Risk Aversion and Preference for Store Price Format

Koichi Yonezawa* and Timothy J. Richards
Morrison School of Agribusiness and Resource Management
Arizona State University


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* Corresponding author. Contact: Koichi.Yonezawa@asu.edu.
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**Introduction**

- Consumers are interested in not only prices within one particular category but also prices of all products included in their basket. In the CPG market, a basket typically consists of many products across many categories (SymphonyIRI 2012), which makes it difficult for consumers to find the best deal for each product in their basket. The exact identity of each product is likely to remain undetermined until consumers observe its price in a store. In fact, Point of Purchase Advertising International (2012) reports that 78% of consumer's purchases result from unplanned and in-store decisions. These observations imply a basket price is uncertain when consumers make their store-visit decision.
- Retailers design pricing strategies that can be characterized as a choice of store price format between offering everyday low prices (EDLP) and high/low prices (HILLO). EDLP and HILLO strategies are characterized by the mean and the variance of price. Retailers attribute both EDLP and HILLO, but retailers tend to focus more on EDLP stores set prices which are constant over time, while EDLP stores set prices which are higher than EDLP stores on average, but use frequent sales featuring deep price reductions on a smaller set of products. Consumers decide where to shop under uncertainty about their basket price. In the CPG market, consumers' risk attitudes affect their product choice (e.g. Erdem 1998; Erdem and Keane 1996). Because consumers must choose a store before choosing a specific product, their attitudes toward risk may also influence store choice as well.

**Research Objective**

- The objective of this study is to investigate how consumers' risk attitudes influence store choice.

**Hypothesis**

- The retailers’ pricing strategies allow risk-averse and risk-prefering consumers to self-select store format. Risk-averse consumers may perceive that shopping at HILO stores is risky due to higher price variability and have an incentive to choose EDLP stores. Shopping at EDLP stores may allow consumers to minimize the risk that unplanned purchases of expensive products may increase their basket price. On the other hand, risk-taking consumers may prefer HILO stores because they have a positive probability of finding a product with lower price.

**Model**

- Utility level of a household \( h = 1, \ldots, H \) who visits a store \( i = 1, \ldots, I \) with \( k \) non-price store attributes, \( k = 1, \ldots, K \) and purchases a basket of \( j \) products, \( j = 1, \ldots, J \) at time \( t = 1, \ldots, T \), is as follows:

\[
U_{hti} = \alpha \sum_{j=1}^{J} Q_{hij} + \beta Z_{hti} + \sum_{k=1}^{K} X_{ki} \gamma_{khi}
\]

- The usual price is 50 EUs but, there is a chance it could be 40 EUs (HILO).

**Estimation**

- We use simulated maximum likelihood method to approximate the integrals of choice probability:

\[
P_{hi} = \int \frac{\exp \left( \sum_{j=1}^{J} (\tau_{sh} + \varphi_{sh}) a_{j} + \sum_{k=1}^{K} \omega_{k} d_{k} \right)}{\sum_{s} \exp \left( \sum_{j=1}^{J} (\tau_{sh} + \varphi_{sh}) a_{j} + \sum_{k=1}^{K} \omega_{k} d_{k} \right)} \, dF_{s}(\theta_{s}) \quad \text{for } \theta_{s} \in \Theta_{s}
\]

- We use 100 Halton draws.

**Pilot Experiment**

- We conduct a laboratory experiment because there is no suitable secondary data set that records store-choice and basket prices.
- We use a two-stage experiment with demographic section: identify subjects’ risk attitudes in the first stage and choose store format in the second stage.

**Result**

- The usual price is 46 EUs but, there is a chance it could be 40 EUs (HILO).

- The usual price is 50 EUs but, there is a chance it could be 38 EUs if items are on sale (HILO).

**Conclusion**

- Households with a lower coefficient of absolute risk aversion prefer HILO stores because they have a positive probability of finding a product with lower price.
- The effect of this risk attitude is heterogeneous among sample members.
- We proceed with main survey with larger sample size, which may improve the standard errors.

**Contribution**

- This study is the first attempt to combine experimental evidence on risk-aversion with a store choice experiment in a coherent way.
- This is the first store-choice study that incorporates risk preferences.
- This study makes a significant contribution to the literature by offering a new explanation about how consumers’ risk attitudes are related to consumers’ store choice.