Willingness to Pay in Food Retailing—An Empirical Study of Consumer Behaviour in the Context of the Proliferation of Organic Products

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Abstract

The ongoing price competition in food retailing has intensified consumer price sensitivity. Nonetheless, in recent years the demand for generally higher-priced organic food has increased. But in relation to the prevailing habitual purchasing behaviour, a deeper understanding of consumer behaviour is necessary. Accordingly, we propose and test a comprehensive structural equation model that primarily addresses consumer willingness to pay (WTP) in food retailing. Extending on previous studies, multifaceted household panel data are used to simultaneously estimate relationships between socio-demographics, psychographics and actual purchasing behaviour. The results of this study show that consumers of organic food have a comparatively high WTP, and that their purchases can be attributed to the perceived importance of food naturalness and to environmental consciousness. However, consumer price consciousness remains a barrier to the purchase of organic food. In contrast, this barrier supports the success of conventional private labels, and thereby reduces the general WTP.

Keywords

food retailing, willingness to pay, organic food, private labels, structural equation modelling (SEM)

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1 Willingness to Pay in the Context of Food Distribution

1.1 Introduction

For many years, strong price competition has been evident in the European food retailing sector. Especially from the perspective of small and medium-sized competitors, this price competition may be ruinous. The proliferation of private labels, which has been supported by the European regulatory framework for price setting, plays an important role in this context. The prohibition of resale price maintenance (Article 101 Treaty on the Functioning of the European Union (TFEU)) leads to an unequal treatment of competitors, in that retailers are allowed to set the prices for their own private labels, as well as for the national brands they offer, while manufacturers of national brands are only allowed to set the sales prices to retailers, but not the final sales prices to consumers of their products. Due to these regulations, retailers especially adopt the following two price-policy behaviours. The first refers to the so-called 'systematic price slashing' of national brands to signal attractive prices at the point of sale, and the second refers to 'umbrella pricing', which signals particular value for money from private labels in comparison to national brands. As a result, retailers are able to stimulate the sales of private labels by these special price settings (see for details Olbrich/Grewe 2013; Olbrich/Grewe 2009; Olbrich/Grewe/Orenstrat 2009). Overall, the pricing power of retailers has evidently intensified price competition in the food retailing sector and led to a certain price sensitivity of consumers, which has probably reduced their general willingness to pay (WTP). This, amongst other factors, explains the increasing proliferation and success of price-aggressive outlet formats (e.g., discount stores) over the past decades.

However, parallel to the cutthroat price competition in the retail landscape, in recent years the demand has increased for higher-priced organic food. This development can be interpreted as a counter-movement to the prevailing competitive conditions. The sales of organic food products, which are defined in Europe according to Council Regulation (EC) No 834/2007 (Council of the European Union 2007), have increased in Germany, in 2012, to approximately seven billion euros. Currently, Germany is the largest market for organic food in Europe (Willer/Lernoud/Schlatter 2014). However, the conversion of agriculture to organic production requires high investments, and often leads to lower productivity (e.g., Regouin 2003). Such higher costs, in comparison to the production of conventional products, usually require comparatively higher prices and thus a higher consumer WTP. In addition, grocery chains have also penetrated the organic market segment in the form of premium private labels (Jonas/Roosen 2005; for some empirical generalisations on category drivers of premium private label introductions, see Ter Braak/Geyskens/Dekimpe 2014), whose turnover is actively stimulated (e.g., through wide-scale promotional activities). Thus, organic food products no

longer have the character of niche products that are sold exclusively in speciality stores. In fact, they have been integrated into the discount concept. From the retailer's perspective, the supply of organic food (especially in the form of private labels) can be seen as a means of partially escaping the prevailing price competition in the conventional market segment.

1.2 Research Framework

Various different models have been proposed to categorize and explain consumer behaviour (regarding the context of food choice behaviour, see, e.g., Furst et al. 1996). In a broader context, the present study takes a positivist view of consumer behaviour research. Our objective is to analyse consumer behaviour, to give generalised explanations and to highlight corresponding recommendations for food marketing. For this purpose, we make statements in the form of theory-building hypotheses and test these hypotheses empirically by using a broad and representative data base. To account for the complexity of consumer behaviour, we follow the neo-behaviourist SOR approach (stimulus-organism-response). According to this approach, directly observable factors (e.g., socio-demographics or marketing stimuli) generally affect the organism (e.g., the consumers' psyche). With the help of latent constructs (based on psychographics), processes in the organism that are not directly observable can be captured. In other words, the organism is represented by the processes that mediate the relationships between stimuli and behaviour. Purchasing behaviour is thus a result of an interaction of directly observable factors and non-directly-observable processes in the consumers' psyche (for an introduction to the SOR approach, see Foscht/Swoboda 2011, pp. 28-31).

Given the conditions stated in Section 1.1., the present study focuses on the determinants of consumer behaviour in the food retailing sector. As a key variable, the WTP is the main focus of attention. Consumer WTP, which is found both in the economic as well as in the psychological literature, usually eludes an exact measurement. Thus, the WTP is a construct that is dynamic, depending on the situation and is not easy to grasp. Consequently, a comparison of methods for measuring WTP has been established by researchers. However, a superior method cannot be identified. Regarding the methods discussed in the literature, we feel it necessary to criticise their being based mostly on survey data and not on actual purchasing behaviour. This is due to the fact that the original focus was on the evaluation of public goods (for the so-called contingent valuation approach, see, e.g., Schulze/d'Arge/Brookshire 1981). Contrary to this former emphasis on public goods, more recently, research has increasingly included private goods (with respect to the related context of the WTP for organic food, see, e.g., Akgüngör/Miran/Abay 2010; Krystallis/Fotopoulos/Zotos 2006). Given the lack of studies using actual purchasing behaviour, we measure the WTP by means of real purchasing

data, with the aim of providing a comprehensive understanding of consumer behaviour in the food retailing sector.

However, explaining the WTP in food retailing requires additional purchasing-behaviour-related variables. The current developments in food retailing clearly indicate a relationship between the WTP and consumer choices in favour of organic food, conventional private labels, articles on special offer, and specific outlet formats. Especially given the current proliferation of organic foods, in addition to the continuously growing market share of private labels in the conventional market segment, certain determinants of consumer WTP should be identified within the German food retailing sector. For this purpose, the present study examines, besides potential relationships between purchasing-behaviour-related variables, whether psychographic and socio-demographic determinants have a relevant influence on purchasing behaviour. To represent these complex relationships, we use a structural equation model that facilitates a link between individual research topics in the context of the purchasing behaviour, psychographics and socio-demographics (Hundt 2014, pp. 297-330). To explain purchasing behaviour in the organic market segment, we jointly consider organic private labels and organic national brands, in order to generally identify the determinants of organic food purchasing and to refer to the existing literature in this field. Due to the growth of the organic market segment, both brand types participate in the increased demand. By contrast, saturation tendencies in the conventional market segment have contributed stepwise to a substitution of national brands by private labels. The past few years have clearly demonstrated that conventional private labels have been adopted by many consumers (Hundt 2014, pp. 271-276). For this reason, we include the purchase of conventional private labels separately.

The gradual development of such purchasing decisions ultimately leads to a differentiated explanation of the WTP. This reveals why consumers have a comparatively high or low WTP. We use the results to generate marketing policy recommendations for manufacturers and retailers, particularly with the aim of identifying potential approaches to raising consumer WTP.

The remainder of the paper is organised as follows. The next section relates this study to the existing literature. Furthermore, we outline the hypotheses, and structure them according to individual research topics, which together form the model conception. In a first step, we derive hypotheses to explain the purchase of organic food. In a second step, we form hypotheses in the context of purchasing conventional private labels. In a third step, we link the above-mentioned purchasing decisions of consumers to their general WTP. After that, the influence of socio-demographics is discussed separately. We then present and analyse the data, after which we present the empirical results and discuss the implications of our study. Finally, we draw some overarching conclusions and outline approaches for further research.

2 State of Research and Hypotheses Development

2.1 Determinants of the Purchase of Organic Food

The number of studies that address the motives for and barriers to the purchase of organic food is increasing steadily. A central motive for consumers to purchase organic food is to maintain and improve their own health (e.g., Ahmad/Juhdi 2010; Chryssochoidis 2000; Cicia/Del Giudice/Ramunno 2009; Goetzke/Nitzko/Spiller 2014; Magistris/Gracia 2008; Michaelidou/Hassan 2008; Shaharudin et al. 2010; Tarkiainen/Sundqvist 2009). Thus, because of their natural production, consumers often perceive organic food as healthier (Vega-Zamora et al. 2014). Consumers of organic food often express, for instance, concerns about the use of pesticides (Zepeda/Deal 2009). For those consumers who pay attention to the naturalness of food (e.g., with respect to the abandonment of artificial flavours or dyes), a significant increase in the stated purchasing frequency of organic food is evident (Onyango/Hallman/Bellows 2007).

In addition, supporting the local region and regional operations are often given as reasons for purchasing organic food (Federal Ministry of Food, Agriculture and Consumer Protection 2013). However, regional support is independent of whether the food is organic or conventional. Thus, preferences for organic food products also seem to be influenced partly by the consumers' assumption that they are generated locally or regionally. Indeed, a cognitive engagement of consumers with the origin of products can also indicate a critical reflection of their diet. This can also positively affect the receptiveness to organic food. Accordingly, it has been shown that for those consumers who attach importance to the origin of products, the probability of purchasing organic food increases (see the survey results of Onyango/Hallman/Bellows 2007). The fact that the supply of products from the region is inter alia, associated with shorter transport routes, conforms to environmental protection objectives. Thus, the origin of food also includes ethical components. Nonetheless, the basic ethical motives which determine the purchase of organic food are, in particular, environmental protection and animal welfare. As has been shown in several studies, consumer preferences for organic food are positively influenced by a critical examination of ethical and moral aspects (e.g., Honkanen/Verplanken/Olsen 2006; Lockie et al. 2004; Magistris/Gracia 2008; Magnusson et al. 2003; Michaelidou/Hassan 2008, 2010; Pino/Peluso/Guido 2012; Torjusen et al. 2001; Verhoef 2005). Accordingly, it seems likely that some consumers perceive a personal benefit in considering ethical aspects.

In addition to potential motives, there are also specific barriers to the purchase of organic food. One frequently quoted barrier in the literature is the comparatively higher price which

retailers often charge for organic food. Therefore, it is likely that some price-conscious consumers are not willing to pay a price premium for organic food (e.g., Gracia/Magistris 2008; Hjelmar 2011; Kihlberg/Risvik 2007; Krystallis/Arvanitoyannis/Chryssohoidis 2006; Michaelidou/Hassan 2010; Verhoef 2005; Zakowska-Biemans 2011). The purchase price therefore enters the barrier rankings of French consumers at first place and second for English consumers (Brown/Dury/Holdsworth 2009). Furthermore, a high brand awareness can act as a barrier to the purchase of organic food. Conventional foods seem to have a pioneering advantage in branding, so that selective information about organic food and its benefits may often be insufficient (Chryssochoidis 2000). This can be attributed to the fact that consumers often judge subsequent entrants against existing brands. The latter brands are familiar known standard, so that subsequent entrants firstly need to convince consumers to learn about the quality characteristics offered (for a discussion of advantages of pioneering brands, see Schmalensee 1982). Consequently, we assume that over the years, established national brands and private labels in the conventional market segment are at an advantage.

In the light of scientific debate, the following hypotheses are consistent with the majority of stated results. However, in contrast to previous studies, we test these hypotheses using a broad and representative database. Our focus in this case—as in the international literature—is on the determinants of attitude towards organic food (in the broadest sense 'organic proneness'), which precedes the actual purchase in the context of this investigation:

H A-1: The perceived importance of the naturalness of food has a positive effect on attitude towards organic food.

H A-2: The perceived importance of regional/national origin of food has a positive effect on attitude towards organic food.

H A-3: Environmental consciousness has a positive effect on attitude towards organic food.

H A-4: Price consciousness has a negative effect on attitude towards organic food.

H A-5: Brand consciousness has a negative effect on attitude towards organic food.

Explaining human behaviour in all its complexity is a difficult task. To take account of the underlying psychological processes, various theoretical frameworks have been proposed. In the social psychological and marketing research, studies are often based on the theory of reasoned action (TRA) and the theory of planned behaviour (TPB). The latter is an extension of the theory of reasoned action (Ajzen 1991). The main factor in these theories is behavioural intention (e.g., purchasing intention), which is determined by three factors. These are attitude towards the behaviour (e.g., purchasing attitude), subjective norm (e.g., social pressure with regard to the behaviour), and perceived behavioural control (e.g., perceived difficulty associ-

ated with a specific purchasing behaviour). In extending previous studies revealing a positive relationship between attitude towards organic food and purchasing intention (e.g., Chen 2007; Lodorfos/Dennis 2008; Michaelidou/Hassan 2008), we examine the influence of attitude towards organic food on actual purchasing behaviour (for a general discussion on the attitude-behaviour relation, see Fishbein/Ajzen 1975, pp. 335-383). We assume that a more positive attitude towards organic food also finds expression in the purchase of such food, so that the household-related share of organic purchases increases (e.g., the household-related aggregate quantity of organic food in relation to household-related aggregate total quantity of food).

Furthermore, it is likely that consumers, who have a higher involvement with regard to organic food (Thøgersen/Jørgensen/Sandager 2012), are more willing to visit speciality stores (including, for example, natural food and health food stores and organic supermarkets). In particular, speciality stores can be considered as pioneers in the organic food segment in Germany, so that households which increasingly frequent speciality stores probably have a higher share of organic purchases. However, the success of other outlet formats (notably discount stores as a cheaper counterpart to the higher-priced speciality stores) can be based, inter alia, on the fact that a large number of impulsive shopper households only makes spontaneous or inconsistent purchases in terms of organic food (Marian et al. 2014). However, these households inevitably do not have a relatively higher share of organic purchases. Thus, we assume that price-conscious and brand-conscious households visit speciality stores to a lesser extent to satisfy their demand, because the latter households are more likely to orient towards widely distributed and established brands in the conventional market segment, which are usually offered in other outlet formats. Therefore, we conclude the following hypotheses:

H A-6: Attitude towards organic food has a positive effect on the share of organic purchases.

H A-7: Attitude towards organic food has a positive effect on the share of purchases at speciality stores.

H A-8: The higher both the share of purchases at speciality stores and the share of purchases at discount stores, the higher the share of organic purchases, but the effect of the share of purchases at speciality stores is comparatively higher.

H A-9: Price consciousness has a negative effect on the share of purchases at speciality stores.

H A-10: Brand consciousness has a negative effect on the share of purchases at speciality stores.

In addition, Govindasamy et al. (2007) show that organic food consumers read food advertisements in grocery brochures to a lesser extent than other consumers and therefore have less

information about special offers. Doing so may be related to the fact that consumers of higher-priced foods usually have a greater WTP, which consequently decreases the importance of the price level in the purchase decision. Thus, we assume that households that satisfy their demand largely through the purchase of products on special offer are less inclined to purchase organic food:

H A-11: The higher the share of purchases on special offer, the lower the share of organic purchases.

2.2 Determinants of the Purchase of Conventional Private Labels

Besides specific attitudes towards certain private labels, researchers have frequently examined the effect of global attitude samples on the purchase of private labels (see for an overview e.g., Manikandan 2012). In this connection, both price consciousness and brand consciousness are important. While price consciousness corresponds rather simplistically to a higher importance of price (Lichtenstein/Ridgway/Netemeyer 1993), brand consciousness stands out, because consumers display more confidence in familiar brands and associate them with higher quality (Goldsmith et al. 2010; Omar 1996). What several studies have in common is that price consciousness has a positive effect on private label preferences (e.g., Ailawadi/Neslin/Gedenk 2001; Anselmsson/Johansson 2009; Baltas 1997; Burger/Schott 1972; Hsu/Lai 2008; Lin/Marshall/Dawson 2009). Since the prices of private labels are generally set below those of national brands (see, e.g., Baltas 1997, and the empirical results of Méndez/Oubiña/Rubio 2008; Olbrich/Grewe 2009), this result is certainly plausible. Thus, price consciousness very significantly explains the stated purchase of private labels (Sinha/Batra 1999). Although there is a lack of representative studies on the basis of actual purchasing behaviour, we suppose that with increasing price consciousness the household-related share of private label purchases increases (e.g., the household-related aggregate quantity of private labels in relation to household-related aggregate total quantity within a product segment).

Moreover, some empirical results reveal that consumers of private labels have a lower brand and quality consciousness than consumers of national brands (Ailawadi/Neslin/Gedenk 2001; Omar 1996), but both types perceive the importance of brand choice, or rather the relevance of brands to their lifestyles and needs, in a similar manner (Goldsmith et al. 2010). Since retailers often signal comparable quality to national brands for their own private labels (e.g., through similar packaging) and continuously improve the image of their brands (e.g., through broad-based advertising), we assume that national brands and private labels increasingly converge in the minds of consumers. However, this would mean that many consumers are no longer willing to pay a price premium for national brands (Steenkamp/Van Heerde/Geyskens

2010). Accordingly, contrary to earlier studies, Walsh/Mitchell (2010) emphasise that the brand consciousness of consumers no longer acts as a barrier to the purchase of private labels. This lack of correlation can prevail, because consumers no longer perceive the purchase of private labels as stigmatising and have a positive attitude towards private labels. Based on survey data, the authors confirm no relationship between brand consciousness and the related private label purchasing intention. This could also be reflected in the actual purchasing behaviour.

With reference to the results presented in the literature, we test the following hypotheses with the inclusion of actual purchasing behaviour:

H B-1: Price consciousness has a positive effect on the share of conventional private label purchases.

H B-2: Brand consciousness has no significant effect on the share of conventional private label purchases.

Furthermore, we assume that consumer choices in favour of conventional private labels are significantly influenced by their choice of outlet formats. Since private labels have their roots in discount stores, the strong growth of discounters corresponds to the proliferation of private labels. Specifically, discounters are characterised—despite offering certain national brands—by a comparatively high share of private labels in their assortment (Olbrich/Grewe 2009). Thus, the success of private labels is also probably influenced indirectly through the consumers' choice of outlet formats. Especially consumer price orientation can be viewed in this context as a main driver of discounter growth. The importance of price has probably risen significantly, due to the positive quality images of products available in the market over time. So, many consumers already pay more attention to price than to quality when making routine daily purchases (Twardawa 2006). This means that the price consciousness of consumers should then be reflected in a higher share of purchases at discount stores. Contrary to the intuitive assumption of a negative influence, brand consciousness is likely to have no significant effect on the share of purchases at discount stores, due to the increasing proliferation of private labels and their increased acceptance by consumers. Hence, we propose the following hypotheses:

H B-3: Price consciousness has a positive effect on the share of purchases at discount stores.

H B-4: Brand consciousness has no significant effect on the share of purchases at discount stores.

H B-5: The higher the share of purchases at discount stores, the higher the share of conventional private label purchases.

If attitudes and behaviour are consistent, price-conscious households pursue mainly savings in their daily shopping. Retailers signal these savings both by price campaigns and by the range of private labels. Consequently, positive relationships can be assumed not only between price consciousness and the purchase of private labels, but also between price consciousness and the purchase of articles on special offer (Ailawadi/Neslin/Gedenk 2001; Martínez/Montaner 2006). It is also likely that households, which orient themselves strongly towards special offers, especially purchase national brands that are normally high-priced products, thus optimising the price-performance ratio. In this context, Ailawadi/Neslin/Gedenk (2001), for example, demonstrate a positive relationship between stated brand loyalty and national brand promotion usage.

Accordingly, two groups can arise, which can be characterised as 'smart shoppers'. The first group is geared to recurring price campaigns and thus increasingly purchases national brands. However, the other group is geared to everyday low prices and accordingly purchases private labels. The latter group might associate retailer promises of 'good value for money' with astute purchasing behaviour (for further remarks, see Baltas 1997; Binkley 2013; Manzur et al. 2011). Thus, a greater number of purchases on special offer is likely to be manifest in a smaller number of private label purchases, if the purchases on special offer include national brands (Burton et al. 1998). Given this clear relationship, we furthermore expect that an increase in the household-related share of purchases on special offer decreases the household-related share of purchases at discount stores, because the latter distinguish themselves through a high proportion of private labels that are normally offered in the form of a permanent low-price strategy (Olbrich/Grewe 2009). Nevertheless, we have to remember that even discount stores often sell famous national brands through price campaigns. Given the above relationships, we propose the following hypotheses:

H B-6: Price consciousness has a positive effect on the share of purchases on special offer.

H B-7: Brand consciousness has a positive effect on the share of purchases on special offer.

H B-8: The higher the share of purchases on special offer, the lower the share of conventional private label purchases.

H B-9: The higher the share of purchases on special offer, the lower the share of purchases at discount stores.

2.3 Direct Determinants of WTP in Food Retailing

Besides the relationships explained above in the contexts of organic food purchases and of conventional private labels, the effect of these choice decisions by consumers on WTP is important. Since we measure the WTP on the basis of actual purchasing behaviour (on the prices actually paid, see Section 3.2.1.), this is interpreted as a reflection of upstream purchasing behaviour. The measured WTP is thus dependent on consumer choice decisions, and not the converse. Therefore, the purchasing-behaviour-based WTP is not equivalent to a stated WTP (Hundt 2014, pp. 325-326). In this context, we examine the following hypotheses:

H C-1: The higher the share of organic purchases, the higher the WTP.
H C-2: The higher the share of conventional private label purchases, the lower the WTP.
H C-3: The higher the share of purchases at speciality stores, the higher the WTP.
H C-4: The higher the share of purchases at discount stores, the lower the WTP.
H C-5: The higher the share of purchases on special offer, the lower the WTP.

2.4 Influence of Socio-Demographics on Psychographics and Purchasing Behaviour

In addition to the influence of psychographics discussed in the previous sections (e.g., price consciousness), in the scientific literature, the characteristics of socio-demographics are often used to explain the purchases of organic food (for an overview, see, e.g., Thompson 1998). Nevertheless, inconsistent and often insignificant results can be found (e.g., Gifford/Bernard 2006; Li/Zepeda/Gould 2007; Michaelidou/Hassan 2010; Thompson/Kidwell 1998; Tsakiridou/Mattas/Tzimitra-Kalogianni 2006). Researchers also increasingly claim that socio-demographic characteristics are no longer relevant to purchasing behaviour. For example, they assume that the phenomenon of the ‘green’ consumer has already passed through different ages and social classes (in the sense of environment-oriented thinking and behaviour) and consequently, the significance of socio-demographic characteristics declines (Chryssochoidis 2000). Therefore, the creation of distinct ideal or typical profiles and the segmentation of consumers is stretched to the limit (for a cluster analysis, see Janssen/Heid/Hamm 2009). Thus, some authors argue that consumer attitudes are better suited to explaining the purchase of organic food (e.g., Gil/Gracia/Sánchez 2000).

A similar picture emerges with regard to the influence of socio-demographics on the purchase of private labels. For example, Burt/Davies (2010) emphasise that, although numerous studies have been dedicated to the socio-demographic characteristics of private label consumers, they were unable to create unique consumer profiles (for earlier studies, see Frank/Boyd 1965;

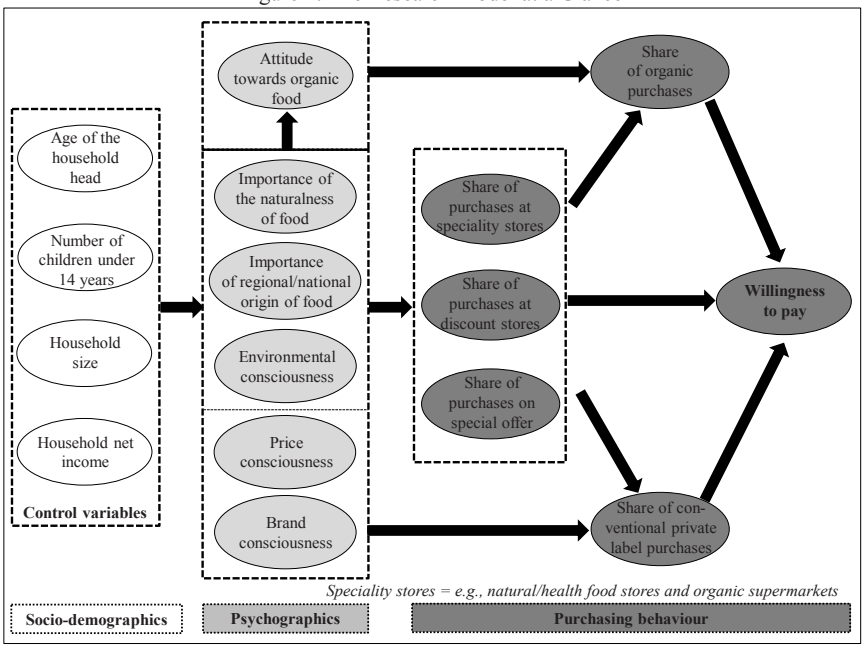
Munn 1960). Even studies based on scanning data have confirmed a negligible influence of socio-demographics on purchasing behaviour. Socio-demographic characteristics are evidently not suitable for explaining the choice between national brands and private labels (e.g., Bergès et al. 2009). The somewhat blurred character of socio-demographic characteristics for differentiating between private label and national brand consumers is presently rooted especially in the fact that private labels are now represented in various product categories in different variants, and are actively marketed by retailers. Generalised statements on socio-demographic characteristics thus seem entirely inappropriate (see also Goldsmith et al. 2010).

Furthermore, due to the obviously declining importance of socio-demographic characteristics, they should be included only as control variables within the model. To illustrate the influence of socio-demographic characteristics, we take into account the age of the household head (this term is used to refer to the person who generally does the shopping and makes the associated decisions), the number of children under 14 years, household size, and household net income. However, we omit a postulation of specific directions of impact, due to the lack of theoretical and conceptual foundations. We include the socio-demographic characteristics not only as predictors of purchasing behaviour, but also as predictors of psychographics. The additional consideration of socio-demographic influences on the psychographics can reveal potential—though not anticipated—effects and thus enrich the model (e.g., Ailawadi/Neslin/Gedenk 2001). This is important, because in many cases, research could not confirm a direct effect of socio-demographics on consumer purchasing behaviour.

2.5 The Research Model at a Glance

Based on the research to date and the above hypotheses, the research model is represented graphically in Figure 1, which contains all constructs that underlie the analysis. Contrary to attempts found in the literature, which often consider only partial models and support them with a restricted database (e.g., interview data), the model in this study strives towards a combination of socio-demographic and psychographic dimensions, as well as actual purchasing behaviour, within a complex theoretical framework.

Figure 1: The Research Model at a Glance



Source: adapted from Hundt 2014.

3 Data Base, Methodology, Empirical Results and Implications

3.1 Household Panel Data

The empirical database consists of household panel data collected in Germany by GfK Panel Services (GfK ConsumerScan). The data include information on the purchases of about 20,000 households between 2007 and 2009. Consideration is given to all purchase records of the article groups carrots, plain yogurt, cereal, fruit spread, classic roast coffee and carbonated lemonade (about 1.8 million). The purchase data collected give, amongst other issues, information on products purchased, the purchase date, place of purchase, the quantity (in kilograms/litres) and expenditure (in euros). Additionally, a key variable permits access to relevant socio-demographic characteristics and attitudes of households that are collected through annual surveys. Only continuously reporting households which have made at least six purchases from an article group in a given year are included in the analysis. A final total of

10,028 different households remained in the sample. The sample demographics are shown in table 1.

Table 1: Sample Demographics

N = 10,028	Frequency	Percentage
Age of the household head		
20 – 24	36	0.36
25 – 29	343	3.42
30 – 34	710	7.08
35 – 39	989	9.86
40 – 44	1,221	12.18
45 – 49	1,138	11.35
50 – 54	1,064	10.61
55 – 59	1,089	10.86
60 – 64	892	8.90
65 – 69	1,041	10.38
≥ 70	1,505	15.01
Number of children under 14 years		
0	7,577	75.56
1	1,247	12.44
2	952	9.49
3	204	2.03
4	35	0.35
5	10	0.10
6	3	0.03
Household size		
1	1,917	19.12
2	4,110	40.99
3	1,879	18.74
4	1,545	15.41
5	445	4.44
6	102	1.02
7	20	0.20
8	10	0.10
Household net income (in euros)		
≤ 499	41	0.41
500 – 749	193	1.92
750 – 999	337	3.36
1,000 – 1,249	597	5.95
1,250 – 1,499	821	8.19
1,500 – 1,749	919	9.16
1,750 – 1,999	901	8.98
2,000 – 2,249	1,226	12.23
2,250 – 2,499	953	9.50
2,500 – 2,749	874	8.72
Household net income (in euros)		
2,750 – 2,999	649	6.47
3,000 – 3,249	766	7.64
3,250 – 3,499	380	3.79
3,500 – 3,749	369	3.68
3,750 – 3,999	225	2.24
≥ 4,000	777	7.75

For the purposes of making generalised statements, the model estimation follows an overarching perspective that does not differentiate between years and article groups, and thus meets the requirements of high external validity.

3.2 Measurement of Constructs

3.2.1 Level of Purchasing Behaviour

As a key variable, the WTP is the main focus of attention. As an alternative approach, we measure the WTP by the actual purchasing behaviour. To operationalise this construct, we calculate the average prices paid per kilogram/litre at the household level (considering all purchase data for a given year). Since purchasing behaviour is inherently dynamic and dependent on the situation, the present aggregation over a year ensures the differentiation of individual households. For example, while a single survey in the form of a direct price question measures only a hypothetical and very arbitrary WTP at a certain point in time (namely, the time of the survey), purchase data yield with regard to this phenomenon of hypothetical bias conclusions on real price-related behaviour within a given period (for a comparison of methods for measuring consumers' WTP, see Lee/Hatcher 2001; Völckner 2006). Formally, the indicator corresponds to the quotient of the sum of expenditures in euros and quantities in kilograms/litres per household, year and article group.

The direct purchasing-behaviour-based determinants of WTP can be captured on the basis of household panel data via the quantity (purchase quantities in kilograms/litres), value (expenditures in euros) and in the form of purchasing frequencies (in this case, the number of acts of purchase). We use these three indicators of purchasing behaviour exclusively in relative terms in order to operationalise the constructs that are relevant to purchasing behaviour. Contrary to the use of single-item constructs, we use all three indicators to completely capture the different dimensions of purchasing behaviour. The resulting quantitative, value-based and act-of-purchase-related shares can be interpreted as individual household market shares and formally represented as a ratio. For example, this reveals, with regard to the criterion 'value', what percentage of the total expenditure of a household can be allocated to a certain reference object in an article group, for a pre-defined period. All the purchasing-behaviour-based constructs that precede the WTP are measured on the above three indicators for each household per year and article group. This aggregation of purchase data enables an interpretation of the decision behaviour of consumers in the sense of loyalty (for an aggregation of household panel data at the annual level, see Jonas/Roosen 2008). We provide a differentiated definition of constructs and their respective indicators in Appendix A.

3.2.2 Level of Psychographics

We operationalise the psychographic constructs using individual attitudes of the surveyed households that have been collected by GfK, mainly in the form of five-point rating scales. Only the construct 'price consciousness' contains two indicators, each with a four-point rating scale. The five-point rating scales measure the degree of agreement with various statements

('I do not agree' to 'I agree completely'). In contrast, the two four-point rating scales were based on self-positioning by the respondents (see the specific operationalisation of the respective constructs in Appendix A).

3.2.3 Level of Socio-demographics

We operationalise the socio-demographic characteristics as single-item constructs, as each of the underlying identical indicators comprises the respective construct completely and unambiguously (see the operationalisation of the respective constructs in Appendix A). The parallel integration of socio-demographic characteristics in the current research model leads to a more differentiated picture of the socio-demographic status of the affected households.

3.3 Quality Analysis of the Reflective Specified Multiple-Item Constructs

The quality analysis of reflective measurement models allows statements to be made about their reliability and validity. The aim of the reliability and validity checks is to detect whether the indicators associated with the multiple-item constructs are suitable for their constitution. In the literature, Cronbach's alpha values ≥ 0.7 are considered as acceptable (Nunnally 1978).

For good quality construct measurement, values for average inter-item correlation ≥ 0.3 (Robinson/Shaver/Wrightsman 1991) and for corrected item-to-total correlation values ≥ 0.5 (Bearden/Netemeyer/Teel 1989; Zaichkowsky 1985) are recommended. With respect to the present investigation, these quality criteria for all constructs are within the range 'good' to 'very good'. Also the quality criteria based on the confirmatory factor analysis indicate an acceptable to very good quality of the individual construct measures.

Thus the indicator reliabilities are predominantly above the required threshold of 0.4 (Bagozzi/Baumgartner 1994). Only the psychographic constructs 'importance of the naturalness of food' and 'price-consciousness' each have one indicator with a reliability slightly below the desired threshold value of 0.4. In particular, the tangible constructs which measure the share of purchases related to different reference objects, have indicator reliabilities that exceed this threshold to a greater extent (> 0.9), so in this respect, a very good measurement quality is observed. At the construct level, the composite reliability values for all constructs exceed the threshold of 0.6 required in the literature (Bagozzi/Yi 1988). Even the average variance extracted (AVE) by a factor is well above the recommended threshold of 0.5 (Fornell/Larcker 1981). Only the construct 'price consciousness' does not reach this threshold, with a value of 0.425. However, on substantive grounds, the construct is retained unchanged. Taken as a whole, this is generally close to a high construct reliability, as well as of convergent validity. Moreover, all the factors' average variance extracted exceeds the squared corre-

lations with other factors. Above all, this indicates the presence of discriminant validity (Fornell/Larcker 1981). We provide a detailed overview of the above mentioned quality criteria in Appendix B.

3.4 Estimating the Structural Equation Model

The estimation of the model is conducted using a covariance-based structural equation analysis. For this purpose, we use the statistical program Mplus (version 6.1) (Muthén/Muthén 1998-2010). As an estimation method, we apply the maximum likelihood estimator with robust standard errors (MLR). With regard to the criteria proposed in the literature for evaluating a structural equation model, the model postulated here achieved a very good overall goodness of fit: CFI = 0.934, TLI = 0.925, RMSEA = 0.033, and SRMR = 0.043. For example, Bagozzi/Yi (2012) recommend observing the following thresholds: CFI $\geq$ 0.93, TLI $\geq$ 0.92, RMSEA $\leq$ 0.07 and SRMR $\leq$ 0.07. Thus, the global quality measures identified here clearly indicate that the present model describes the structure of the data very well.

3.5 Results and Implications

The following sections differentiate the results. Beginning with the research topic of the purchase of organic food, we deal with the purchase of conventional private labels. Furthermore, we show the relationships between these purchase decisions and consumer WTP. Parallel to the presentation of results, we point out practical implications for the various market actors. Finally, we consider the effects of socio-demographics on psychographics and purchasing behaviour.

3.5.1 Results and Implications in the Context of Organic Food Purchases

All of the hypotheses in this context are highly significant at a level of 0.1% ($p < 0.001$). The respective results are shown in Table 2. What is remarkable is that as much as 49% of the variance in attitude towards organic food can be explained by the upstream psychographic factors.

The results shown in Table 2 are consistent with the (international) literature and reveal the fundamental importance of food naturalness and environmental consciousness as determinants of attitude towards organic food (H A-1 and H A-3). Accordingly, the abandonment of certain substances (e.g., additives and pesticides) and aspects of sustainability should be emphasised more explicitly by manufacturers and retailers. Linking consumers' preferred product features of 'naturalness' and 'sustainability' with organic production is a sound basis for a

more positive attitude towards organic food. In this way, both selfish and altruistic motives of consumers could be taken into account.

In this context, the literature has indeed demonstrated that selfish motives (such as concerns about one's own health) positively influence preferences for organic food to a greater extent than altruistic motives (such as concerns about damage to the environment) (e.g., Chryssochoidis 2000; Gracia/Magistris 2008; Magnusson et al. 2003). However, the height of the path coefficients determined in this study reveals that environmental consciousness (0.27; $p < 0.001$) has a slightly stronger positive correlation with attitude towards organic food than the perceived importance of food naturalness (0.23; $p < 0.001$). This result shows that altruistic motives apparently also donate a personal benefit. This result is, for example, in accordance with those of Tarkiainen/Sundqvist (2009).

Table 2: Results of Hypotheses Testing (I)

Hypothesis	Postulated relationship in the context of organic food purchases	Standardised path coefficient	Confirmed?
H A-1	The perceived importance of the naturalness of food has a positive effect on attitude towards organic food.	0.23***	yes
H A-2	The perceived importance of regional/national origin of food has a positive effect on attitude towards organic food.	0.10***	yes
H A-3	Environmental consciousness has a positive effect on attitude towards organic food.	0.27***	yes
H A-4	Price consciousness has a negative effect on attitude towards organic food.	-0.34***	yes
H A-5	Brand consciousness has a negative effect on attitude towards organic food.	-0.12***	yes
H A-6	Attitude towards organic food has a positive effect on the share of organic purchases.	0.25***	yes
H A-7	Attitude towards organic food has a positive effect on the share of purchases at speciality stores.	0.11***	yes
H A-8	The higher both the share of purchases at speciality stores and the share of purchases at discount stores, the higher the share of organic purchases, but the effect of the share of purchases at speciality stores is comparatively higher.	0.29*** vs. 0.04***	yes
H A-9	Price consciousness has a negative effect on the share of purchases at speciality stores.	-0.14***	yes
H A-10	Brand consciousness has a negative effect on the share of purchases at speciality stores.	-0.06***	yes
H A-11	The higher the share of purchases on special offer, the lower the share of organic purchases.	-0.11***	yes

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; (n.s.) non-significant

Unexpectedly, the importance of the origin of food has a very weak positive effect (H A-2). Products from the region or country are probably also preferred, even if they do not come from organic production. Consequently, an examination of the product origin by consumers does not inevitably manifest itself in a greater openness towards organic food. However, the significant positive correlation suggests that linking ecology with additional properties (e.g.,

the product coming from the region) could be promising for marketing activities intended to make a profile-building distinction with respect to the competition.

It is noteworthy that there is a substantial negative impact of price consciousness on attitude towards organic food (H A-4). As often stated, price consciousness seems to be a significant barrier to the purchase of organic food, because, with an increase in price consciousness, or the importance of price, the attitude towards organic food deteriorates. Therefore, consumers seem to be less receptive to organic food when they pay substantial attention to price. Since organic foods are probably regarded by a large number of potential consumers as not worth the money, due to their rather intangible benefits, manufacturers and retailers should therefore not only eliminate information problems (e.g., lack of confidence in the product characteristics caused by the fact that before and after the purchase, the quality often cannot be judged fully by consumers), but also create distinct incentives to purchase of organic food (for the category 'credence goods', see Darby/Karni 1973). The ecological value-added should be highly transparent in order to justify a comparatively higher price and raise WTP (Royne/Levy/Martinez 2011). In this way, the significance of the sales price could decline in favor of qualitative considerations.

As expected, the negative effect of brand consciousness on attitude towards organic food (H A-5) also suggests that, because conventional national brands and private labels have been established for years, they have a formidable pioneer advantage. This indicates that freely accessible and frequently used eco-labels (e.g., the national organic label in Germany) do not replace a standalone brand policy of a manufacturer or retailer. However, these nationwide eco-labels help consumers to transfer associations learned in one product segment to other segments (Shapiro/Spence/Gregan-Paxton 2009). Product policy should therefore be a promising means for manufacturers and retailers to build strong brands in the organic market segment. For example, the presence in social media, which manifests itself in an interaction between (potential) consumers and companies, could increase brand awareness and brand loyalty. Of particular importance in this connection is the exchange between consumers, who can evaluate and recommend products (Olbrich/Holsing 2011).

Parallel to this, the attitude towards organic food has a positive effect on the corresponding share of organic purchases, so that the attitude-behaviour hypothesis has been confirmed (H A-6) as expected. In addition, a more positive attitude towards organic food leads to an increase in the share of purchases at speciality stores and also (on this path) to a higher share of organic purchases (H A-7 and H A-8). However, both price consciousness and brand consciousness inhibit consumer decisions in favour of speciality stores (H A-9 and H A-10). Irrespective of the statistical significance, the effect of brand consciousness is quite low, if not

negligible. Although the explained variance in the share of purchases at speciality stores is very low (about 4%), price consciousness also exerts, in addition to the already mentioned negative effect on attitude towards organic food, a highly significant negative effect on the share of purchases at speciality stores. Overall, a rising price consciousness leads to a reduction in the share of organic purchases. Moreover, this share also decreases with an increase in the share of purchases on special offer (H A-11), which can also include a price-oriented purchase-behaviour tendency. However, the latter effect is extremely weak, which shows that the pursuit of savings on purchases through articles on special offer only marginally impacts on consumer choices between organic and conventional foods.

The variance in the share of organic purchases can indeed be explained by a total of 20%, but the influence of attitude towards organic food on behaviour is surprisingly low (0.25; $p < 0.001$). Therefore, there is evidently a discrepancy between stated attitudes and actual purchasing behaviour. To some extent, this may be due, for instance, to the hypothetical nature of the attitudes in question. To increase the sales of organic food—with a corresponding increase in individual shares of organic purchases—manufacturers and retailers must thus reduce the gap between awareness and actual purchasing behaviour. To increase the consumption of organic food, first breaking the usual choice patterns and encouraging consumer involvement should therefore be useful (Tarkiainen/Sundqvist 2009). For some consumers, past food crises already seem to have contributed to an increase in involvement. Creating incentives for the consumption of organic food—particularly through targeted consumer education about the importance and identifiability of organic production—should therefore work towards a change in consumer involvement, in order to break routine purchasing behaviour patterns (see, e.g., Tanner/Wölfing Kast 2003 on action-related knowledge as a predictor of green purchases).

3.5.2 Results and Implications in the Context of Conventional Private Label Purchases

All hypotheses in this context are highly significant at a level of 0.1% ($p < 0.001$). In two cases, the postulated non-significant influence was confirmed (see Table 3).

Price consciousness emerges as a highly significant central determinant of the purchase of conventional private labels. Thus, price consciousness acts both directly and indirectly through the influence of consumer choices of outlet formats on the share of conventional private label purchases (H B-1 and H B-3). The finding that, with an increasing price consciousness, the share of purchases at discount stores increases, and thus also the purchase of private labels (H B-5), conforms to expectations with regard to the price-oriented direction of this outlet format. Nevertheless, the results indicate that brand consciousness did not significantly affect the share of conventional private label purchases (H B-2). The same applies to the share

of purchases at discount stores (H B-4). The results in this respect, based on actual purchasing behaviour, are consistent with the results based on survey data from Walsh/Mitchell (2010). Consequently, it can be assumed that the assumption of many consumers, that well-known brands are higher quality, eroded in the course of the perceived equalisation of national brand and private label quality characteristics in the conventional market segment.

Table 3: Results of Hypotheses Testing (II)

Hypothesis	Postulated relationship in the context of conventional private label purchases	Standardised path coefficient	Confirmed?
H B-1	Price consciousness has a positive effect on the share of conventional private label purchases.	0.14***	yes
H B-2	Brand consciousness has no significant effect on the share of conventional private label purchases.	0.00 (n.s.)	yes
H B-3	Price consciousness has a positive effect on the share of purchases at discount stores.	0.25***	yes
H B-4	Brand consciousness has no significant effect on the share of purchases at discount stores.	-0.01 (n.s.)	yes
H B-5	The higher the share of purchases at discount stores, the higher the share of conventional private label purchases.	0.43***	yes
H B-6	Price consciousness has a positive effect on the share of purchases on special offer.	0.12***	yes
H B-7	Brand consciousness has a positive effect on the share of purchases on special offer.	0.08***	yes
H B-8	The higher the share of purchases on special offer, the lower the share of conventional private label purchases.	-0.33***	yes
H B-9	The higher the share of purchases on special offer, the lower the share of purchases at discount stores.	-0.22***	yes

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; (n.s.) non-significant

Since consumers also often expect that the producer of a national brand and a private label are identical and this assumption is sometimes accelerated by private label imitations of national brands related to stimulus generalisation (Kapferer 1995; Till/Priluck 2000), manufacturers of national brands should, for example, undertake promotional activities to clearly distance themselves from the production of private labels and underline their own high demands on production. The price-quality associations of consumers and the WTP a price premium for national brands could probably be generated by these means (Steenkamp/Van Heerde/Geyskens 2010). Manufacturers of branded goods should therefore attempt to enhance the brand consciousness of consumers in the conventional market segment.

While price consciousness and brand consciousness only have a weak positive, if not negligible effect on the share of purchases on special offer (H B-6 and H B-7) and the explained variance of this construct only amounts to around 2%, the results clearly show that an increase in the share of purchases on special offer decreases the shares of purchases at discount stores and of conventional private label purchases (H B-8 and H B-9). Thus, some consumers evidently turn to price-promoted conventional national brands to achieve savings. Overall, 39%

of the variance in the share of conventional private label purchases and 11% of the variance in the share of purchases at discount stores are explained.

The results suggest that it might be useful for manufacturers of branded goods, and also for retailers who are competing with discounters, to use price promotions for conventional national brands, in order to profile themselves against the competition. At this point, however, it is vital to note that consumers are then encouraged to look for price-promoted brands in the medium to long run. In addition to the risk of a further erosion of the WTP for national brands in the conventional market segment, the loyalty of these consumers to retailers and their outlets is likely to decline sharply. The objective of price promotions would not then be achieved, neither from the perspective of manufacturers wishing to prevent a proliferation of private labels, nor from the perspective of retailers competing with discounters, with the former wishing to prevent a proliferation of the latter and their private labels. In order not to destroy the future potential for both manufacturers and retailers, market actors should focus consumer attention less on price and more on quality.

3.5.3 Results and Implications in the Context of the Direct Determinants of WTP

Firstly, it can be stated that the main underlying assumptions are highly significant at a significance level of 0.1% ($p < 0.001$) (see Table 4). As much as 44% of the variance in WTP can be explained by the detected predictors.

Table 4: Results of Hypotheses Testing (III)

Hypothesis	Postulated relationship in the context of the direct determinants of WTP	Standardised path coefficient	Confirmed?
H C-1	The higher the share of organic purchases, the higher the WTP.	0.23***	yes
H C-2	The higher the share of conventional private label purchases, the lower the WTP.	-0.36***	yes
H C-3	The higher the share of purchases at speciality stores, the higher the WTP.	0.09***	yes
H C-4	The higher the share of purchases at discount stores, the lower the WTP.	-0.27***	yes
H C-5	The higher the share of purchases on special offer, the lower the WTP.	-0.18***	yes

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; (n.s.) non-significant

The results presented in Table 4 show that consumers of organic food—also in connection with their choice of outlet format in favour of speciality stores—have a higher WTP (H C-1 and H C-3). However, the WTP is lower for those consumers who purchase conventional private labels (H C-2), frequent retail outlets of discounters (H C-4) or purchase articles on special offer (H C-5) to a greater extent.

The WTP of consumers is hence subject to a food retail market that is dominated by aggressive price competition. Particularly in the conventional market segment, retailers have been

shifting consumer demand to private labels for several years (Olbrich/Grewe/Orenstrat 2009). This development, and the growth of discounters, have increased the perceived interchangeability of products and induced a reduction in WTP. Thus, in a purchase decision, the attention of consumers is based more on the sales price of a product than on quality. Consumer WTP that is exposed to this trade-off could therefore still be subject to further erosion. From the perspective of individual retailers, this framework usually excludes independent profiling against the competition. Consequently, retailers should increase the involvement of consumers and use quality-oriented instruments to create specific preferences. This could lead to a lower perceived importance of the sales price and thus to a decrease in price consciousness (O'Neill/Lambert 2001). With a higher level of involvement, a comparatively higher WTP could be expected.

Seen from an overall perspective, the recognisable efforts of manufacturers and retailers to enter the organic market segment, is a step in the right direction. The current supply of organic food (both in the form of national brands, as well as in the form of private labels) enables firms to 'skim off' (fully exploit) the green consumers' WTP. Nevertheless, this consumer WTP an additional charge is not permanently protected against erosion, if competition in the organic market segment adopts similar forms in future, to the present price competition in the conventional market segment.

3.5.4 Results and Implications in the Context of Socio-Demographics

In this study, the socio-demographic characteristics of households have been included in the underlying model, both as predictors of psychographics and of purchasing behaviour. Table 5 shows the coefficients of paths from the socio-demographics to the psychographics.

Table 5: Effects of Socio-Demographics on Psychographics

	Age	Children	Household Size	Net Income
	Importance of the naturalness of food (SMC = 0.09)			
Standardised path coefficient	0.31***	0.02**	0.01 (n.s.)	0.01*
	Importance of regional/national origin of food (SMC = 0.08)			
	0.30***	0.02**	0.01 (n.s.)	0.03***
	Environmental consciousness (SMC = 0.07)			
	0.25***	0.04***	-0.08***	0.10***
	Price consciousness (SMC = 0.15)			
	-0.14***	-0.10***	0.32***	-0.36***
	Brand consciousness (SMC = 0.06)			
	0.22***	0.02**	-0.07***	0.09***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; (n.s.) non-significant; SMC =squared multiple correlation

The results presented in Table 5 show that with increasing age of the household head, for example, the importance of natural food and product origin (e.g., from the region or nation), as

well as environmental consciousness increase, while price consciousness decreases. The price consciousness also will be lower with increasing household income and higher with increasing household size. This suggests that disposable income is split between several members of the household, and this acts as a budget constraint. Regardless of the identified plausible influences of socio-demographics on psychographics, only a small proportion of the variance in the psychographic constructs is explained. This proportion ranges between 6% and 15% (see the corresponding squared multiple correlations (SMC) in Table 5).

Even if individual socio-demographic characteristics may provide viable approaches to market segmentation, their direct impact on purchasing behaviour is minimal. Despite partly significant effects of individual socio-demographic characteristics on the constructs of purchasing behaviour, the standardised path coefficients generally have values close to zero. Due to the large data base, even low path coefficients close to zero may be significant. Therefore, the relevance of these paths for the interpretation of consumer behaviour and real life is questionable. Nonetheless, even if the socio-demographic characteristics of households seem obviously unsuitable for explaining purchasing behaviour directly, they can at least act indirectly on purchasing behaviour via the psychographics (for a similar finding, see Ailawadi/Neslin/Gedenk 2001). Table 6 exemplarily shows the direct, indirect and total effects of socio-demographics on WTP. Only the total effects of household size (-0.20, $p < 0.001$) and household net income (0.19, $p < 0.001$) are still comparatively high and plausible. But in relation to the explanatory power of these variables, the present study also illustrates the subordinate importance of socio-demographic predictors.

Table 6: Effects of Socio-Demographics on WTP

Dependent construct: *WTP*			
Socio-demographics	**Direct effect (standardised)**	**Indirect effect (standardised)**	**Total effect (standardised)**
Age	0.02***	0.01 (n.s.)	0.03***
Children	0.05***	0.02***	0.07***
Household Size	-0.12***	-0.08***	-0.20***
Net Income	0.09***	0.10***	0.19***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; (n.s.) non-significant

4 Conclusions and Prospects for Future Research

The present study provides a deeper understanding of consumer behaviour in the food retailing sector and is based on an extensive data base from a household panel. The results of this study shed light on the relationships between socio-demographics, psychographics and purchasing behaviour. A considerable cross-section of consumer behaviour was considered in the

context of a complex model-theoretical framework. Also, the WTP of consumers, as an alternative approach operationalised through actual purchasing behaviour, was explained substantially. The results are of significance both theoretically and for practice.

For example, it was shown that consumers of organic food—also in connection with their choice of outlet format in favour of speciality stores—have a relatively high WTP. However, the WTP decreases significantly with an increase in the purchase of conventional private labels and products on special offer, as well as arising consumer choice of outlet format in favour of discount stores. While the purchase of organic food can be attributed to both selfish as well as altruistic motives and the price consciousness of consumers acts as a major barrier, the purchase of conventional private labels and the success of discount stores are driven by an increase in consumer price consciousness. The orientation of consumers at discount stores leads, not only directly but also indirectly, through a higher share of conventional private label purchases, to a lowering of WTP. Although an increased purchase of products on special offer is accompanied by a direct reduction in consumer WTP, this reduction is partly balanced indirectly through a reduction in the share of purchases at discount stores and of conventional private label purchases. As a result, however, the attention of consumers is in many cases directed to the price. Yet, guiding consumers to the price is clearly associated with the long-term risk of further lowering the WTP. Instead of pursuing quality competition, price competition would then continue to dominate. Hence, the product range extension in terms of organic food can be regarded as a step in the right direction, if, in this segment, price competition is subsequently rejected in favour of quality competition.

The present study also provides some starting points for future research. For example, further influences of psychographic characteristics that affect the purchase of organic food could be investigated, taking into account actual purchasing behaviour. Since the present study focused exclusively on the purchase of conventional private labels regarding brand choice, future studies could usefully differentiate between different types of private labels. Such a distinction is likely to be beneficial for a deeper explanation of consumer WTP. Due to the fact that any empirical investigation in the field of social systems is subject to the risk of measuring time- and object-dependent phenomena, it is also advisable to verify the model postulated here with household panel data from other years and article groups in food retailing or to transfer it to other sectors (e.g., the clothes market). The extent to which organic products will prevail in other areas of the consumer goods sector will continue to be of interest.

In the general context of consumer WTP, we additionally need to mention that purchase data only provide information on purchases and prices paid. The actual WTP at the household level could exceed the prices paid by a considerable margin. However, it can be assumed that the heterogeneity in prices paid across households reflects the WTP in food retailing. For ex-

ample, our results reveal why consumers have a comparatively high or low WTP. With regard to the variety of arguments against the use of dominant approaches to measuring WTP (e.g., direct surveys), it is doubtful whether such methods are ever able to perform the WTP measurement adequately. Hence, external validity may be severely restricted. In considering this problem, purchase data have the advantage of high external validity. We also wish to emphasise that household panel data include a variety of observations based on a large number of households. Moreover, the data allow for a combination of socio-demographics, psychographics and purchasing behaviour. As a result, our study may provide useful insights for future research and incentives to explain consumer WTP.

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Appendix A: Operationalisation of Constructs

Construct	Indicator(s)
Age of the household head	Age of the household head
Number of children under 14 years	Number of children under 14 years
Household size	Household size (number of persons living in the household)
Household net income	Household net income
Importance of the naturalness of food	I reject products with preservatives When shopping, I am careful to choose foods without any additives I find out what foods are environmentally stressed and do not buy them I reject products with flavour enhancers (e.g., glutamate)
Importance of regional/national origin of food	I believe foods from Germany are qualitatively best If I have the choice, I definitely buy food from Germany When shopping for food, I pay attention to regional origin For food, I would like to see an identification of the region of origin within Germany I am willing to spend more money for food from my region
Environmental consciousness	I am willing to spend more money for environmentally friendly packaging When purchasing personal care products and household products, I pay attention to their environmental safety I buy frequently products that pollute the environment less I am willing to spend more money on eco-friendly detergents and cleaning products
Brand consciousness	Brand-name products are better than those with unknown names I have no real confidence in unbranded food items Foods of well-known brands are better than those of no-name brands
Price consciousness	When buying food, I notice the price more than the brand When purchasing food, I am more interested in the quality, even if it is significantly more expensive (recoded) When shopping, I pay attention mainly to the price/the quality (recoded) Global price orientation (index based on response patterns)
Attitude towards organic food	When buying food, I prefer organic products With organic products, I trust special food stores or organic supermarkets more than normal grocery stores By purchasing organic products, I can make a small contribution to climate change If I have a choice of organic products, I prefer to buy products from Germany than from other countries Organic products taste better than non-organic products Organic products are healthier than non-organic products I would like to see a larger selection of organic products in stores I am willing to spend even more money on organic products I would like more information about organic products
Share of organic purchases	Quantitative share of organic purchases Value-based share of organic purchases Act-of-purchase-related share of organic purchases
Share of conventional private label purchases	Quantitative share of conventional private label purchases Value-based share of conventional private label purchases Act-of-purchase-related share of conventional private label purchases
Share of purchases at speciality stores	Quantitative share of purchases at speciality stores Value-based share of purchases at speciality stores Act-of-purchase-related share of purchases at speciality stores
Share of purchases at discount stores	Quantitative share of purchases at discount stores Value-based share of purchases at discount stores Act-of-purchase-related share of purchases at discount stores
Share of purchases on special offer	Quantitative share of purchases on special offer Value-based share of purchases on special offer Act-of-purchase-related share of purchases on special offer
Willingness to pay	Average price paid per kilogram/litre

Note: All multiple-item constructs show reflective specifications, since changes in an overarching construct are always reflected in a change of the assigned indicators.

Appendix B: Quality Analysis of the Reflective Specified Multiple-Item Constructs

Construct	Indicator	Cronbach's alpha (≥ 0.7)	Inter-item-correlation (≥ 0.3)	Corrected item-to-total correlation (≥ 0.5)	Indicator reliability (≥ 0.4)	Composite reliability (≥ 0.6)	Average variance extracted (≥ 0.5)
Importance of the naturalness of food	1	0.791	0.490	0.662	0.579	0.811	0.521
	2			0.694	0.666		
	3			0.538	0.441		
	4			0.519	0.397		
Importance of regional/national origin of food	1	0.881	0.600	0.627	0.489	0.882	0.601
	2			0.755	0.656		
	3			0.778	0.612		
	4			0.795	0.748		
	5			0.636	0.501		
Environmental consciousness	1	0.814	0.522	0.593	0.419	0.814	0.523
	2			0.598	0.504		
	3			0.631	0.546		
	4			0.711	0.624		
Brand consciousness	1	0.785	0.549	0.606	0.539	0.791	0.560
	2			0.574	0.465		
	3			0.694	0.676		
Price consciousness	1	0.746	0.425	0.536	0.360	0.747	0.425
	2			0.587	0.460		
	3			0.519	0.462		
	4			0.522	0.419		
Attitude towards organic food	1	0.927	0.587	0.798	0.762	0.927	0.588
	2			0.673	0.469		
	3			0.700	0.494		
	4			0.654	0.437		
	5			0.712	0.504		
	6			0.735	0.531		
	7			0.830	0.794		
	8			0.813	0.774		
	9			0.704	0.527		
Share of organic purchases	1	0.994	0.985	0.989	0.986	0.995	0.984
	2			0.989	0.986		
	3			0.987	0.980		
Share of conventional private label purchases	1	0.995	0.986	0.992	0.992	0.995	0.986
	2			0.989	0.984		
	3			0.989	0.982		
Share of purchases at speciality stores	1	0.995	0.987	0.992	0.992	0.996	0.987
	2			0.990	0.988		
	3			0.989	0.982		
Share of purchases at discount stores	1	0.995	0.985	0.992	0.994	0.995	0.985
	2			0.990	0.988		
	3			0.985	0.974		
Share of purchases on special offer	1	0.994	0.982	0.992	0.996	0.995	0.986
	2			0.990	0.992		
	3			0.979	0.970		