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Is it love for local/organic or hate for conventional? Asymmetric effects of information and taste on label preferences in an experimental auction

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ABSTRACT

We endowed consumers with conventional apples and auctioned local, organic and organic–local apples to elicit consumers' valuation and the response to two experimental treatments: scientific information and taste. For both local and organic labels, which participants valued as partial substitutes, positive willingness to pay is conditional on distrusting the governmental food agencies. Information documenting the inconclusive scientific evidence in favor of organic and local production had mixed and small effects. Participants with positive valuation reacted to organoleptic characteristics when the new information favored the labeled apples. The observed behavior is more consistent with polarization against conventional products, rather than in favor of local and organic.

1. Introduction

Acknowledging a strong consumer interest in knowing more about the food they eat, the food industry has embraced the provision of information as an instrument to differentiate products, segment consumer demand, and realize prices above marginal cost. Marketing efforts have been shifting from the promotion of food products to the promotion of food attributes (Caswell & Mojduszka, 1996; Stolzenback, Bredie, Christensen, & Byrne, 2013) so that information on what food contains, how it is produced, and where it comes from is increasingly available.

As the number of food labels continues to expand, understanding how consumers process label information and use it in purchase decisions has become more and more complex. Positive willingness to pay (WTP) for differentiating labels has been estimated for a vast number of product-label combinations and recently researchers have become interested in studying how two or more distinct label criteria may interact in determining WTP and consumer food choices. For example, Bernard and Bernard (2009) examined the case of organic, rBST-free, and no-antibiotics labels in milk, and found evidence of diminishing marginal utility as additional attributes are combined in labels.

The present study is similarly aimed at understanding how two labels with distinct but potentially complementary characteristics—local and organic—interact. It is part of a larger national consumer research project examining the relationship of organic, local, and food-mile labels using survey data (Onozaka & Thilmany McFadden, 2011), in-store auctions (Costanigro, Kroll, Thilmany McFadden, & Nurse, 2011), and laboratory auctions with sequential release of information (this study) to address several questions on a common theme. The entire project's focus is on local and organic because of the proliferation of local marketing innovations (farmers' markets, "Community Supported Agriculture" subscription programs, regional food hubs), the considerable government (USDA) involvement in the certification of credence-based attributes ("National Organic Program," various process-based verification programs managed by USDA-AMS), and significant investments in domestic promotional efforts (state-based "Buy Local" programs and the USDA "Know Your Farmer, Know Your Neighbor" initiative), which have influenced both the organic and local segments.

Three principal research questions are addressed in this article. First, as in other studies, we obtain estimates of the WTP premiums for a specific local, organic, and organic–local food item (apples). Furthermore, we investigate whether the organic and local labels interact as complements or substitutes, and measure the extent to which the labels may convey overlapping or opposing information or quality cues. Second, we examine whether the provision of scientific information highlighting tradeoffs between conventional, organic and locally produced food changes WTP. That is, we test the hypothesis that consumers' valuation is, at least in part, owed to incomplete knowledge or biased beliefs, which potentially could be mitigated by information provision. Finally, we take advantage

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of the controlled laboratory environment to investigate how consideration of intrinsic attributes such as taste and appearance may influence the valuation of the labels (which certify extrinsic credence attributes) and the choice between conventional, local and organic products. In the rest of the Introduction, we provide further context and motivations for each of the hypotheses we investigated.

1.1. Research hypotheses and motivations

H_0^1: The WTP premium for products labeled "local" *and* "organic" equals the premium for products labeled "local" *plus* the premium for products labeled "organic."

Unlike the relative similarity of the milk labels considered in Bernard and Bernard (2009), organic and local certify a completely different set of product attributes: put simply, one refers to *how* the food is produced, the other to *where* it was produced. If consumers value the labels and the attributes they certify *per se*, as it is commonly assumed in standard random-utility models, then the prior is that average valuation for the two labels should be roughly additive. Lusk and Briggeman (2009), however, emphasize how consumers may not value the attributes themselves, but rather how the (real or perceived) outcomes they signal may resonate with their preferences. In Lusk and Briggeman, WTP for organic products is found to be larger for consumers who value "nutrition," "naturalness," "environment," and "fairness" more than the average consumer. Similarly, local foods have been linked to a perception of better social and environmental outcomes, and some consumers infer that the shorter supply chain allows for fresher and better tasting products (Pearson et al., 2011). In short, if local and organic are perceived to provide somewhat overlapping outcomes, then we should observe some level of substitutability between the two labels.

H_0^2: Valuation of local and organic does not change when participants are informed that environmental and nutritional outcomes often associated with local and organic food products are not substantiated by scientific evidence.

Organic foods were officially introduced in the US in 1990, when the Organic Foods Production Act (OFPA) required certification through approved production and handling plans. Food companies' marketing and promotional messages, however, have been strongly focused on more far-reaching, hypothesized outcomes (e.g., "better for you, better for the environment"). After more than three decades the evidence regarding such outcomes remains mixed: for example, a scientific summary (Winter & Davis, 2006) of the existing body of research comparing organic and conventional products found that "while many studies demonstrate [these] qualitative differences between organic and conventional foods, it is premature to conclude that either food system is superior to the other with respect to safety or nutritional composition."

In the case of local products, the situation is even more confused, as a single definition of the attributes defining local production is lacking. Hand and Martinez (2010) recently summarized the findings from the existing body of consumer research on local products, and reported that interpretations of "local" vary from geographic boundaries, to distance traveled by the food or "food miles," or even some *ad hoc* restrictions on the length of the supply chain. Given how recent and imprecise the definition appears to be, the only scientific information on which we could communicate research-based findings for local food relates to the relative impact of food miles (a rather small marginal change) on the carbon emissions associated with food production (Weber & Matthews, 2008).

This paucity of evidence of better outcomes seems at odds with the activism of consumer groups promoting the production and consumption of local and organic food products, and suggests that, as Fitzsimons et al. (2002) point out, unconscious factors may play a critical role in consumer psychology. Recent research has shown (see the overview by Chartrand and Fitzsimons (2011)) that virtually all consumer decision making range on a continuum from highly conscious to entirely nonconscious. Our assumption is that the provision of context and scientific information may induce more conscious psychological processes, and cause some consumers to reconsider their valuation of local and organic products.

The third research theme relates to the effect of sensory information, which we investigate in three sub-hypotheses under the overarching assumption that sensory evaluation should trump the ex-ante valuation of local and organic.

$H_0^{3.A}$: Valuation of local and organic increases when sensory assessment reveals a product quality superior to the conventional counterpart.

$H_0^{3.B}$: Valuation of local and organic decreases when sensory assessment reveals a product quality inferior to the conventional counterpart.

$H_0^{3.C}$: The effects of superior (then conventional) and inferior sensory quality have opposite sign but equal magnitude. That is, they are symmetric.

Taste ranks very high in the list of consumers' priorities when they make food choices, and this holds particularly true with apples (Galmarini, Symoneaux, Chollet, & Zamora, 2013). In their list of nine food values (which in our context correspond to "outcomes"), Lusk and Briggeman (2009) ranked taste as the third-most important among consumers (after safety and nutrition, but before price). Costanigro et al. (2011) reported a similarly ranked list and emphasized how all privately appropriated outcomes (taste, healthfulness, good value, convenience) are, on average, ranked above public-good outcomes (environmental impact, preserve farmland, social fairness), while in an experimental auction Melton, Huffman, Shogren, and Fox (1996) showed that consumers are very much willing to change preferences and bids to follow their taste buds.

Apples are a good choice for valuation experiments because of world-wide popularity, consumer familiarity, and level of consumption. Bogs, Bunning, and Stushnoff (2012) reported that even untrained consumer panelists were able to identify taste differences between inner-canopy and outer-canopy apples which matched quantitative assessments of higher soluble solids (a measure of sugar content) in the latter. Stolzenback et al. (2013) found that consumer expectations toward locally produced apple juice were higher, and consequently liking for local juice was higher, based on product information versus blind taste tests. Dinis, Simoes, and Moreira (2011) observed that socioeconomic status did not matter across consumers willing to pay a higher price for apples with better taste, and intrinsic characteristics (taste, texture, appearance) significantly impacted WTP of Portuguese consumers but the threat of product extinction did not.

Since more than one study reports that consumers perceive organic products have better taste (see also Davies, Titterington, & Cochrane, 1995), it is possible that valuation without accounting for taste may be misleading. For products that are frequently purchased, label valuation may change significantly after consumption if WTP for local and organic is, at least in part, owed to experience rather than credence attributes. Our intent is therefore to explore how positive and negative sensory experience influences product valuation, and see if new information is internalized differently depending on whether the new cues confirm or deny previous ex ante expectations.

Two other studies examined the relationship between taste and labels (Nalley, Hudson, & Parkhurst, 2006, for sweet potatoes, and Combris, Bazoche, Giraud-Héraud, & Issanchou, 2009, for wine) and found that WTP for the food products changed when location of origin and taste information were made available. The fundamental difference of this study is that we explicitly model how