



Determinants of organic food purchases: Evidence from household panel data

Meike Janssen

Agricultural and Food Marketing, University of Kassel, Steinstrasse 19, 37213 Witzenhausen, Germany



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ABSTRACT

There is an ongoing trend towards the consumption of organic food in many industrialized countries. For food producers and marketers, it is interesting to know the determinants of organic food consumption. The great majority of previous research on this topic was based on consumer surveys or interviews with questions on past or future behaviour or attitudes towards organic food. However, there is a potential bias in these measures. The aim of the present study was therefore to determine the drivers of *actual organic food purchases* and compare them with the drivers of *attitudes* towards organic food. The analysis was based on household panel data from Germany provided by the company GfK documenting all food purchases of $N = 9470$ households during the entire year of 2008. The data on actual purchases of organic food were linked with survey data from the same households on attitudes towards different food characteristics. The analysis confirmed the phenomenon of an attitude-behaviour gap in the market for organic food. Nevertheless, the structural equation models provided evidence that attitudes towards organic food and organic food purchases were both driven by the same determinants; however, the relative importance of the determinants differed. In both models, 'naturalness and healthiness' and 'environmental protection' were the two most influential drivers. Other significant determinants with a positive influence were the preference for 'local and domestic food' and the desire for 'high quality food and enjoyment of eating'; 'price consciousness' and 'convenience orientation' both had a significant negative effect. The paper concludes with implications for future survey research on organic food and recommendations for producers and marketers of organic food.

1. Introduction

During the past two decades, the market for organic food has grown steadily in Europe (Willer & Lernoud, 2015).¹ Not only among marketing practitioners but also in academia, there has been much attention on determinants of organic food consumption, foremost reasons why consumers buy organic food and factors hindering organic food purchases.

Most quantitative studies on determinants of organic food consumption were based on survey data on stated/intended behaviour or attitudes towards organic food. The approach based on attitudes towards organic food is problematic due to the well-known attitude-behaviour gap (e.g. Padel & Foster, 2005; Vermeir & Verbeke, 2006), i.e. positive attitudes towards organic food might not necessarily be translated into actual purchases of organic food. Many authors therefore chose to measure stated/intended purchases of organic food. However, also the approach based on stated/intended purchase behaviour is potentially biased (Moser, 2016). With a single-source

approach combining household panel data on purchase behaviour with survey data, Moser (2016) showed that stated behaviour is not fully translated into actual behaviour when it comes to environmentally-friendly purchasing behaviour.

The following sources of bias might occur when using surveys to measure stated/intended organic food purchases or attitudes towards organic food. First, the phenomenon of social desirability might be problematic. Consumers tend to think that buying organic food is generally viewed as a 'good thing' (Hjelmar, 2011). When being asked whether they prefer organic food or how much organic food they (intend to) buy, consumers therefore tend to overestimate their organic food purchases to conform to perceived general expectations (Fisher & Katz, 2000; Hjelmar, 2011). Second, it is problematic that consumer responses to questions on organic food purchases are potentially affected by acquiescence bias. In many cultures, there is a general tendency to agree with others, resulting in skewed answer distributions (Dillman, Smyth, & Christian, 2009). Third, a potential source of bias is consumer confusion about how to identify certified organic food. Some

¹ E-mail address: m.janssen@uni-kassel.de.

¹ In this paper, the term 'organic' food refers to food certified according to organic standards recognized by the International Federation of Organic Agriculture Movements (IFOAM).

consumers believe they buy organic food items when, in fact, those are conventional food items. These consumers erroneously overestimate their organic food purchases (Harper & Makatouni, 2002; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007).

In empirical studies on determinants of organic food purchases, a potential bias in the dependent variable questions the external validity of the results. One solution to the problem described above is to analyse *actual* (as opposed to stated or intended) purchase behaviour. Actual food purchases are recorded in household panels where households continually report their food purchases in a longitudinal study. Another source of data on actual food purchases are customer loyalty card programs of retailers.

To date, only few studies on drivers of organic food consumption have been published drawing on measures of *actual* purchase behaviour. Some of these studies included socio-demographic characteristics and market-related factors but no psychological concepts as explanatory variables of organic food consumption (e.g. Alviola & Capps, 2010; Anders & Moeser, 2008; Denver, Christensen, Jensen, & O'Doherty Jensen, 2012; Dettmann & Dimitri, 2010; Dimitri & Dettmann, 2012). A few panel studies analysed psychological concepts like attitudes towards different food characteristics or perceptions of organic food (e.g. Hauser, Nussbeck, & Jonas, 2013; Lund, Andersen, & O'Doherty Jensen, 2013; Lusk, 2011; van Doorn & Verhoef, 2015; Wier, O'Doherty Jensen, Andersen, & Millock, 2008). These studies were, however, either limited to purchases in selected product categories (i.e. Lusk, 2011), purchases in one retail chain (i.e. Hauser et al., 2013), or selected food characteristics (i.e. Hauser et al., 2013; Lund et al., 2013; van Doorn and Verhoef, 2015; Wier et al., 2008).

There is a simple reason why studies on actual purchases of organic food are rare. Data on actual purchases is difficult to access for most researchers and often very expensive. Most academic researchers rely on survey data or experimental data to address questions related to drivers of organic food purchases. So far, it remains open to what extent the findings of survey data can be generalized to *actual* organic food purchases.

The aim of the present study was therefore to determine the drivers of *actual organic food purchases* and compare them with the drivers of *attitudes* towards organic food. The present study used a unique dataset and a single-source approach to link household panel data on actual purchases in all major food categories with survey data from the same households on attitudes towards different food characteristics including attitudes towards organic food. With this dataset, it was possible to analyse the determinants of organic food *purchases* and compare them with the determinants of *attitudes* towards organic food.

The analysis was based on household panel data from Germany provided by the company GfK (Gesellschaft für Konsumforschung) documenting all food purchases of N = 9470 households during the entire year of 2008. With the method of structural equation modelling, the data on actual purchases of organic food were linked with survey data from the same households on attitudes towards different food characteristics. In addition, socio-demographic characteristics were controlled for. To the author's best knowledge, this is one of very few studies combining data on actual purchases of organic food with survey data on attitudes and socio-demographics.

The paper is organized as follows: The conceptual framework and the hypotheses are presented in the following section. Afterwards, the data base and the applied method of structural equation modelling are introduced. The results of the empirical analysis are presented thereafter. The paper concludes with recommendations for future survey research on organic food and insights for producers and marketers of organic food.

2. Conceptual framework and hypotheses

Many empirical studies have been conducted to understand why consumers buy (or do not buy) organic food and to identify drivers of

organic food consumption. The great majority of these studies was based on data collected in interviews or surveys. Various qualitative studies investigated motives for organic food consumption with different kinds of interview techniques (e.g. Aarset et al., 2004; Baker, Thompson, & Huntley, 2004; Padel & Foster, 2005; Zanolli & Naspetti, 2002; Zepeda & Deal, 2009). Most quantitative studies on determinants of organic food consumption were based on structured surveys (e.g. Bottonaki, Polymeros, Tsakiridou, & Mattas, 2006; Padilla Bravo, Cordts, Schulze, & Spiller, 2013; Zanolli, 2004).

This section summarizes the state of the art on determinants of organic food consumption and presents the hypotheses of the present study. In the present study, data on determinants of organic food consumption were collected with a questionnaire developed by the company GfK. This questionnaire did not cover all determinants of organic food consumption mentioned in the literature; foremost survey items on animal welfare aspects were missing. The following sections focus on those determinants covered by the GfK questionnaire.

2.1. State of the art: determinants of organic food consumption

2.1.1. Healthiness and naturalness

The literature on motives for organic food consumption emphasizes the important role of health-related motives (e.g. Baker et al., 2004; Bottonaki et al., 2006; Chryssohoidis & Krystallis, 2005; Lusk, 2011; Lusk and Briggeman, 2009; Makatouni, 2002; Padel and Foster, 2005; Vega-Zamora, Torres-Ruiz, Murgado-Armenteros, & Parras-Rosa, 2014; Zanolli, 2004; Zanolli and Naspetti, 2002). Consumers perceive organic food as healthy mostly because of its 'naturalness', i.e. the perception that organic food is free from harmful substances like chemical residues, pesticides, fertilizers, artificial additives and preservatives (Makatouni, 2002; Padel & Foster, 2005; Zanolli & Naspetti, 2002; Zepeda & Deal, 2009).

2.1.2. Environmental protection

Concern for environment-friendly production was identified as a driver of organic food consumption in many studies (e.g. Baker et al., 2004; Chryssohoidis & Krystallis, 2005; Dreezens, Martijn, Tenbült, Kok, & Vries, 2005; Gracia & Magistris, 2008; Honkanen, Verplanken, & Olsen, 2006; Lusk, 2011, 2011; Lusk & Briggeman, 2009; Magnusson, Arvola, Hursti, Åberg, & Sjöden, 2003; Makatouni, 2002; Michaelidou & Hassan, 2008; Padel & Foster, 2005; Zanolli & Naspetti, 2002; Zepeda & Deal, 2009).

2.1.3. Quality and enjoyment

According to evidence from qualitative studies, consumers of organic food associate organic food with high-quality food and enjoyment of eating (Baker et al., 2004; Makatouni, 2002; Padel & Foster, 2005; Zanolli & Naspetti, 2002; Zepeda & Deal, 2009). So far, only a few quantitative studies have analysed this relationship. Fotopoulos et al. (2003) found that buyers of organic wine placed more importance upon high quality compared to non-buyers of organic wine. Another study from Greece revealed that 'enjoyment of life' was a main motivator for organic food consumption (Chryssohoidis & Krystallis, 2005). Hauser et al. (2013), in contrast, contested the influence of enjoyment of eating on organic food purchases. The authors showed that the importance placed upon indulgence had a negative influence on organic food purchases in Switzerland.

2.1.4. Local/domestic origin

Several studies suggested a link between consumer preferences for local food and organic food (Baker et al., 2004; Hempel & Hamm, 2016; Padel & Foster, 2005). Hempel and Hamm (2016) showed that consumers with a positive attitude towards organic food have a stronger preference and higher willingness-to-pay for organic as well as local products. The authors concluded that local food production complements organic food production for organic-minded consumers. Also,

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