined with any certainty prior to the season, the San Francisco Giants in 2009 became the first MLB team to employ a more sophisticated pricing strategy, DTP. For the 2012 season, 17 MLB teams are using some form of DTP, 15 of which are using Qcue, Inc.'s pricing software, an Austin, Texas based company (Dunne, 2012).

Certain factors, including income levels, ticket price, presence of recreation substitutes, local population, ballpark characteristics, and team performance have been suggested as significant predictors of attendance for over half a century (Rottenberg, 1956). Roger Noll created an attendance demand model for MLB in the early 1970s (Noll, 1974). At about the same time, Scully (1974) modeled revenue (a direct derivative of attendance) using current team performance, local population, fan interest, a National League (NL) dummy variable, stadium characteristics, and the percentage of black players on the roster. Demand models used in the context of MLB are numerous and varied in their focus. Early studies focused on identifying the set of variables that best explain attendance (Hill, Madura & Zuber, 1982; Noll, 1974). Later studies attempted to build on previous research by focusing on larger samples (Baade & Tiehen, 1990; Becker & Suls, 1983). The vast majority of more recent studies have attempted to focus on the significance of individual variables while controlling for a myriad of variables that have been previously identified by researchers.

The purpose of this study was to investigate the amount of variation in attendance for MLB NL teams in 2011 that could be explained by static variables (variables known prior to the season that remain constant throughout the season), and dynamic variables (variables that fluctuate as the season progresses) after controlling for economic/demographic variables (i.e., local population, per capita income, unemployment rate, Fan Cost Income, and other local professional sports teams). Static variables were subcategorized as home team static variables (i.e., previous season's wins, the age of the stadium, whether or not the home team was in the playoffs the previous season, and the number of All-Stars on the roster) and game static variables (i.e., day of the week, month, time the game is played, whether the game is an intra-divisional or interleague game, and previous season's success of the visiting team). Many previous attendance demand studies have focused on the significance of variables to either explain or predict attendance. However, this study focused more directly on the practical significance of the percent of variance in attendance explained by dynamic variables (i.e., games behind division leader, win streak) above and beyond that explained by static variables. Two research questions were addressed: (1) What home team and game static variables explained statistically significant amounts of variance in 2011 MLB NL game attendance, after controlling for the set of economic/demographic variables? and (2) Does the addition of dynamic variables add explained variance of statistical and practical significance above and beyond what is accounted for by the economic/

demographic variables, the home team static variables, and the game static variables? An ordinary least squares hierarchical regression model was used with game attendance indexed by stadium capacity as the dependent variable (NL home games) and selected economic/demographic variables (static), home team variables (static), game variables (static), and current performance variables (dynamic) used as independent variables.

Consistent with previous research, the data supported the ability of certain home team and game variables to significantly explain variance in game attendance, after controlling for the local population, the local per capita income level, and the team's Fan Cost Index. Static variables, collectively, explained 41.3% of the variance in attendance. Whether or not the home team made the playoffs the previous season (2010), the number of all-stars on the home team's roster, and the day of the week the game was played were found to be the strongest significant explanatory variables explaining 13.7%, 12.3%, and 12.9% of the variance in attendance, respectively, after controlling for economic/demographic and all other static variables in the model. Intuitively, one would expect attendance to increase with the success of a team; everyone loves a winner. However, win streak individually was not statistically significant. The other dynamic variable, the number of games behind the division leader, was significant and had a positive relationship with attendance. However, these two dynamic variables (i.e., games behind division leader, win streak), entered last in the model, collectively explained only 2.7% of variance in attendance, statistically significant but relatively minor when compared to the contribution of the static variables. This study adds to the current literature on ticket pricing in MLB by using relatively current data, the 2011season. In addition, previous studies have found a league variable to be significant (e.g., Kahane & Schmanske, 1997; McDonald & Rascher, 2000). Therefore, focusing exclusively on the NL provided further insight into a more specific context. Lastly, previous attendance demand regression models have tended to employ simultaneous entry of variables. This study used a hierarchical multiple regression model to study the effects of groups of variables as they are entered in steps. This allowed the researcher to examine the amount of variance in attendance explained by specific groups of variables, in this case, economic/demographic variables, static variables, and dynamic variables.