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What Drives Household Choice of Organic Products in Grocery Stores?☆

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Abstract

This paper studies how households choose organic products on a given store visit. We develop a three-stage purchase incidence/brand choice/purchase quantity model for organic products. Shared random effects parameters link the three stages of the model. We empirically quantify the effects of category variables, marketing mix, and demographic variables on the purchase of organic products using a unique household panel dataset that includes actual organic purchase data from two markets, by over 4,500 households in 25 stores for the period between January 2004 and June 2009. First, we find that the purchase of organic products is greater among the high income, college educated, and older families as well as among consumers holding high-level occupations. Second, households tend not to purchase organic products when buying in concentrated categories. Third, on average, households tend to buy organic store brands more than the organic national brands. Promotions of organic brands (feature ad and display) are less likely to drive households to buy organic brands and so does the organic brand's distribution breadth. Finally, price has an inverted U-shaped effect. We discuss the implications of these results for retailers, manufacturers and researchers.

Keywords: Organic products; Marketing mix; Shared-parameter latent factor regression

The market for the organically produced goods has grown substantially. Today, it is possible to buy organic products in food (e.g., biscuits, yoghourts) and nonfood (e.g., personal care products, nutritional supplements) product categories. While definitions differ, many agree that organic products refer to products made without the use of conventional fertilizers, pesticides, hormones, or genetically modified components. Organic agriculture has become a worldwide phenomenon with over 59 million acres (Organic Trade Association 2004). In 2005, worldwide market for organic food grew from £1.2 bn to £16.7 bn (The Soil Association 2006). The Organic Trade Association (OTA) also estimates that, in 2005, the US total organic food and beverage sales in conventional stores (e.g., supermarkets, grocery stores) reached $3.6 billion.

Selling organic products in supermarkets, however, is not easy. In 2006, Wal-Mart decided to increase its organic products offerings and to make products affordable with the "Wal-Mart price"—i.e., reduce the price premium to just ten percent more than the conventional products (New York Times, May 12, 2006). Such a move worried the core buyers of organic products, organic farmers, consumer activists, and regulators (http://www.cnn.com, Wal-Mart accused of "organic fraud"). In 2007, Wal-Mart started to back off. The demand for the organic products has not kept pace with the company's plans, causing a drop in sales for suppliers that Wal-Mart had placed orders with (*Business Week*, April 12, 2007, "Organic products: A Poor Harvest for Wal-Mart").

The problems faced by Wal-Mart may happen to other retailers, as indeed the marketing literature, so far, has provided few insights into the commercialization of organic products (Hughner et al. 2007). While there is a growing literature on the economics of the organic food products industries (e.g., Lohr 1998; Thompson and Kidwell 1998), little is known about the consumer decision making regarding organic products in a grocery supermarket context. A number of academic studies have examined the factors that influence the purchase of organic products (see Bonti-Ankomah and Yiridoe 2006; Hughner et al. 2007). Most of the studies have focused on the consumer profile (e.g., demographics) not on the actual behaviors in a store. Second, most of the studies have used perceptual measures obtained with mail surveys, in-store/outside-store surveys, and individual or focus interviews. Consumer surveys may provide insights into the reasons why shoppers buy organic products. However,

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they do not reflect what consumers really do. Furthermore, the reasons that drive customers such as health concerns are partly exogenous to manufacturers and retailers, who have more latitude on the marketing instruments and expenditures. Hence, managers need to know the marketing instruments that would maximize the demand for their products. For example, which price level is appropriate for my organic brands? How does sales promotion influence the demand for organic products?

We explore the drivers of consumer choice of organic products in supermarkets by looking at three related consumer decisions: (1) the purchase incidence or product type choice, (2) the organic brand choice, and (3) the purchase quantity. We intend to provide answers to the following questions: (I) what drives consumer choice of organic over conventional products? For example, how do consumer demographics influence the organic product choice? (II) What drives the consumer's choice between two organic brands? For example, do brands with frequent promotions attract more buyers, or are they more likely to lose share to less promotional brands? (III) Why do some consumers buy more units while others buy fewer units of organic brands? Do consumers buy more units of organic store brands as opposed to the national organic brands? The remainder of this paper is organized as follows. We begin with a discussion of the dataset. Next, we present the model. Then, we present the data analysis results. Finally, we end this study by discussing the implications and making suggestions for future research.

Data

Our empirical setting is the French grocery retailers. We use purchase records from MarketingScan's BehaviorScan panels in Angers and Le Mans for the period between January 1, 2004, and June 30, 2009, or 5 years and a half (286 weeks). MarketingScan©, a GFK & Mediametrie Company, runs two panels in two different cities. The two test markets (Angers, 152,337 inhabitants and Le Mans 144,500 inhabitants) are the 17th and 21st largest French cities respectively. Panels represent stratified samples of about 4,500 households each. In the first city Angers, with a population estimated at 156,000, there are fourteen stores, all of which represent more than 56,300 m^2 of selling space in a city. In Le Mans (150,000 inhabitants), there are eleven stores. The stores covered account for 95% of the grocery sales in the city. The panel members also make more than 95% of their purchases at these stores. Since the panel composition changes over time, only households that remained across the entire period were selected. We retain only the categories with at least two organic brands.[1] This should allow us to examine the factors that lead consumers to choose one organic brand over another. The datasets we analyze are composed of purchases (both organic and non-organic) made by 3,323 panelists in Market A (Angers) and 3,619 panelists in Market B (Le Mans) over 286 weeks in 25 stores (14 stores in Market A and 11 stores in Market B) owned by eight different chains. The (retained) number of product categories equals 56 in Market A and 50 in Market B. Among the 3,323 households in Market A, 2,330 purchased an organic brand at least once during the entire period (37,404 purchases) while in Market B, the 41,462 purchases were made by 2,309 households. Fig. 1, which reports the average monthly number of units bought by households when they buy organic products, shows that the consumption of organic products has significantly increased over the last 3 years in the datasets (2007–2009). This reflects the fact that the penetration rate of organic products has significantly increased over the period. Furthermore, on average, we observe that, except for the year 2009, the demand for organic products tends to increase during the April–July period and then it decreases in August. A closer examination of the data suggests that in April through July, consumers increase their consumption of specific products such as roasted coffee, UHT milk, Eggs, ambient juice, chocolate tablets, and pastas. In addition, we report the share of private labels—computed as the number of private label SKUs divided by the total number of SKUs in the market expressed in percentages. There is a decrease in the share of private labels, reflecting the interest that brand manufacturers now express in this market. Furthermore, the share of scanned private label SKUs follows almost the same pattern as the average number of units bought per month. It increases from April through July. This probably reflects the growing concerns about food safety and environment protection in the country (Fig. 2).[2]

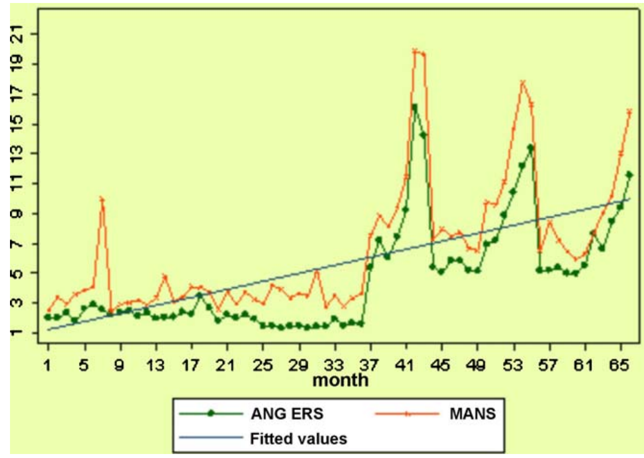

Fig. 1. Average number of organic units bought per month from January 2004 through June 2009.

[1] One of the problems was that organic products purchases are rare events in our datasets. It is known that the probabilities calculated using logistic distribution can be substantially underestimated (King and Zeng 2001). As a solution, we select the buyers of conventional products from those who bought in the same category but turned out not to buy organic products (King and Zeng 2001).

[2] Indeed, there are many opinion polls in France that indicate that the population is more and more concerned about food safety and environmental issues. For example, the IFOP surveys show that 48% of people in 2009 considered that food safety has deteriorated (vs. 35% in 2006), http://www.ifop.com/media/poll/1179-1-study_file.pdf. In another survey by the official French Statistical department (INSEE), it appeared that about 72% of the French households now sort their garbage (2.5 times the 1998 figure). Those attitudes probably explain the increase in the number of categories carrying organic products.