USING HIERARCHICAL BAYESIAN CHOICE MODELLING IN SPORT DECISION MAKING: THREE CASE STUDIES

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Abstract

Choice modelling has been extensively used as a tool to aid managerial decision making in a wide range of industries for over 80 years. In this paper, we report on three cases where choice modelling was employed to guide decision making in sports. Choice modelling, though well-established in many fields, has not been widely used in sport consumer research. The technique has been used to identify recreational choice behaviour (Louviere and Timmermans 1990) optimal facilities for sports (Scarpa and Theine 2004), and a simplified technique (conjoint analysis) has been used to examine season ticket pricing (Daniel and Johnson 2004), but the approach used here is novel in its scope and complexity.

Choice modelling is a trade-off technique that places respondents in hypothetical scenarios and asks them to make choices between product alternatives. Based on the way in which respondents make their choices in each scenario, we are able to understand which specific product features drive their decision making and therefore, which features are most important for product choice. In each of the cases described here, the choice model was estimated using hierarchical bayes estimation that estimates parameters for each individual respondent therefore capturing a greater amount of heterogeneity (Andrews, Ansari and Currim 2002). This in turn leads to more robust results and better predictive capability of the resulting model.

Case 1: Designing season ticket products and pricing

The Port Adelaide Football club (PAFC) is a professional team in the Australian Football League (AFL). The club had, in 2007, a churn (non-renewal) rate of almost 21% and past research suggested they were converting only around 15% of its supporters to members. This, combined with declining overall membership (season ticket holder) numbers, suggested that current product offerings were not optimised for member attraction and retention.

A total sample size of n=1009 was collected, comprised of members (n=499) and supporters (n=510). Data was collected via an online interview and the average interview length was 28 minutes. The results suggest that current packages can be altered so that the packages are more distinct in terms of price and benefits offered. The optimal number of packages for existing members was three, and with this improved design churn could be reduced from 21% to under 7%. Revenue from this new configuration could be increased 180% from existing levels. In 2009, PAFC will launch a drastically revised set of season-ticket offerings based on the results of this choice model. Actual sales data from the 2009 season was compared to model, showing it to be highly accurate.

Case 2: Converting Supporters by offering a low-game membership

In a similar vein, the Collingwood Football Club (also part of the AFL) employed choice modelling to examine the extent to which a low-game membership (3 or 5 games versus the standard 11 games) would attract new members or cannibalise existing members. A sample of over 1200 members and 800 supporters was surveyed online. The results showed that a 3 game package priced at $75 would attract a large number of supporters (non members) but not cannibalise existing 11 game ticket buyers, provided those packages were redesigned. Over 5000 of these 3 game packages were expected to be sold and 96% of buyers were predicted to be new to the club. The club introduced a 3 game membership, and in the following year over 5500 were sold with 97% of buyers being new to the club.

Case 3: Predicting the impact of moving home grounds

There are two AFL teams in South Australia and they both play games out of the same stadium in a remote suburb of a city of over 1 million people. In 2010, it was proposed to move AFL football from that suburban home to a redeveloped, inner city venue, currently used to host elite cricket matches. Choice modelling was employed to estimate the impact on crowds and membership for the two AFL clubs, as well as the Cricket Club (S.A.C.A.) that runs a similar season ticket membership over the summer months. The results, gathered from over 4000 members and fans of cricket and AFL, gave clear estimations of the likely impact of the move on attendances and memberships, as well as helping to shape the design of the facilities under construction.

A brief summary and results of all three cases will be presented to illustrate the value of this technique to sports decision makers.