Optimal Game Outcome Uncertainty and Team Identification: Understanding Potential NBA Attendees’ Decision-Making Process

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Game outcome uncertainty is an essential characteristic of sports. Many scholars have investigated the effects of unpredictability on game attendance, leading to two competing arguments: the uncertainty hypothesis (i.e., fans prefer to attend games expecting an uncertain outcome; Rottenberg, 1956) and the loss aversion hypothesis (i.e., fans prefer to attend games expecting their team to win). Recent empirical studies have focused on testing both hypotheses and have provided frequent support for the loss aversion hypothesis (Coates, Humphreys, & Zhou, 2014; Sung & Mills, 2018).

However, in our study, we suggest that these two approaches should be considered simultaneously. Early studies often proposed a linear or quadratic relationship between fans’ loss-averse (win-seeking) behavior and the probability of winning, indicating that attendance should continue increasing along with the likelihood of winning. In the current study, we instead hypothesize that fans will become less loss-averse and seek greater uncertainty (1) if their team is playing against a clearly inferior team and/or (2) as fans’ team identification declines. We explore this behavioral pattern using a mixed-method approach across two studies.

In Study 1, a decade of NBA game data were analyzed through polynomial regression with time-fixed effects (both orthogonal and raw polynomial regressions were conducted). The dataset included attendance, point spread, and control variables (e.g., star-player rating, offensive rating; city income and population; stadium capacity and age; whether the city hosted NFL, MLB, and/or NHL teams; and whether the team had been relocated). Our findings demonstrate a significant cubic relationship between point spread and attendance ($\beta_2 (\text{Point Spread} )^3 = -0.20, p<.01; \beta_2 (\text{Point Spread} )^2 = 6.14, p<.01; \beta_2 (\text{Point Spread} ) = 21.35, p<.01$); coefficients from raw polynomial regression were reported. The second partial derivative of attendance was equal to zero when the point spread was approximately -10.06, indicating that attendance growth began to slow; the function switched from a U-shape to an inverted U-shape once teams were expected to win by more than 10.06 points. In addition, we are developing scenario-based experiments for Study 2 to confirm the results of Study 1 and ensure the internal validity of the study. Our second hypothesis will also be tested in Study 2 (i.e., fans with high team identification will be more loss-averse than non-fans).

The main contribution of this work is the integration of competing hypotheses to understand fans’ attendance. Although a U-shaped relationship was identified between the likelihood of winning and attendance, consistent with earlier studies, this correlation exhibited an inverted U-shape when the expected score difference exceeded 10.06 points. Study 2 will expand the results of Study 1 by considering the effect of team identification on fans’ attendance.

These findings carry valuable managerial implications. First, the NBA’s competitive balance is important despite home fans tending to prefer a guaranteed win; per our study, fans often sought uncertainty when their team’s probability of winning became too high. Second, NBA teams should realize that attendance was lowest around a point spread of 1.61. Such insight should help teams allocate their marketing/promotional efforts more effectively, such as by offering discounted concessions or setting ticket costs based on dynamic pricing.