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**Consumer Valuation of a Shelf-tag Nutrition Icon:
The Case of Guiding Stars for Ready-to-Eat Breakfast Cereal Products**

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INTRODUCTION

Food manufacturers communicate with consumers about products' nutritional characteristics and promote sales using packaging information such as claims, statements, logos, and nutrition symbols (i.e., Front-of-Pack labeling such as Nutrition Keys)

Recently, more food retailers have also been adding nutrition information to shelf tags in stores. Guiding Stars®, developed by Hannaford in September 2006, is one of more prominent programs.

- 0 star
- 1 star – “good nutritional value”
- 2 stars – “better nutritional value”
- 3 stars – “best nutritional value”



Front-of-Pack

Guiding Stars Shelf Tag

OBJECTIVE

To extend the literature by exploring consumer valuation of the shelf-tag nutrition information by estimating the hedonic prices of the star ratings while controlling for nutritional and marketing attributes.

- previous US research examined cereal products, but did not include shelf-tag information
- A Swedish study of front-of-pack icon suggests the nutrition information may be negatively valued

DATA AND MODEL

Data

-- Guiding Stars ratings and Nutrition Facts label information of 378 cereal products sold at Hannaford

-- at Universal Product Code level, week of April 4-10, 2010 (3.5 years after the launch of the shelf-tag program)

Linear Model

Unit Price = f (star rating, package size, brand, first ingredient, nutrients)

- Star rating – 3, 2, 1, 0 stars (reference)
- Package size – number of servings
- Brand – national brands, other brands, private-label brands (reference)
- First ingredient – first item on the ingredient list : corn, wheat, oat, rice, other (reference)
- Nutrients – calories, saturated fat, protein, sodium, fiber, sugars, calcium, Vitamin C, Vitamin A, iron

RESULTS

- *Ceteris paribus*, Guiding Stars were negatively valued 3.5 years after program launch
- Major brands increase value
- Calcium and fiber contents increase value
- Saturated fat content decrease value

SUMMARY

- Valuation of the star rating information appears consistent with the valuation reported in the Swedish study
- Valuation also appears consistent with analysis of sales data (Lin and Lee 2011)
- Reasons?? Could “healthier” cereals are seen as less desirable?

Limitations

- Data (one-week sales, little front-of-pack information)
- uncertainty of what label information was observed and considered by buyers

ORDINARY LEAST SQUARES ESTIMATES (n=378; Adjusted R² = 0.76)

| Variable | Coefficient estimate (cents) | p value |
|---|------------------------------|---------|
| 3 star | -13.64 | <0.0001 |
| 2 star | -7.23 | <0.0001 |
| 1 star | -3.24 | 0.02 |
| Major brands | 7.96 | <0.0001 |
| Other brands | 18.15 | <0.0001 |
| Number of servings | -0.80 | <0.0001 |
| First ingredient is CORN | 8.26 | 0.001 |
| First ingredient is WHEAT | 0.23 | 0.92 |
| First ingredient is OAT | -0.68 | 0.75 |
| First ingredient is RICE | 5.76 | 0.03 |
| “Organic” in product name or first ingredient | 1.30 | 0.41 |

| Variable | Coefficient estimate (cents) | p value |
|---------------|------------------------------|---------|
| Calories | 0.19 | <0.0001 |
| Saturated fat | -2.23 | 0.04 |
| Fiber | 1.58 | <0.0001 |
| Sugars | -0.84 | <0.0001 |
| Sodium | -0.02 | 0.003 |
| Protein | 0.79 | 0.1 |
| Calcium | 13.45 | 0.004 |
| Vitamin C | 4.53 | 0.29 |
| Vitamin A | 2.78 | 0.76 |
| Iron | -2.41 | 0.37 |
| Intercept | 8.01 | 0.06 |