**Willingness-to-Pay for Natural, Organic, and Conventional Foods: The Effects of Information and Meaningful Labels**

**I want to submit an abstract for:**  
Conference Presentation

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**Keywords**  
Willingness-to-pay, all natural, organic, conventional, apples, broccoli, eggs, random n-th price auction, food labels, information

**Research Question**  
In the U.S. "organic food" must be produced to meet a set process-based standard, but "all-natural food" does not have a standard. Confusion sometimes arise.

**Methods**  
The objective is to test for food label and information effects on subjects willingness-to-pay for all-natural, organic and conventional apples, broccoli and eggs. WTP determined by random n-th price auction

**Results**  
See last paragraph in abstract below.

**Abstract**  
In the U.S. increasingly popular foods are those labeled as “Organic” and “All-Natural.” The popularity of organic food has been enhanced by the implementation in 2002 of the National Organic Plan (NOP) by the USDA, laying out a strictly process based standard. Organic food must be produced using items off a national list of allowed substances, but not to use items on the list of disallowed substances: synthetic fertilizers and pesticides, growth hormones, antibiotics. Products must be produced without the use of excluded methods: biotechnology, irradiation, sewage sludge (potential source of fertilizer nutrients). Each producer and processor must have an organic production plan certified by USDA-NOP certifying agent. Food produced under the NOP and have at least 95% organic ingredients can be labeled as “Organic” and carry the USDA’s organic food seal.
In contrast, all-natural foods lack a set of guidelines or legally-binding standards, and hence, there is no certification process. However, the USDA has an informal policy suggesting that foods that claim to be natural or all-natural should not use artificial flavors, coloring, chemical preservatives. The Food and Drug Administration (FDA) recommends no artificial or synthetic substance. However, claims made by all-natural food producers in the U.S. are somewhat vague and frequently distorted. Organic and all-natural foods are credence goods. Consumers cannot accurately distinguish between them even after consuming them. Hence, consumers are sometimes confused about what all-natural and even organic food labels mean; or even the extent to which they differ from conventionally produced foods.

The objective of this study is to test for food label and information treatment effects reflected in real consumers’ WTP for organic, all-natural, and conventional foods. To be able to do this, we collect unique data from lab experiments performed on a random sample of 102 adults aged 18-65 years in a Midwestern city during April, 2013. Subjects were paid $65 for participating in our project. The experimental commodities are 3 lbs. of Red Delicious apples, 1 ¼ lbs. of fresh broccoli, and 12 large brown eggs. We chose these commodities because they are common and regularly-consumed fresh products available across the three types and are sufficiently different to capture subjects’ heterogeneity in tastes. Each subject in our experiment is randomly assigned to one of five information treatments: (i) no information baseline, (ii) natural food industry perspective, (iii) natural food industry perspective plus independent perspective on natural foods, (iv) organic food industry perspective, and (v) organic food industry perspective plus independent perspective on organic foods.

A subject’s willingness to pay for a commodity is determined by an incentive compatible auction mechanism. Among alternatives, including the Vickery 2nd price auction, we chose the random nth-price auction to elicit each subject’s WTP for a food item. This auction mechanism has incentive compatibility properties, i.e., the bidder’s dominant strategy is to truthfully reveal her valuation, and moreover, it has superior performance in practice. Subjects participate in two practice rounds of bidding to learn the auction mechanics. First, subjects come to the front of the lab and view a candy bar and return to their seat to write down a bid. The session monitor collects the bids and ranks them. If there are k subjects in a session, the session monitor draws randomly a number between 2 and k to determine the random “n.” All subjects who bid strictly higher than the n-th ranked price are winners of the candy bar. For example, if k = 15 and n = 5, the winners of a commodity are all those subjects who bid strictly higher than the 5th highest bid. Second, subjects come to the front of the room to view three different office supplies, and then returned to their seat to place bids on each of them. The session monitor again collects the bids, ranks them for each commodity, draws the random n and determines winners. After questions are cleared up, subjects are asked to read the information treatment in their packet, and then they are asked to come to the front of the lab, view three experimental products (apples, broccoli and eggs), and then return to their seat to record their bids. There are three rounds of bidding. All three commodities in a given round carry the same type of label: plane label (product name and weight/or count), organic label (product name, weight, word “Organic” and the USDA’s Organic seal), and all-natural (product name, weight, words “All-Natural.” No bids on experimental products are revealed until all bids have been placed and collected by the session monitor. The monitor then chooses one of the three rounds of bidding as binding (to be executed by winners) and then the random n to determine winners in this round. There are winners for apples, broccoli and eggs.

Our study is unique in that it focuses on a range of food products (fruits, vegetables, and eggs) across the conventional, natural, and organic types. We expand the literature on information, labeling, and valuation of natural and organic foods with several contributions. First, we confirm that subjects are willing to pay premiums for organic over all-natural foods and all-natural over conventional foods. Second, our value of information estimates show that subjects’ WTP premium is significantly affected by information treatments. Relative to those who are uninformed, subjects receiving the organic industry perspective plus independent perspective on organics have lower organic premiums, while those receiving the natural food industry perspective have higher premiums. This suggests there could be sizeable economic benefits from clearing up misconceptions about natural and organic foods by providing more accurate information and labeling. Third, we find that subjects’
demographics attributers—gender, household income, number of children, whether read food labels—are important factors explaining WTP premiums. Our results reflect the fact that the natural and organic food industry has become broader, with customers who cannot be adequately characterized by a handful of demographics.