



Consumer attitudes towards organic versus conventional food with specific quality attributes

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ABSTRACT

This paper describes the findings from a consumer survey conducted as part of the EU-funded research project QualityLowInputFood (QLIF). The objective was to segment occasional organic consumers with regard to their preferences for organic, conventional and conventional-plus products, i.e., conventional products with a specific attribute that also applies to organic products. In other words, these conventional-plus products are placed between organic and conventional food products. In addition, we aimed at analysing differences between consumer segments regarding their price sensitivity and attitudes towards food. The survey used choice experiments to investigate occasional organic consumer preferences for the different types of products. In subsequent standardized face-to-face interviews we collected data on consumer attitudes towards food that could explain the observed preferences. The attitudes were summarized in attitude factors, using factor analysis. The responses from the interviews and choice experiments were analysed by latent class models. These econometric models were used to identify segments within a group of individuals for their preference structure and to relate membership in each segment to consumer characteristics. Two segments of occasional organic consumers were identified. Consumers in segment 1 strongly preferred organic products and were less price sensitive. Furthermore, consumers in this segment showed a significantly higher level of agreement with most of the investigated attitude factors than consumers in segment 2. The latter consisted of consumers who were significantly more price sensitive and preferred conventional-plus and conventional products rather than organic products. Communicating quality attributes represents a promising marketing tool of product differentiation and information for both organic and conventional food marketers. The price sensitivity of parts of occasional organic consumers suggests that the perceived price-performance ratio of organic products needs to be increased by targeted pricing and communication strategies integrating product-relevant information. If not, conventional-plus products, representing a cheaper alternative, might be preferred by parts of the occasional organic consumers.

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1. Introduction

Although the organic food market has grown continuously over the past decade, the total share of organic food¹ is still small compared with the total food market. The highest market shares are 5% and are reached in Denmark, Austria and Switzerland [2]. Earlier research has identified several factors that restrain consumers from buying (more) organic food. Apart from a lack of availability of organic products, a lack of trust in and awareness of organic food, and the price premiums of organic compared with conven-

tional products are considered major barriers to the development of the organic food market [3–6]. Furthermore, several studies [5–14] provided evidence that consumer attitudes towards organic food significantly influence their choice. The most important attitudinal choice factors include health concerns, environmental concerns, taste preferences and preferred origin of food. Thus, purchasing organic food is assumed to depend on whether the consumer perceives a utility related to organic products that would compensate the commonly existing price premiums.

However, recently, conventional-plus food products are increasingly available on the food market. These are conventional food² products that communicate a specific attribute that also applies

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¹ Organic food is food produced and certified according to organic principles, e.g., defined by EU Regulation 834/2007 [1].

² In this paper the term conventional food refers to food that is not certified organic food.

to corresponding organic products. Examples of attributes communicated on conventional-plus products are ‘free from artificial additives’, and ‘free-range’. Thus, conventional-plus products may be considered as products placed between organic and conventional products.

Given this overlap with respect to specific attributes, conventional-plus products could compete with organic products. Particularly consumers who occasionally buy organic food might be interested in conventional-plus products. In this paper, occasional organic consumers are defined as consumers who buy at least two organic products a month but not more than four organic products from different product groups more than twice a month.³ This interest is expected because occasional organic consumers display a certain interest in food quality while being less focused on organic food compared with regular organic consumers.

Against this background, the objective of our survey was to identify segments among occasional organic consumers with respect to their preference for organic, conventional-plus or conventional products in Germany and Switzerland. Furthermore, we aimed at analysing the impact of different price levels and consumer attitudes on consumers’ observed preferences.

We focused on three products: milk, yogurt and apples. The empirical research consisted of choice experiments combined with standardized face-to-face interviews. The latter addressed consumer attitudes that might explain consumer preferences. The responses from the interviews and choice experiments were analysed using latent class models [15]. These econometric models are used to identify segments within a group of individuals about their preference structure and to relate membership in each segment to consumer characteristics [15].

The following sections of this paper include a description of the theoretical framework for consumer preferences, the material and methods used in this research, and present the results, discussion, and conclusions.

2. Theoretical framework

The choice experiment approach is consistent with Lancaster’s theory of consumer choice [16]. This theory postulates that consumption decisions are determined by the utility that is derived from the attributes of a good, rather than from the good per se. The econometric basis of the approach rests on the behavioural framework of random utility theory, which describes discrete choices in a utility maximizing framework [17,18]. Statistical analyses of the responses obtained from choice experiments are used to estimate the marginal values of attributes of a good. In this study, the analysis employs the latent class model [14] to estimate individual preferences for organic, conventional-plus and conventional food and also to investigate the presence of consumer segments with distinct preferences.

The premise of the latent class model (LCM) is that the population consists of a number of unobserved (or latent) groups of individuals (segments), each characterized by relatively homogeneous preferences. However, these segments are assumed to differ substantially in their preference structures. The main objective in the estimation of the LCM model is to identify the existence and

³ We measured the intensity of organic food consumption by means of an index with a scale from 0 to 14 points. The participants were asked for their organic consumption intensity in seven different product groups with the standardized answer categories ‘almost never’ (0), ‘sometimes’ (1) and ‘almost always’ (2). The numbers in parentheses show the points assigned to the categories. For each participant, the points reached in the seven product categories were added up. Consumers with an index of 2–9 points were classified as occasional organic consumers. Consumers with a higher index were classified as frequent buyers of organic food and therefore not included in this research.

the number of segments, estimate the preference structure within each segment, and relate membership in each segment to consumer characteristics. Latent class models have long been applied in market research [19–22].

We briefly outline the specification of the LCM as applied in this research. It is assumed that an individual n faces a choice of selecting a preferred alternative from a set of $J=3$ alternatives (plus a no-choice option). In this study the three alternatives were organic, conventional-plus and conventional of a specific product (milk, yogurt or apples). The attributes of alternative i faced by respondent n are collectively labelled as vector x_{in} (in this study the alternatives varied in terms of one attribute, i.e., price). Supposing that individual n belongs to segment s , then the individual’s utility function associated with the preferred alternative i is:

$$U(in|s) = \beta'_s x_{in} + \varepsilon_{in|s} \quad (1)$$

where β_s represents the segment-specific preference parameters to be estimated and $\varepsilon_{in|s}$ is a random term that is assumed to be independent and identically distributed according to an extreme value distribution. The probability that individual n chooses alternative i , conditional on belonging to a given segment s , is [16]:

$$P(in|\beta_s) = \frac{\exp(\beta'_s x_{in})}{\sum_j \exp(\beta'_s x_{jn})} \quad (2)$$

The log-likelihood for the LCM with s latent segments is given by:

$$LL = \sum_n \ln \left[\sum_{s=1}^S P(s) P(in|\beta_s) \right], \quad (3)$$

where $P(s)$ is the probability that individual n belongs to segment s and β_s is a vector of segment-specific coefficients to be estimated. Following Hensher and Greene [23], $P(s)$ is specified to have the standard multinomial logit form:

$$P(s) = \frac{\exp(\lambda_s z_n)}{\sum_{s=1}^S \exp(\lambda_s z_n)}, \quad (4)$$

where z_n is a set of observed individual characteristics (in this study attitudinal factors), that are included in order to explain segment membership and λ_s is a vector of segment-specific parameters to be estimated that denote the contribution of the various attitudinal factors to the probability of segment membership. In our empirical application, the aim was to identify segments within the target group of occasional organic consumers that differ from each other with respect to attitude factors (case-specific variables) and behaviour towards higher prices (alternative-specific variable).

3. Materials and methods

3.1. Design

The choice experiments were carried out in laboratories in order to ensure a lower risk of interference and a higher internal validity than field experiments that observe real-life situations, e.g., food purchased in a shop [24]. Furthermore, we conducted laboratory choice experiments because the conventional-plus products did not exist on the market at that time.

The products tested in the experiments were organic, conventional-plus and conventional milk, yogurt and apples. Unlike a large number of studies on food choice, we used product dummies of real physical product packages for milk and yogurt that were designed by a company, and real apples (variety Gala in 1-kg batches). The packages for milk and yogurt resembled existing products but did not contain any food.

In order to avoid any bias, the product dummies did not carry a brand name. The general package design across all three prod-

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