Ancillary Price Determination in Major League Baseball: An Empirical Analysis

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Session 10: Finance **Thursday, May 31, 2007** **3:00 PM - 3:25 PM**
Presentation (25-minute)

The impact of ancillary revenue such as concessions, on-site merchandise, and parking has escalated over the past decade. In the most recent data from Street & Smith's Sport Business Journal (2002), spectator spending at stadiums has increased by 16%. In 2002, ancillary revenue accounted for $10.70 billion in stadium revenue (U.S. Securities and Exchange Commission, 2002). It is important for sport managers to realize the factors that affect price changes in secondary revenue in order to maximize profit. Previous studies have analyzed the determinants of ticket prices (Boyd & Boyd, 1998; Rishe & Mondello, 2003; Rishe & Mondello, 2004). A number of important factors affect ticket pricing such as attendance, a new stadium, per capita income, and team quality. However, limited research has been done in the area of ancillary price determinants. The factors that affect specific ancillary items maybe different than those that impact ticket prices. In addition, sport managers must decide whether it is more beneficial to run these departments in-house or outsource them to other companies.

The purpose of this study was to empirically analyze factors that determine pricing for ancillary items such as concessions, on-site merchandise, and parking using actual data on price changes in these areas from 1997-2005 in Major League Baseball. Data was collected from a variety of sources including the team marketing report, ESPN.com, ballparksofbaseball.com, the U.S. Census Bureau, and team/league websites. A total of 235 observations were utilized for the subsequent regression analyses.

Multiple regression analysis was used to examine the factors that affect ancillary price changes. Three regression models were created so concessions, on-site merchandise, and parking determinants could be examined separately to identify specific factors that may have an impact on those items individually. Previous literature in the areas of ticketing and ancillary revenue (Boyd & Boyd, 1998; Depken, 2004; Narayan & Smyth, 2003; Rishe & Mondello, 2004) identified ten common price determinants used in this analysis. The independent variables used in the three regression models were: home team's winning percentage from the previous year, county population, per capita household income, playoff appearance from the previous year, team payroll, attendance (measured by the percentage of stadium capacity filled), playing in a new stadium, division within a team's respective league, ancillary prices from the previous year, and a trend variable to identify any significant changes from year to year.

The first regression model measuring concessions was found to be significant ($F=9.900(20,215)$, $p<.001$), explaining 47.9% of the variability in concession prices. The significant variables in the concessions model included per capita income ($t(20) = 2.368$, $p = .019$), attendance ($t(20) = 2.783$, $p = .006$), and county population ($t(20) = 2.270$, $p = .024$). The second regression model measuring parking was found to be significant ($F=7.737(20,215)$, $p<.001$), explaining 41.9% of the variability in parking prices. The significant variables in the parking model included per capita income ($t(20) = 2.247$, $p = .026$), attendance ($t(20) = 5.298$, $p < .001$), playoff appearance ($t(20) = 2.016$, $p = .045$) and parking prices from the previous year ($t(20) = 2.069$, $p = .040$). The third regression model measuring on-site merchandise was also found to be significant ($F = 3.298(20,215)$, $p<.001$), explaining 23.5% of the variability in on-site merchandise prices. Only per capita income ($t(20) = 5.281$, $p < .001$) and on-site merchandise prices from the previous year ($t(20) = 2.100$, $p = .037$) were found to be significant predictors for parking prices. The trend variable suggested that on average, ancillary prices increased by 4% each year.

The results suggest that one key element that is important in all ancillary pricing is per capita income. One explanation for the significance of per capita income could be that increased discretionary income may lead spectators to spend additional money for convenience (closer parking) and enjoyment purposes. Another factor that was found to be significant in multiple models was attendance. The factors that have been shown to significantly affect attendance in previous studies (Kahane & Shmanske, 1997; Noll, 1974; Zygmont & Leadley, 2005) could work in conjunction with ancillary pricing determinants in an effort to increase overall revenue. It is also important to note that the new stadium variable was close to significance. Previous research has shown that prices increase in a new stadium because of the increase in attendance (Depken, 2004). The opportunity for increased revenue at a new stadium will have an influence on all prices, including ancillary items. Finally, the differences between each of the models suggest that some factors may be more important determinants for one ancillary item as opposed to another. It is important to understand the significance of these factors in order to create the best pricing structure for individual ancillary items.

This information is a valuable commodity for teams in terms of in-house pricing of ancillary items, or the decision to outsource these secondary revenue sources. The primary purchase for spectators on-site is the event ticket. However, these

complementary products can add to a sport organization's overall profits (Marburger, 1997). Sport managers must understand the factors that influence ancillary prices in order to select optimal prices that maximize profit.