Interfaces with Other Disciplines

Estimating the market shares of stores based on the shopper's search and purchase behavior

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Abstract

Suppose that a consumer has decided to shop around several retail stores in an attempt to find a desired product or service. From his or her past shopping experience, the shopper may know: (1) the assortment size of each store, (2) the search cost per visit, and (3) the price variation among the stores. For such a situation, we first consider the optimal sequence of stores and the optimal search strategy from the shopper's search-theoretic point of view. Based on the assumption that shoppers follow the optimal sequencing and search strategy that maximizes his or her expected net gain, we then estimate the market share of each store in the market area. With a numerical example, we finally analyze the effects of the assortment size, the search cost, and the price variation on the market shares of existing retail stores. Based on the shopper's search and purchase model, we attempt to explain: (1) why shoppers visit bigger stores first, (2) why they visit fewer stores if the search cost is relatively higher than the product price, and (3) why they shop around more stores if the price variation among the stores is large.
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1. Introduction

Based on the shopper's sequential search and purchase behavior, we propose in this paper a probabilistic model that estimates the market shares of existing retail stores. We first identify three major factors that have significant impacts on the market shares: (1) the assortment size of each store, (2) shopper's search cost, and (3) price variation among the stores. After carefully considering these factors, shoppers may determine the *optimal sequence* of search among the stores before the search process begins. The shoppers then make the decision at each store during the search process as to whether to visit another store by paying an additional search cost or to buy the best product available so far and terminate the search process.

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