Understanding the Determinants of Participant’s Registration Lead Time in Mass Participant Sport Events

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Time-varied registration prices have been a common practice in the sport and event industry. Sport and event organizers have adopted pricing strategies that offer different registration and entry fees based on lead time to event date. For the consumer, deciding on when to register for an event is not a random process but based on psychological, behavioral and socio-economic determinants. Despite the complexity of potential determinants, an overarching pattern of consumers’ behavior has emerged but research on this topic has lacked to investigate this pricing strategy. To fill this research gap the current study investigates the determinants of registration lead time using data from a mass participant sport event.

Data from a half marathon event that took place in a Midwestern city collected by a running event organization was used for this study. The event organization applied a pricing scheme that consists of six different price tiers throughout the registration window. As the distribution is segmented by price tiers and further influenced by the runners’ respective propensities to register early, examining the mean effects of runners’ characteristics may not be meaningful. In order to address this issue, we applied a quantile regression method, which estimates the effect of explanatory variables on estimating the conditional quantiles of the distribution.

Number of responses used for analysis was 8,122 out of 19,026 collected. Among the participants, 58.33% were female, 49.70% reported that they were married; the average age of participant was 35.6 years old. Majority of the participants were well educated (51.6% were 4 year college and above) and affluent (41.4% were above $100,000). The average number of days for registration lead-time was 155 days from registration opening and the average travel distance for a participant was 191.74 miles. 56.8% of the participants indicated that they have participated in a half marathon once or more.

Participant’s time to registration (since opening) was used as the dependent variable of analysis. The independent variables used were discounts from full price, past experience, and travel distance. The model also controls for gender (James & Ridinger 2002), education level (Zhang, Pease, Hui & Michaud, 1995), age and marital status (Pettee et al, 2006), and income (Long and Purdue, 2004), as they may influence the participants’ decisions. Natural logarithmic transformation was done on the dependent variable to improve model fit.

The results from the linear and semilog linear models were not qualitatively different. Quantiles were defined from two conditional medians. The first quantile of early registrants was set at the median of the first three price tiers (early registrants; 1 to 121 days). The second quantile was set at the median of the last three price tiers (late registrants; 122 days to 358). By estimating the marginal effects of the independent variables for each quantile, we allowed for flexibility in the effects of independent variables on registration lead time. The model was also estimated by ordinary least squares (OLS) for comparative purposes.

The OLS regression indicated that the proposed independent variables explained 86% (R^2=.86) of the variance in registration timing F(21, 8100) = 2,390 (significant at p<.001). The estimates supported significance for discount (b = -10.39, p<.001), ln(distance) (b = .029, p<.001) past experience (b = .026, p<.001), age (b = 1.003, p<.001), and marital status (b = .031, p<.05). However, gender, education, and income were not significant predictors of participants’ registration time.

The quantile regression results revealed discount (b = -10.39, p<.001) was a significant predictor of early registration. The effect of discount was significant in both early and late registration quantiles but the effect differed between the earlier registrant (b = -12.04, p<.001) and later registrant quantile (b = -9.807, p<.001). The discount effect was observed larger in the earlier quantile than in the later quantile close to the event date. The variable ln(distance) was
also a significant predictor in both quantiles (b=.029, p<.001). Distance was the only significant predictor with a positive coefficient suggesting that the greater the distanced traveled the later the individual registered for the event.

Result of the quantile regression suggests that important differences exist between early and late registrants. Past experience significantly reduced the time to register in the early registrant quantile, whereas it is insignificant for the late registrant quantile. In addition, higher level of past experience in running events leads to earlier registration in the earlier registration period, but not necessarily in the later registration process. The result is consistent with Courty (2003)’s research in sport ticket pricing market, that highly involved fans are time insensitive and would be more willing to take advantage of price discounts ahead of time.

The effect of income in registration timing was also observed. In OLS estimation, income was not found to be a significant predictor of registration lead time. However, income is found to be a strong determinant of registration lead time in the early registrant group. The coefficient is significant in the early registrant quantile and relatively large for the lower income groups, implying that lower income groups who wish to register early may face difficulties in decision making due to budget constraints. Lastly, the effect of gender on early registration was not observed in the OLS results, but was found (b=.01, p<.001) significant in early registrant group. On average, females registered earlier than male registrants in the early registrant group.

The findings of this study provide empirical evidence to better understand determinants that lead to differences in temporal registration decisions for sport events. The empirical results may be utilized by event organizers that adopt temporal pricing discounts to set registration deadlines and increase the yield within each deadline period. Such knowledge will help running organizations better segment their consumers and employ differentiated sport marketing strategies to facilitate early registration, which would in turn lead to improvement in event organization.