Valuation of Food Labeling

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Food Labels

- Voluntary and mandatory labeling programs are becoming popular in order to inform consumers about product characteristics.
  - Reduce Information Asymmetry
  - Contribute to Product Differentiation
  - If credible, reward producers using environmentally friendly practices, or promote rural and local foods, etc.
WIDE VARIETY OF FOOD LABELS

Environmental & Ethical Concerns
- Ecological Products
- Fair Trade

Local & Traditional Quality Labels
- PGIS
- PDOS
- State Labels

Health Concerns
- Obesity / nutritional labeling
- Tobacco / Health Warnings
Common Characteristics

- Most labels are used to claim characteristics NOT OBSERVABLE even after consumption (low-fat, PGI meat, etc): *credence goods*
  
  - *Credibility of Single Producers* is a Main Concern
  - *Collective Reputation* for Collective Labels (PGI labels)
  - *Third Party Certification Mechanisms*: different types
Difficulties in the evaluation process

- Relying on individual survey data which may suffer different biases
  - Bias: difference between what you do and what you say
  - Need to overcome bias related problems in the valuation process
  - Need to compare with previous studies and other results
  - Micro level studies are difficult to become generalizable!!
How to Measure their Value

- Analyzing market data (*Revealed Preference Data*)
  - Demand Analysis
  - Hedonic Models

- Simulated markets (*Stated Preference Data*)
  - Contingent valuation
  - Conjoint/Choice experiments
Let’s see Some Examples of the Implementation of the Different Methods....
Measuring the Value of Protected Geographical Labels in Spanish Meat
PGI labels as marketing tools

- Quality Signals
  - Reduce asymmetric information problems.
  - Transmits collective reputation of the product.
  - Create value-added differentiated products based on quality, “image and tradition”.
  - Promote market niche for local/specialty products.
Geographical Labeling in Europe: What type of labels?

- Protected food names carry one of the three labels:
  - Protected Geographical Identifications (PGI)
  - Protected Designations of Origin (PDO)
  - Certificate of Specific Character (CSC)
Galician Veal

- One of the five meats that has been recognized with a PGI label in Spain.
- Meat with high reputation and excellent quality.
- Very well known in the Spanish market.
A hedonic model (Rosen, 1974) reveals the marginal prices of meat attributes.

A hedonic model for fresh meat can be represented as:

\[ \text{Price} (\text{meat}) = f (\text{type of meat cut, color, freshness, label, etc.}) \]
Data Description

- 132 families reported consumption habits of meat (between March 31 and June 1, 1997)
- Total of 962 observations where collected, containing:
  - Behavioral Information (quantity, price, place, etc)
  - Consumers Perception of Meat (fat, color, etc)
  - Socio-economic Characteristics (family members, income, etc)
Econometric Models

- Estimation Procedure: Ordinary Least Squares

\[ Price = \beta_0 + \beta_1 \text{Quality} + \beta_2 \text{Label} + \beta_3 \text{Supermarket} + \beta_4 \text{Sale} + \beta_5 \text{Sirloin} + \beta_6 \text{ExpenSteak} + \beta_7 \text{OtherHigh} + \beta_8 \text{Ribs} + \beta_9 \text{Stew} + \beta_9 \text{Fat} + \beta_{10} \text{Color} + \varepsilon \]

\[ Price = \beta_0 + \beta_1 \text{Quality} + \beta_2 \text{Supermarket} + \beta_3 \text{Sale} + \beta_4 \text{Sirloin} + \beta_5 \text{ExpenSteak} + \beta_6 \text{OtherHigh} + \beta_7 \text{Ribs} + \beta_8 \text{Stew} + \beta_9 \text{Label} \times \text{Sirloin} + \beta_{10} \text{Label} \times \text{ExpenSteak} + \beta_{11} \text{Label} \times \text{OtherHigh} + \beta_{12} \text{Label} \times \text{Ribs} + \beta_{13} \text{Label} \times \text{Stew} + \beta_{14} \text{Fat} + \beta_{15} \text{Color} + \varepsilon \]
Results

- *Does the presence of the PGI bring a price premium?*
  - Yes. The presence of the PGI label is highly and positively significant in the price equation.

- *What other factors affect the price of meat?*
  - The type of meat cut, perceived quality, and place of purchase.
Results (cont.)

- Is the price premium the same across meat varieties?
  - No. PGI label plays a “selective” role determining meat prices, carrying a higher premium for higher quality cuts.
  - PGI label is not significant for either extreme of quality.
Recommendations for the Industry

- Increasing demand for high quality and health concerns will make PGI labeling an important marketing tool.
- **We recommend a selective use of the PGI labels for high quality products, where the potential for an excellent reputation is high.**
  - For example, no PGI labels should be used in stew meats.
U.S Example: State Promotion Labels, Washington Apples

- Share certain similarities with the European PGIS
  - Promotion campaigns are popular in order to enhance product recognition
- In a recent paper we assess how state promotion builds up reputation of a product, and how reputation affects market prices
- Promotion is in a way an investment in reputation that contributes to product differentiation
Nutritional Labeling and Obesity: Market Data in the U.S. but not in Europe
Percentage of Individuals Obese and Overweight in Selected Countries

Figure 1: Incidence of Overweight Problems Internationally
Obesity by Age and Country: ECHP

Source: Sanz-de-Galdeano, A., 2005
Nutritional labeling: The US Nutritional Panel

- specify the number of servings per container and the key nutrients of a serving in a 2,000-calorie-per-day diet (expressed as percentage of the Daily Value).
- Serving sizes on the label are standardized so that consumers can compare nutritional information between products.
The European Food Labels: Food Profiling

The Keyholder symbol applied in Sweden and Norway by the ICA retail group

- Non standarized
- Non-comparable information
- Still voluntary, unless a nutritional claim is made
International Concerns about Nutrition Labeling Practices

- In the EU provision of nutritional information is done on voluntary basis.
  - In a EU recent survey, it was found that 56% of all food products included tabular nutrition labeling and 44% had no tabular nutrition labeling. Inconsistent labeling information
  - Only those products healthier use labels (signaling and disclosure) and these become marketing tools.
- In the United States the Nutrition Labeling and Education Act (NLEA) was passed in 1990.
  - The resulting nutrition labelling regulations, which became fully effective in 1994, provide consumers with an unprecedented amount of nutrition information by mandating nutrition labelling on virtually all processed foods.
  - The Nutrition Facts Panel’s contents, regulated by the FDA, are specific to the food product or food product category
Food Labeling: Eco-labels

- Voluntary labeling programs that signal sound environmental production practices.
- Ecolabels reduce asymmetric information between producers and consumers:
  - Help consumers to choose environmentally friendly products.
  - Reward producers for their environmental leadership.
- Popular business strategy in domestic and international markets.
Nutritional Labeling coverage EU

- Large Geographical Differences:
  - UK: 75% of products are labeled
  - Spain: 54% of foods carry a label
  - Germany: 50% of foods are labeled
  - Poland: 41% of foods carry labels
Assessing the Benefits of Nutritional Labeling

Most previous studies were conducted in the US. They have shown that:

- After the NLEA 1991, unhealthy foods were transformed to healthier foods given that they were obligated to disclose their nutritional properties (Mathios, 1995).
- Labels help consumers selecting healthier food choices (Kim, Nayga and Capps, 1995).
- Labels increase knowledge of nutritional properties of foods among consumers.
Benefits of Labeling

- However, in spite of these encouraging results, recent studies show limitations of the NLEA to reduce obesity.

- Variyam (2006) finds that the implementation of the NLEA was associated with a decrease in body weight and the probability of obesity among non-Hispanic white women.

- One thing is to pass a cost-benefit analysis and another is to change radically consumers’ behavior (Golan et al., 2000).
European Preferences Towards Food Labeling

- Spanish study (Loureiro, Gracia and Nayga, ERAE, 2006) shows that consumers are supportive of future food nutritional labeling.
  - On average, in a sample of 400 representative shoppers the mean WTP for nutritional labels carried by energy dense food was about 11% of the initial price.
  - Individuals watching their diets due to medical reasons and obese were willing to pay on average more.
Spanish Preferences Towards Food Labeling

- However, choice experiments show that the presence of a known brand is more important than the level of nutritional information provided when facing shopping decisions.

- *Can marketers savvies offset more stringent regulations with better promotion campaigns and more interesting product design?*
When no market data are available: The case of eco-labels….

• The case of the TFA-Ecolabel
International Ecolabeling Programs
TFA: The Food Alliance.
Non profit organization located in Portland-OR.
Market-based incentives to promote sustainable agricultural practices.
Farmers who meet TFA criteria become eligible to market their products with the TFA-Approved seal.
Only labeling program in the Northwest based on farm practices.
Motivation

- Increasing public awareness of environmental issues.
- Is there a market potential for this new eco-label?
- Growing empirical literature dealing with “green marketing.”
- Studies in ecolabels have drawn different conclusions about consumers’ WTP.
What is ecolabeling?

- Voluntary labeling programs that reduce asymmetric information between producers and consumers:
  - Help consumers to make environmental friendly decisions.
  - Reward producers for their environmental leadership.
Research Goals

- Is there a market for ecolabeled apples?
- What type of consumers choose ecolabeled versus organic apples?
- Are consumers willing to pay a premium for ecolabeled apples?
- Were consumers consistent between their valuation and their real market choice?
Data collection: 1. Survey

- Conducted in cooperation with TFA in two stores in Portland area.
- 285 completed questionnaires:
  - Consumers’ purchasing habits of fresh apples.
  - Consumers’ environmental and food safety attitudes.
  - Elicitation of WTP estimates with a double-bounded format type of questions.
  - Socio-demographic characteristics of the sample.
2. Experiment: Coupons

- Numbered coupons were linked to numbered surveys.
- Each consumer received three coupons (for ecolabeled, organic and regular apples).
- Randomly assigned discounts.
- Coupons expire the same.
Results: Factors that affect selection and WTP for ecolabels

- 52% of the consumers were willing to pay a premium for ecolabeled apples.
- Determinants of selection and WTP for ecolabeled apples are difficult to identify.
- Presence of children has negative effect on choosing ecolabels, but a positive one on WTP.
Are consumers “really” willing to pay a premium for ecolabeled apples?

- **Two-Steps model in which,**
  - First equation models stated preferences with a double-bounded model.
  - Second equation models actual behavior as a function of stated preferences and other attributes and socio-economic characteristics.
  - We will test whether consumers acted consistently in the market experiment with their stated preferences.
Real Behavior and Consistency

Results

- Discount coupon is a significant factor in purchasing ecolabeled apples.
- Food safety and environmental attitudes have a positive effect on actual purchase of ecolabeled apples.
- Results show evidence that consumers’ stated preferences are consistent with their stated preferences.
Publications: Eco-labels and Organic Products


Conclusions

- Food labeling studies are becoming very popular as marketing strategies
- Useful determining marketing potential for new products
- Different types of valuation exercises:
  - Interesting and most useful results when contrasting revealed and stated behavior: what you say and what you do.
Some other applications…
Country of Origin Labeling

- To assess consumer preferences for COOL.
- Topic of political relevance
Colorado Consumer Study:

- 273 Consumers in Colorado
- Near 500 surveyed in the US
- Surveyed on WTP for COOL Hamburger and Steak
- Bid on “USA Guaranteed: Born and Raised in the U.S.” Labeled & Unlabeled Steak
COOL publications

GM-Labeling


Fair Trade
