

## Discrete Choice Model Estimation with Consumer Sequential Search

For many products, consumers are uncertain about the price, functionality, durability, and tastes before physically looking at or experiencing them. To resolve these uncertainties, they visit multiple stores and websites and consult friends for fit information, but incur a cost named as search cost (or evaluation cost, discrimination cost, shop cost). Therefore, when making search decisions, they strike a balance between finding a better fit and incurring search cost. Cachon et al. (2008) divide consumer search into two types. One is parallel search, which refers to that consumers select a fixed number of firms and then search them and purchase the most preferred product among them or purchase nothing. This type of search is also supported by the consideration set theory (e.g., Roberts and Lattin 1991). The other is sequential search, which refers to that consumers search firms sequentially and decide after each search whether to purchase, to continue to search another firm, or to purchase nothing. Cachon et al. (2005) consider an assortment planning problem under consumer sequential search, which is characterized based on the multinomial choice (MNL) model. They propose two approaches to estimate the MNL model, which serves as a benchmark for consumer discrete choices under sequential search. This master thesis focuses on sequential search. It studies consumer discrete choices, considering the possibility that after searching products at a firm consumers may search for an even better product at another firm.

The objectives of this thesis are to:

- review the literature on discrete choice models with consumer sequential search,
- based on MNL model develop a discrete choice model capturing the fact that consumers may continue to search at another firm after searching at one firm,
- conduct an experiment to estimate this discrete choice model with consumer sequential search (see the estimation procedure in Cachon et al. 2005 for reference),
- discuss how a firm should incorporate consumer sequential search into its assortment planning problem,
- provide open research gap and future trends.

### **Basic Literature:**

**Cachon, G. P., Terwiesch C., and Xu Y. (2005).** Retail assortment planning in the presence of consumer search. *Manufacturing & Service Operations Management*, 7(4), 330-346.

**Cachon, G. P., Terwiesch C., and Xu Y. (2008).** On the effects of consumer search and firm entry in a multiproduct competitive market. *Marketing Science*, 27(3), 461-473.

**Roberts, J. H. and Lattin, J. M. (1991).** Development and testing of a model of consideration set composition. *Journal of Marketing Research*, 28(4), 429-440.

