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| 報告番号 | 甲 乙 第 | 号 | 氏 名 | 西尾 和生 |
| 主 論 文 題 名 : Essays on Econometric Marketing: Three Empirical Studies on Customer Purchase Behavior (顧客購買行動に関する実証研究に基づく計量マーケティングに関する小論) | | | | |
| (内容の要旨) This thesis consists of three empirical studies on customer purchase behavior, focusing on introducing econometric models which have not been previously applied in the field of marketing science. <u>Customer Tier Programs and Marked Point Process Models (Chapter 2)</u> This study investigates the dynamics of customer purchase behavior within a customer tier program, with a particular focus on the points pressure effect. The study examines ID-linked customer purchase data from a large Japanese supermarket chain that operates a three-tier customer tier program. The program assigns customers to different tiers based on their total spending in the last month, with each tier offering progressively better rewards. To model the interaction between the timing of purchases and the amounts spent, this study employs a marked point process model that has often been used in the context of seismology, criminology, and finance. The results of the study show that the points pressure effect is particularly strong among originally non-loyal customers, the points pressure towards the first threshold is stronger than that towards the second threshold, and the three-tier customer tier program is superior to the two-tier one in terms of operating income for supermarkets. <u>Effects of Promotional Incentives in a Loyalty Program (Chapter 3)</u> This study examines the short- and long-term effects of promotional incentives within a loyalty program on customer purchase behavior, focusing on the points pressure effect and customer lifetime value (CLV). The study uses ID-linked customer purchase data from a major Japanese retail company that operates a loyalty program incorporating birthday rewards as promotional incentives. To investigate the effectiveness of such incentives in terms of the points pressure and | | | | |

CLV, this study employs the Weibull proportional hazards model, the generalized linear model, and the Pareto/NBD and gamma-gamma models following propensity score matching. The results of the study indicate that customers become temporarily less influenced by the points pressure with respect to their purchase frequencies after receiving promotional incentives in a loyalty program, such incentives have no positive impact on CLV, and impulsive buying triggered by these incentives leads to particularly low CLVs.

Customer Purchasing Behavior and Marked Hawkes Processes (Chapter 4)

This study investigates the applicability of marked Hawkes processes to ID-linked customer purchase data in retail stores. Since customer purchase intervals and amounts are interrelated, the marked Hawkes process that can simultaneously model the event occurrence times and its attributes (marks) can be appropriate for accurately estimating and predicting the overall dynamics of customer purchasing behavior. The marked Hawkes process proposed in this study effectively identifies the factors influencing customers' current willingness to purchase. In addition, the estimation of random effects parameters leads to rich managerial implications for targeted marketing strategies. Furthermore, through simulation using the thinning method and comparing the proposed model's performance with a traditional model (log-linear regression model with the random intercept), this study shows that the proposed model greatly outperforms the traditional one for long-term forecasting of customer purchasing behavior.