

The Effects of Price, Risk, and Involvement on Participants' Registration Lead Time for Mass Participant Sport Events (MPSEs)

Wonsok (Frank) Jee, Temple University

Seul Ki Lee, Temple University

Daniel Funk (Advisor), Temple University

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The growth of mass participant sport events (MPSE) in the U.S. is formidable. Some 507,000 people have been estimated to finish in U.S Marathons in the year 2010 (8.6% increase from 2009). More than 625 marathons are currently held in the U.S annually, whereas the number was 200 in 1985 (Helliker, 2011). With abundance of options in sport events for participants to choose from, the MPSEs have been implementing a more sophisticated pricing scheme, by offering highly differentiated registration prices over time, in order to encourage early registration and reduce uncertainty.

While existing literature (Chen & Schwartz, 2008; Courty, 2003; Drayer & Shapiro, 2009) establishes the basis for dynamic pricing based on individual price sensitivity and demand fluctuations, the price discrimination of MPSEs are unique in two ways and therefore different from general demand-based pricing. First, the purchasers do not run the risk of product unavailability by waiting. Second, the prices are determined and fixed prior to observing time-evolving changes in demand. Despite the importance of pricing in MPSE participation, however, little research has been done to shed light on this distinct issue. Furthermore, the MPSE organizers are in need of ways other than price discounts to facilitate early registration of the participants. In order to fill this theoretical gap, this study investigates the effect of time-based price discrimination and the level of participant's involvement in the sport on registration timing.

For the participant, longer time to MPSE event date increases the uncertainty of purchase outcome and therefore risk. The risk of registering early can stem from unexpected events taking place from the time of registration to the event date, such as sudden injuries preventing participation in the event. Given the reasonable assumptions that a) the utility from an individual's participation in the event will be higher with lower price paid and b) participants' expected utility are decreasing in uncertainty (risk aversion), MPSE registrations should take place near the deadlines for each price level to maximize utility.

While price and risk are hypothesized as important determinants of registration time, it is also argued that an individual's psychological and physical involvement in the sport mitigates the effect of risk. Literature has linked involvement with several outcomes including psychological commitment and assistance in constraint negotiation (Iwasaki and Havitz, 2004). In the MPSE context, highly involved people who participate in multiple events would be confident in their ability to overcome physical obstacles and are more knowledgeable and committed to running (Ridinger et al., 2012). Although involved participants have the same susceptibility to unexpected outcomes, the risk is likely to have less effect on their registration lead time. In this line of reasoning, the current study tests the hypothesis that involvement to the sport will mitigate the effect of risk on participants' registration timing. As a result of analysis, this research finds that psychological and physical involvement to the sport significantly reduces the registration lead time for MPSE.

For analysis, data was retrieved from a post-event survey from the participants of a running event that took place in a Midwestern city. The event consisted of two tracks; 90.5% of respondents participated in the half marathon and 9.5% participated in the 5K. The race applied an extensive differential pricing model comprised of six different price tiers. Running slots were unlimited and refunds were not offered once the fee was paid, effectively eliminating the incentive of early registration for the participants by guaranteeing availability while at the same time preventing cancellation. (Schwartz, 2008). Number of responses usable for analysis was 2,384, out of 16,092 collected. Among the participants, 60.8% of the participants were female, 79.8% were Caucasian, 77.6% were between the age of 20 and 44, and 43.3% were single without children, 34.1% married with children, and 52.6% were local resident of the city. Majority of the participants were well educated (84.1% were 4 year college and above) and affluent (53.9% were above \$75,000).

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The dependent variable was the number of days counted from the registration opening. A natural logarithmic transformation was done on the dependent variable to improve model fit, while the results from the linear and semi-log models were not qualitatively different. Six independent variables were used: a) psychological involvement measured with three facets of pleasure, centrality and self-expression (Ridinger et al., 2012), b) prior running experience assessed from self-reported number of marathon event participated in the last 12 months, average running hours per week, and average running miles per week, c) prices as exogenous control variables as these were determined prior to any registration, and d) demographic control variables including age, gender, price, income, education, and local residence.

Least-squares regression was used to estimate the model. Breusch-Pagan test on the regression residuals was rejected at $p < 0.01$, signaling heteroscedasticity. Therefore, White's (1980) standard errors were used for inference. The results indicated that 12 variables explained 95% ($R^2 = .95$) of variation in registration timing, while the model significance was $F = 695.61$ (significant at $p < .001$). The risk-mitigating effects of involvement on participants' registration time were observed from running hours ($b = -0.007$, $p < .05$) and centrality ($b = -0.013$, $p < .001$), while other variables measuring involvement were not found significant.

As a result of analysis, the findings provide support to the hypothesis that psychological and physical involvement with the sport mitigates the risks associated with early registration of the participants to the MPSE. Specifically, the more hours a participant runs per week, and the higher the centrality facet of psychological involvement, the participant was more likely to sign up early for the running event. Such findings may be utilized by the organizers of the MPSEs in predicting with higher precision on registration lead time. For example, runners who have to fill certain running hours in advance may be motivated to register early to better prepare and train for the event.

Also, participants who have demonstrated higher level of psychological centrality can be less risk-averse in their decision to sign up for an event. Centrality is interpreted as an individual's level of perceived salience in running in involvement literature. Literature further argues that runners have different participation motives based on the level of involvement. New runners who are usually high in the pleasure facet but not necessarily high in centrality, may be influenced in their participation decision through extrinsic motives such as price while repeat runners who possess higher level of centrality may be encouraged more by intrinsic motivations such as ensured service quality and safety and security. However, this relationship has not been examined yet and warrants future study.

The study of sport consumer behavior provides the necessary information and knowledge to employ sport marketing action for running organizations to build and sustain volume for an running event. In terms of the organization standpoint, there are relatively not much fixed costs and more variable costs entailed in preparing for running events. Offering different registration prices over time offers advantages to effectively staff each event and minimize the uncertainty of sales by diversifying registration over time. As it is evident that differing time sensitivity of runners is prevalent in the MPSE market, there is room for organizations to leverage on this phenomena and maximize their registration revenue.