Natural or Organic: An Empirical Analysis of Ready-To-Eat Cereal Market

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INTRODUCTION
As negative effects of the intensive use of synthetic chemicals in our industrial agriculture come to the public’s attention, food demand began to shift toward organic products. While the organic products are taking market share from conventional products, their own market is undermined by the category called “natural”. Organic label is regulated by the United States Department of Agriculture (USDA). No legal requirements are imposed for using the term “natural” except for meat and poultry, which means “bad” ingredients prohibited from organic products is allowed in “natural” foods. Consumers’ misperception and lack of regulation on “natural” labeling provide an opportunity for firms to cash in on consumers who desire for healthy and ecological sustainability by claiming their conventional products as “natural”, and consumers’ welfare might be consequently lessened.

OBJECTIVE
This study focuses on the U.S. ready-to-eat (RTE) cereal market. Specifically, I seek to examine:
- U.S. consumers’ preferences for natural and organic RTE cereals.
- Manufacturers’ price-cost margins for natural and organic cereals.

METHODOLOGY

Data:
- Obtained from Nielsen
- Market level data including 3 Designated Market Areas (DMAs): New York, Boston, and Hartford
- Sales of 9 organic cereal brands and 8 natural brands between 2008 and 2012

Demand: Random Coefficient Logit Model

The utility of consumer i from purchasing product j in market m is given by:

\[ u_{iim} = x_{im}p_{ij} + \epsilon_{im} + \delta_{i}, \]

where \( x_{im} \) is a vector of observed product characteristics, \( p_{ij} \) represents individual-specific parameter, \( \epsilon_{im} \) is the unobserved product characteristics, and \( \delta_{i} \) is a type I extreme value distribution error term. The random coefficient is given by:

\[ \beta = \beta + \sigma \gamma, \]

where \( \beta \) is the mean preference, \( \gamma \) represents heterogeneity across consumers, and \( \sigma \) is a parameter to be estimated.

RESULTS

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<th>Firm</th>
<th>Brand</th>
<th>Calories</th>
<th>Sugar</th>
<th>Saturated Fat</th>
<th>Sodium</th>
<th>Fiber</th>
<th>Price (/oz)</th>
<th>Market Share</th>
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Supply side:
By assuming a pure-strategy Bertrand-Nash equilibrium, the price-cost margins can be calculated from a set of first order conditions:

\[ S(p) = \frac{p - c(p)}{p} \]

where \( S(p) \) is the market share of product \( j \), \( p \) is the price of product \( mc \), and \( c(p) \) represents the marginal cost of product \( p \), and \( p \) is the set of products produced by firm \( j \).

REFERENCES