Identifying Drivers of Full Price Sales of Clothing and Footwear for an Online Retailer

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Project Background

From the perspective of any retailer, the financial return is greatest for full price sales and, therefore, the strategical imperative is to explore ways to limit the level of promotional discount given to customers and to stimulate full price sales instead. In line with this, the primary objective of this work was to identify drivers of full price sales of women's clothing and footwear (C&F). As a secondary objective, the impact of customers' membership in a particular segment on their propensity to shop at full price was evaluated. The rationale for looking at customer segments was that while there are likely to be common factors influencing customer shopping behaviour, in a situation where distinct groups of customers exist within a population, individual groups might be influenced by these factors to a different extent.

Data and Methods

As for the scope, the study focused on customer and product characteristics related to C&F orders made by customers at Very.co.uk, one of the Shop Direct websites, during 2015 and 2016. To achieve the objectives of the study, cluster analysis was conducted as a first step to identify distinct segments of customers within the data. As a result, six clusters were formed, which were found to differ substantially on cash/credit status, the proportion of C&F items purchased with Collect + option and shopping diversity (i.e. the number of departments shopped from). Following this, a logistic regression model was fitted to estimate the probability of full price sales and, alongside other potential predictors, customer segment was included as an input variable.

Key Findings

Several significant predictors of full price sales were identified, including both factors that increase the likelihood of a full price sale and those that reduced it. The most prominent factors with a positive impact on full price sales were average price paid for a C&F item and previous spending on C&F category. Among the strongest predictors with a negative impact on full price sales were average savings per C&F item, the proportion of C&F items purchased with Collect + option and number of departments ordered from.

Customer segment was found to be a statistically significant predictor as well. There is strong evidence that the observed variation in propensity to shop at full price among clusters is explained to a large extent by the fact that the variables, which were decisive in forming the clusters, were also found to be significant predictors of full price C&F sales. For instance, number of departments and the proportion of C&F items purchased with Collect + were the variables that separated the six clusters the most. These were also identified as some of the strongest predictors in the final model. At the same time, it is possible that assignment to clusters captures additional factors, not directly reflected by the input variables used. The obtained insights suggest that there are several distinct customer segments, which differ substantially in their propensity to shop at full price (Figure 1).

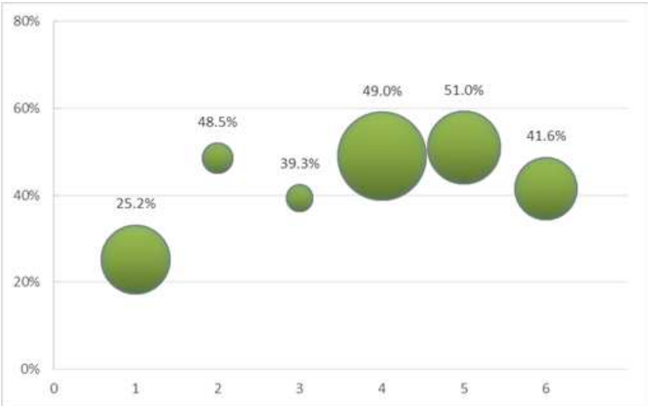

Figure 1. Estimated typical probability of full price sales across clusters. The size of the bubble refers to the size of cluster in 2015

Value of the Research

The study findings regarding customer segments and components of the predictive model are likely to enhance the industry's understanding of customer characteristics that drive full-price sales. Equipped with more insight about the strength and direction of relationships between customer characteristics and shopping behaviour, online retailers could improve the effectiveness of promotional activities and to reduce the proportion of discounted sales thereby increasing profitability. This research also contributes to the industry's state of knowledge about the performance and accuracy of various predictive modelling approaches.