Store choice for fruits and vegetables
— An empirical case study for multiple-store shopping behavior

Yingxian Wu
PhD Candidate & Research Assistant
Agricultural, Environmental and Regional Economics
Department of Agricultural Economics, Sociology and Education
The Pennsylvania State University
E-mail: yxw159@psu.edu

Edward Jaenicke
Associate Professor of Agricultural Economics
Department of Agricultural Economics, Sociology and Education
The Pennsylvania State University
E-mail: tjaenicke@psu.edu

Tobenna D. Anekwe
Research Economist
USDA Economic Research Service
E-mail: tanekwe@ers.usda.gov

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Yingxian Wu (The Penn State University), Edward Jaenicke (The Penn State University), and Tobenna D. Anekwe (USDA Economic Research Service)

Motivation and objectives

This study examines two subjects that are not well-understood:
1. Consumer’s store-channel choice for fruit and vegetables (f&v).
2. Multiple-store shopping behavior (e.g., buying groceries at multiple stores rather than buying them all at a single store), as studied previously in Fox et al. (2004).

In this analysis, we study consumers’ store choice for different forms of fruits and vegetables, namely, fresh f&v, canned f&v, and frozen f&v, all of which are typically found in different departments and may be marketed differently. For the purposes of comparison, we also include milk, which is a commonly purchased grocery item.

Specifically, this study aims to:
- Identify consumers’ preferences for different channels for purchasing fresh f&v, canned f&v, frozen f&v, and milk.
- Determine whether households’ store-channel preferences for those four food categories are correlated with each other.

Method

The model used in this study is a modification of cross-category brand choice models (Seetharaman et al., 2005, Singh, et al., 2005, Hansen, et al., 2006). A store can be viewed as a multi-product firm that sells different product categories; consumers can choose to buy all of their groceries in just one store or buy different product categories from different stores. This is similar to a brand choice situation in which consumers can choose to buy different products from the same brand or from different brands.

More specifically, the utility that household \( h \) attains from buying product category \( c \) in channel \( j \) is:

\[
U_{hcjt} = \beta_{hc} X_{cjt} + \varepsilon_{hcjt},
\]

where \( X_{cjt} \) includes channel-specific fixed effects, price, and promotion. A hierarchical structure is specified for \( \beta_{hc} \):

\[
\beta_{hc} = \alpha_h + \gamma_c + \varepsilon_{hc},
\]

where \( U_{hc} = MV(0, V_{hc}) \) and \( Z_h \) is household demographics.

We use Nielsen Homescan data and apply our model to a major US metropolitan area. We generate estimates using a Bayesian approach for each category, and calculate correlations between channel preferences for the four different food categories.

Results

1. Average channel preferences are different for different product categories.
- Preference patterns for channels are different across product categories.
- Grocery stores are generally more preferred for all product categories than are other channels.
- Preferences for non-grocery store channels often vary significantly across product categories. For example, on average, drug/convenience stores and mass merchandisers are not preferred for fresh f&v, but are relatively preferred for milk. Club stores are preferred for fresh f&v and frozen f&v, but less so for canned f&v.

2. Category-based channel preference correlation and household heterogeneity
- Channel preferences for different categories are positively correlated.
- Households show great heterogeneity in their category-based preferences for a channel.

Conclusions

- Our results allow for comparison of consumer preferences across the four food categories for a particular channel.
- Grocery stores are strongly preferred for all four categories.
- Drug/convenience stores and mass merchandisers are preferred more for milk than the other three categories.
- Supercenters are preferred more for frozen f&v than the other three categories.
- Club stores are preferred more for fresh f&v and frozen f&v than the other two categories.

- Consumers’ channel preferences for different categories are correlated.
- Generally, if a channel is preferred for one category, it is likely that the same channel is also preferred for another category.
- However, there is great heterogeneity among consumers: Some consumers prefer a channel for one category but not for another, while other consumers prefer the same channel for all categories.

Selected references


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Contact information: Yingxian Wu Penn State University ywx195@psu.edu

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