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Marie von Meyer-Höfer, Vera von der Wense, Achim Spiller

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Marie von Meyer-Höfer
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Achim Spiller

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Marie von Meyer-Höfer, Vera von der Wense, Achim Spiller

Department of Agricultural Economics and Rural Development,
Marketing for Food and Agricultural Products,
Platz der Göttinger Sieben, 5,
37073 Göttingen, Germany

Corresponding author: Marie von Meyer-Höfer
E-Mail: marie.von-meyer@agr.uni-goettingen.de

Abstract

The objective of this article is to identify the distinguishing socio-demographic and psychographic features of convinced sustainable consumers in contrast to convinced conventional consumers. Furthermore, it contributes to the sparse literature about tea consumption. This study is based on data collected via an online consumer survey. First respondents took part in a choice experiment with tea varying in its price (four levels) and quality (conventional / organic / fair trade / organic & fair trade). Then they had to complete a questionnaire about their attitudes towards food consumption. Respondents, who always chose sustainable tea, at no matter what price, were grouped and those that always chose the conventional tea. T-Tests and bivariate logistic regression are used to analyse the influencing socio-demographic and attitudinal dimensions that characterise the two groups of convinced consumers. Convinced sustainable consumers are more often female than male and perceive that their personal purchase decision has an impact on overall sustainable development. They show a higher willingness to increase sustainability through their consumption behaviour. They are very much interested in high food quality and are not as much influenced by advertisements and offers in their purchase decision-making as convinced conventional consumers. The main contribution of this study is to provide practical information for actors in the field of sustainable food marketing about how to target their most relevant segment, the convinced sustainable consumer.

Keywords: *sustainable food consumption; convinced consumers; heavy buyers; tea consumption*

JEL-classifications: *Q 13; Q18*

1 Introduction

Since 1992, when the UN Conference on Environment and Development was held in Rio de Janeiro, sustainability has become an international political objective. Given its importance for sustainable development, food consumption behaviour is a central area of sustainability (Dolan, 2002; Tanner and Wölfing-Kast, 2003; Abeliotos *et al.*, 2010; Verain *et al.*, 2012; Garnett, 2013). Thus today sustainable food production and consumption has also become one of the major management and marketing issues in the agri-food business sector (Vermeir and Verbeke, 2006; Grunert, 2011; Verain *et al.*, 2012).

One comprehensive definition of sustainable food consumption was developed by Reisch 2010: "For food consumption to be sustainable it has to be safe and healthy in amount and quality; and it has to be realized through means that are economically, socially, culturally and environmentally sustainable – minimizing waste and pollution and not jeopardizing the needs of others."

There are many different ways not only to define, but also to promote sustainability in the food market. Labelling is one of the most popular instruments to communicate the sustainability of food products, as a credence attribute, to consumers (Akerlof 1970; Caswell and Padberg, 1992; Jahn *et al.*, 2005; Grolleau and Caswell, 2006; Franz *et al.*, 2010; Eberle *et al.,* 2011). The two best known and widely used sustainability labels in Germany are organic (i.e. the ecological dimension of sustainability) and Fair Trade (the social dimension) (Fair Trade International, 2013; von Meyer-Höfer and Spiller, 2013). European organic labels guarantee the production of food according to (at minimum) the objectives and principles for organic production set in the Council Regulation (EC) 834/2007. It defines organic food production as a "sustainable management system" (EC 834/07/II,3) "for farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes" (EC 834/07/I1). The Fair Trade label ensures the trading of food products according to the World Fair Trade Organization (WFTO, 2013) that defines fair trade as a "trading partnership, based on dialogue, transparency and respect that seek greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the south."

The impact of both labels on the global food market has grown continuously in recent decades, not only separately but also in combination (BÖLW, 2012; Fair Trade International, 2013; Sahota, 2013). Today, around 65% of the food under the fair trade label is also labelled with an organic label (Forum Fairer Handel, 2012). Although a number of studies about organic and/or fair trade consumption are available, many questions concerning the characteristics of consumers that prefer sustainable food products remain. This is because most studies focus either on profiling organic consumers or on the analysis of consumers' willingness to pay for fair trade products. To our knowledge, there has so far been only few comprehensive characterisation of sustainable food consumers looking at their preferences for organic and/or fair trade labelled products (Loureiro *et al.*, 2001; 2002; 2005; Conner and Mabaya, 2006; Tagbata, 2008; Brecard, 2012). Moreover, we know from marketing practice that an in-depth picture of core consumers' characteristics is often missing (Rapacz and Reilly, 2009). This might not be surprising when looking at the size of this core consumer segment, which is often below 10% of the total number of consumers, but it should be considered that these usually generate the majority of revenue and profit (Michels *et al.*, 2003; Lüth *et al.*, 2005; Rapacz and Reilly, 2009).

This explorative study generates deeper insights into the distinguishing characteristics of convinced sustainable consumers with regard to their demography, attitudes, shopping

behaviour, perceived consumer effectiveness and perceived barriers to sustainable food consumption. The main contribution of this study to the existing literature is to provide practical information for actors in the field of sustainable food marketing about how to target their most relevant segment, the convinced sustainable consumer. Moreover, this study is based on a choice experiment with conventional and sustainable tea (organic label, fair trade label, organic and fair trade label), so it also contributes to the sparse literature of sustainable tea consumption. Respondents that always chose sustainable tea no matter at what price are grouped (convinced sustainable consumers) and compared to those respondents that always chose the conventional tea (convinced conventional consumers). In the following, the literature about profiling and segmentation of sustainable food consumers is reviewed. In the methodological part of the paper, the empirical study, data collection procedure and sample are described. The data was analysed using binary logistic regression, the results of which are presented and discussed at the end of the paper.

2 Literature review

Segmentation and profiling of consumers by socio-demographic characteristics is a common method, because data are easy to obtain and measure (Myers, 1996). However, a number of studies conclude that the influences of socio-demographic features on consumption behaviour are either insignificant or contradictory (Anderson and Cunningham, 1972; Gil *et al.,* 2000; Dickson, 2001; Loureiro and Lotado, 2005; Jain and Kaur, 2006; Doran, 2009; Verain *et al.*, 2012). Socio-demographic factors are therefore considered to be insufficient to describe consumer behaviour, and it is recommended that they are complemented by psychographic characteristics of consumers (Diamantopoulos *et al.*, 2003; Dagevos, 2005; Doran, 2009; Verain *et al.*, 2012). In the literature on consumer behaviour, attitudes are among the most frequently examined psychographic characteristics. In particular Ajzen and Fishbein (Ajzen and Fishbein, 1973; Fishbein, 1967; Fishbein and Ajzen, 1972; 1974; 1975) found that a person's attitude widely affects his or her behaviour.

In Europe, the level of consumer understanding about the exact meaning of organic food is low, but consumers nevertheless have a generally positive attitude towards it (Lockie *et al.*, 2002; Saba and Messina, 2003; Hughner *et al.*, 2007; Aertsens *et al.,* 2009). They generally relate direct health benefits and better taste to organic products, but also indirect benefits for the environment or animal welfare standards (Wier and Calverley, 2002; Johnston, 2008). A common focus of studies about organic food consumers is the differentiation between occasional and frequent buyers, who often show significant differences concerning their levels of involvement, motivations and willingness to pay (Magnusson *et al.*, 2003; Lüth *et al.*, 2005; Padel and Foster, 2005; Padilla-Bravo *et al.*, 2013,). In spite of the positive attitudes of many consumers towards organic food consumption and the growing market for such products, some consumers are also skeptic with regard to organic products. This is due to their lack of trust in the certification and labeling schemes, but also due to a lack of availability of organic food products and their often higher price compared to conventional food (Torjusen *et al.*, 2004; Thogersen, 2009; v. Meyer-Höfer and Spiller, 2013).

The literature about fair trade food consumption shows that this form of consumption is influenced by ethical and environmental concerns as well as a feeling of social responsibility (Tanner and Wölfing-Kast, 2003; Loureiro and Lotado, 2004; De Pelsmaker, 2006; Andorfer and Liebe, 2012). Fair trade consumers are usually segmented and profiled according to their willingness to pay for the fair trade premium price (for a detailed literature review see: Andorfer and Liebe 2012). Only few studies compare consumer attitudes or behaviour for more than one specific label. In most cases, these studies target organic and / or fair trade as well as eco-label products (Loureiro *et al.*, 2001; 2002; 2005; Conner and Mabaya, 2006; Tagbata, 2008; Brecard, 2012). Although the majority of consumers have a positive attitude

towards fair trade in general, there are still barriers to actual fair trade consumption. Among these are the price and availability of fair trade products (Tanner and Wölfing-Kast, 2003; De Pelsmaker, 2006; Young *et al.,* 2010; Andorfer and Liebe, 2012).

The body of literature analysing organic or fair trade consumer segments is quite extensive; however, there is a lack of studies focussing on more than one sustainable food product group. To our knowledge, until now no study has been published characterising the convinced sustainable food consumer according to demographic and psychological variables from a survey combining a choice experiment with questions about organic, fair trade and organic and fair traded food. It is also a common phenomenon in marketing practice that there is no in-depth picture available of the most important but relatively small segment of convinced consumers or heavy buyers (Rapacz and Reilly, 2009). Nevertheless, those convinced consumers deliver the majority of revenue and profit for their preferred products. Moreover, these core consumers are generally more committed, with a greater knowledge about and a deeper involvement in the label or product category compared to conventional consumers (Rapacz and Reilly, 2009; Lüth *et al.*, 2005). Furthermore, heavy buyers often show a higher willingness to accept price premiums and their purchasing is less dependent on special offers (ibid.). This study thus focusses on the characterisation of convinced sustainable food consumers in order to enable marketers to identify their most valuable consumer segments and to fulfil their needs.

The choice experiment in this survey focuses on tea. Studies about tea consumption in general are scarce, and those considering sustainable tea consumption are especially rare. According to Trevisanato and Young In Kim (2009), tea is a popular product enjoyed by hundreds of millions of people every day. Tea is available in different amounts and varieties as well as from different origins and production backgrounds. These characteristics and its popularity make tea a suitable product for research on sustainable consumption, especially for choice experiments. Moreover, its production is related to organic, fair trade and ethical issues (Strong, 1997; Gilg *et al.*, 2005; Raynolds and Ngcwangu, 2010), making it particularly suitable for this survey. In Germany 18,490 tonnes of tea were consumed in 2011. Black tea was the most popular and accounted for 76.5% of total tea consumption in Germany (Deutscher Teeverband, 2013).

3 Methodology

3.1 Data

This article is based on an online survey of respondents that consume tea more than once a week. The study was conducted in Germany during February 2012. The survey consists of two parts: a choice experiment and a questionnaire. The total sample number is 300.

The Indian black tea variant Darjeeling First Flush was used in the choice experiment, because it is available in all combinations of organic and fair trade, and popular among German tea consumers. The tested attributes were the production and trading mode (conventional, labelled organic, labelled fair trade, labelled organic and fair trade) and price / 10 g (0.49 €, 0.69 €, 0.99 € or 1.19 €). Due to the fact that the number of all possible groupings of the attributes and levels would have been too high to test in the experiment ($(2x2x4)^2=256$) we reduced the number of choices by using an efficient design. This final main effect design consists of eight choice sets with a total of 16 choices, as shown in Table 1.

Table 1: Choice Sets

Choice	Tea A (10g)		Tea B (10g)	
	Production / trade	Price (€)	Production / trade	Price (€)
1	Fairtrade	0.49	Organic	0.99
2	Organic	0.99	Conventional	0.49
3	Conventional	0.49	Organic & Fairtrade	0.99
4	Organic	0.49	Fairtrade	0.69
5	Fairtrade	1.19	Conventional	0.49
6	Organic & Fairtrade	1.19	Organic	0.49
7	Organic	0.69	Fairtrade	1.19
8	Conventional	0.99	Organic	1.19

Source: Own data, 2012

For each of the randomised choices, respondents had to decide whether to choose Tea A or B or none of them. The choice experiment was carried out in a hypothetical setting for half of the participants (N=150), and for the other half in a non-hypothetical setting (N=150). For this survey, the results of both experimental methods were combined, because we are interested in segmenting the respondents into two different extreme groups concerning their tea choice, no matter which monetary consequences. Only participants who always decided for a certain kind of tea were chosen. Consequently, the absolutely convinced consumers were selected, which are 126 out of 300. The participants who in all eight choices decided for either organic (11), fair trade (23) or organic and fair trade (92) tea no matter at what price are considered to be convinced sustainable consumers (126). In 18 cases, respondents always chose the sustainable variant but varying between organic, fair trade and organic and fair trade. To avoid distraction by these indifferent sustainable consumers, we decided to exclude them from further analysis and to calculate with 108 convinced sustainable consumers. The participants who always chose conventional tea (31) were supposed to be convinced conventional consumers. The total sample size for the following analysis is thus 108+31 = 139.

After segmenting the participants, the two consumer groups were profiled by analysing the second part of the survey. In this part, respondents had to answer a questionnaire evaluating their general knowledge about food production and agriculture, their attitudes and intentions towards sustainable food consumption as well as the perceived barriers towards sustainable food consumption. In addition, we collected data about their shopping routines, habits and socio-demographic characteristics.

3.2 Description of the sample
Respondents of the survey were members of an online access panel of a market research institute. They were 18 years and older, as well as at least weekly consumers of tea. The total number of valid cases of this survey is 300. For the analysis in this paper, we use the 139 cases that belonged to one of the extreme groups (convinced sustainable consumer / convinced conventional consumer). The sample differs from the German population average in age, education level as well as in net-income and in type of household. The results of this study are thus biased but still useful for preliminary marketing implications. Table 2 gives an overview about the socio-demographic characteristics of the convinced consumer groups and the German population.

Table 2 Socio-demographic characteristics of the consumer groups and the German population

Socio-demographic factors		Sustainable (%) N=108	Conventional (%) N= 31	Averages in Germany (%)*
Gender (%)	Male	35.2	64.5	49.0
	Female	59.3	32.3	51.0
	Not specified	5.6	3.2	------
Age (years)	< 25	11.1	6.5	24.9
	25 – 34	15.7	16.1	11.8
	35 – 44	19.4	25.8	15.1
	45 – 54	24.1	22.6	15.8
	> 54	29.6	29.0	32.0
Highest educational achievement	Secondary general school-leaving	9.3	22.6	36.3
	Intermediate school-leaving	46.3	45.2	28.9
	University entry qualification	43.5	32.3	26.6
	No educational achievement	0	0	7.6
	Not specified	0.9	0	------
Net income (€)	< 1000	10.2	12.9	29.8
	1000 - 1999	27.8	25.8	39.7
	2000 - 2999	21.3	38.7	14.1
	3000 - 3999	18.5	12.9	4.3
	> 4000	8.3	6.5	2.4
	Not specified	13.9	3.2	9.4
Household	1-Person	25.0	16.1	40.4
	Multi-person household with children	37.2	38.7	29.0
	Multi-person household without children	37.0	45.1	30.6
	Not specified	0.9	0	------
Housing situation	< 5000 Residents	17.6	9.7	15.7
	5000 - 20.000 Residents	26.9	32.3	25.9
	20.000 - 100.000 Residents	25.9	19.4	27.3
	> 100.000 Residents	27.8	38.7	31.0
	Not specified	1.9	0	------

*Data are based on Destatis, 2011

3.3 Method of analysis

The empirical analysis was carried out using the statistical program SPSS Version 17.0. Differences between sustainable and conventional consumers were examined using a binary logistic regression analysis to generate information about the dimension of influence of each item on the sustainable group. Table 2 gives an overview of the psychographic items included in the analysis.

The convinced sustainable consumer group was defined as the target category, and the convinced conventional group was used as reference category. In addition, variables with the same context were reduced using indices. Out of 139 cases, 125 were used in the analysis; 100 convinced sustainable and 25 convinced conventional consumers.

4 Results

4.1 Results of the t-test

In the following, the results of the items scored on five-point Likert scales are presented. The differences between groups were examined using t-tests. The description is accompanied by table 3, in which the significant results are displayed in detail (mean, standard deviation, t-value and significance level).

To all questions, whether they display significant differences or not, the mean values indicate that convinced sustainable consumers have a more positive attitude towards food issues, sustainability and sustainable consumption.

Highly significant differences can be observed between convinced sustainable and convinced conventional consumers' attitudes about the importance of their own sustainable food consumption. Means indicate that it is more important for convinced sustainable consumers to consume sustainable food than for convinced conventional consumers. In addition, convinced sustainable consumers agree much more strongly with the idea that consumers can enhance sustainable development by their food purchase than convinced conventional consumers. Accordingly, sustainable and convinced conventional consumers also differ in their estimation of their own intention to contribute to an improvement of sustainable development, with a high willingness among convinced sustainable consumers and an intermediate willingness among convinced conventional consumers.

Looking at the differences in the food shopping behaviour of both groups, results show that sustainable consumers rely significantly more on food labels than conventional consumers. Convinced sustainable consumers attach more importance to food quality and are more willing to pay higher prices for food specialties. Convinced conventional consumers are instead more price-conscious than convinced sustainable consumers. While shopping, convinced sustainable consumers read the product information significantly more often before making their purchase decision. The two consumer groups do not differ significantly their general information level, knowledge about organic agriculture and food production, perception of taste, advertisement or offers as influencing factors of their buying behaviour.

The two analysed groups differ significantly in three out of six analysed barriers towards sustainable food consumption. These significant differences are found for the price barrier, the lack of knowledge where to buy sustainable food and the perceived lack of consumer effectiveness. Convinced sustainable consumers do not agree with the statement that sustainable products are too expensive. They seem to have a certain reason why to buy such products and also know where to find them. The two groups also differ in their general food shopping behaviour, whereby convinced sustainable consumers buy sustainable food products more frequently and as a greater proportion of their shopping.

Table 3 Results of the t-test showing the significant differences

Items	Consumer group	Mean value	SD	t-value	p
Attitude					
How important is it to you to consume sustainable products?	Sustainable	1.85	.734	-5.162	.000
	Conventional	2.68	.945	-4.492	
What is your attitude towards the assumption that consumers can improve sustainable development through their purchase decision?	Sustainable	1.73	.678	.065	.000
	Conventional	2.58	.765	.137	
Intention					
How do you evaluate your own willingness to improve sustainable development?	Sustainable	2.05	.790	-5.815	.000
	Conventional	3.00	.856	-5.559	
Food shopping routines / habits					
How reliable do you think labels are?	Sustainable	2.58	.739	-2.640	.009
	Conventional	2.97	.706	-2.707	
While shopping, price is the most important factor.	Sustainable	2.91	.972	4.220	.000
	Conventional	2.10	.831	4.603	
While shopping, I always look for high quality food	Sustainable	2.11	.740	-3.650	.001
	Conventional	2.68	.832	-3.420	
I am willing to pay a price premium for gourmet products.	Sustainable	2.03	.837	-3.776	.001
	Conventional	2.68	.871	-3.691	
Before making my decision, I compare the food product information.	Sustainable	2.49	.881	-2.682	.022
	Conventional	3.00	1.095	-2.377	
Barriers					
I think products with high ethical and ecological standards are too expensive.	Sustainable	2.75	.939	3.808	.000
	Conventional	2.03	.875	3.960	
I know where to buy food which is produced sustainably.	Sustainable	2.34	.686	-3.353	.005
	Conventional	2.81	.654	-3.442	
I do not know why to products with high ethical and ecological standards.	Sustainable	3.94	.960	3.521	.002
	Conventional	3.23	1.087	3.286	
Behaviour					
How high is your own consumption of sustainable products?	Sustainable	2.63	.763	.074	.000
	Conventional	3.32	.802	.160	

Key: SD= Standard deviation; p= significance level

Scales: 5-point Likert Scales (e.g. 1=very important; 2=important 3=neither nor; 4=unimportant; 5=not important at all)

Source: Own calculations, 2012

4.2 Results of the binary logistic regression analysis

In order to examine the relative influence of each variable, a binary logistic regression analysis was carried out. The overall variance explained of the model is 80 % and the adjustment of the model, represented by Nagelkerke R², is .494 (table 4). The analysis was carried out in a stepwise manner. Five variables independently show a significant influence on the convinced sustainable consumer group when controlling for all other variables. In table 3, the final model is displayed.

Table 4 Binary logistic regression analysis - variables in the equation

Item	B	S.E.	Wald	Sig.	Exp(B)
Attitude: What is your attitude towards the assumption that consumers can improve sustainable development through their purchase decision?[1]	-.955	.483	3.916	.048	.385
Intention: How do you estimate your own willingness to support sustainable development?[1]	-.738	.401	3.386	.066	.478
Food shopping routines and habits: While shopping, I always look for high quality food.[2]	-1.221	.472	6.704	.010	.295
Food shopping routines and habits: Offers and advertisements assist my purchase decision.[2]	1.026	.379	7.339	.007	2.791
Gender[3]	1.553	.660	5.547	.019	4.727
Constant	3.578	1.680	4.538	.033	35.799
Correctly classified cases (%)	**80.0**				
Nagelkerkes Pseudo-R²	**.494**				
Omnibus of the model at step 5 (Chi-Quadrat)	**46.836**			**.000**	

Key: B=coefficient of regression; S.E.=standard error; Wald=wald test; Sig.=significance;
       Exp. (B)=coefficient of effect
Scales: [1] 5-point Likert-Sacale from "very high" (1) to "very low" (5);
        [2] 5-point Likert-Scale from "It applies fully" (1) to "It does not apply at all" (5);
        [3] male (0); female (1).
Source: Own calculations, 2012

The first variable in the model (from a statistical point of view the most important predictor for the sustainable consumer) is "Intention: How do you estimate your own willingness to improve sustainable development?". The second most important predictor for the sustainable consumer group is the item "Attitude: What is your attitude towards the assumption that consumers can improve sustainable development through their purchase decision?". After that, the variables "Food shopping routines and habits: While shopping I always look for high quality of food" and "Food shopping routines and habits: Offers and advertisements assist me with my purchase decision" were included in the model. Although gender was included only in the last step, it has the greatest influence on the convinced sustainable consumer group. Women are 4.7 times more likely than men to be convinced sustainable consumers (see table 4 coefficient of effect (c.f. Exp(B))).

Whereas gender is a categorical variable, the other variables are metric scaled, whereby every increase of one scale unit is a decrease of agreement to the statement. That means for the variable "Intention: How do you estimate your own willingness to support the sustainable development?" every increase of one scale unit implies a decrease in this intention, and reduces the likelihood of belonging to the convinced sustainable consumer group. The same goes for the second item, "Food shopping routines and habits: While shopping I always look for high quality food". The third item "Food shopping routines and habits: Offers and

advertisements assist me in the purchase decision" has a negative relationship with convinced sustainable consumption. The chance of belonging to the convinced sustainable consumer group increases by 2.8 times if this item rises by one scale unit.

Due to the fact that the logistic regression analysis is not linear, the "coefficient of regression" (B) and the "coefficient of effect" (Exp(B)) have different values at different positions of the equation. Hence, the figures displayed in table 4 ought to be read with respect to a potential over-interpretation.

For detailed information about the binary logistic regression analysis please have a look at the appendix at the end of the document.

5 Discussion

This section discusses the distinguishing features of the convinced sustainable consumers found in this investigation. First of all, it is clear that many respondents (N=108, i.e. more than one third) seem to have a high willingness to consume sustainable food. This confirms the growing demand for sustainable food.

Regarding the socio-demographic data, the only significant difference between convinced sustainable and convinced conventional consumers is gender. The regression analysis identified that being female is the greatest predictor for belonging to the convinced sustainable consumers when controlling for all other tested variables. Previous studies on organic consumers also found that more women than men buy organic food (Gil *et al*., 2000; Jain and Kaur, 2006). In contrast, Doran (2009) found no difference in gender when characterising fair trade consumers. Overall, previous studies have shown either no or contradictory influence of socio-demographics on characteristics of sustainable consumers (Diamantopoulos *et al*., 2003; Doran, 2009; Verain *et al*., 2012). For the characterisation of convinced sustainable consumers attitudinal aspects are however of high relevance.

Convinced sustainable consumers believe more that their own consumption behaviour has an influence on sustainable development than convinced conventional consumers. This attitude is also known as "perceived consumer effectiveness", which has previously been discussed in various studies (Shaw and Clarke, 1999; Carrigan and Attalla, 2001; De Pelsmaker, 2006; Vermeir and Verbeke, 2006). For example, Vermeir and Verbeke (2006) found that consumers who believe that their individual consumption behaviour can contribute to sustainable development are more likely to buy sustainable food. Moreover, convinced sustainable consumers have a significantly higher willingness to contribute to sustainable development by their food purchasing behaviour. Consequently, convinced sustainable consumers estimate their amount of sustainable food purchase higher than convinced conventional consumers do.

Convinced sustainable consumers rely more on labels than conventional consumers. Prior studies have pointed out that a lack of trust in labels is the main barrier to sustainable consumption (Shaw and Clarke, 1999; Vermeir and Verbeke, 2006; Hanss and Böhm, 2012). Moreover, Vermeir and Verbeke (2006) argue that consumers who believe in the reliability of labels are also more involved in and have a more positive attitude towards sustainable consumption. In addition, they know where to buy sustainable products. These results are confirmed by Vermeir and Verbeke (2006), who established that purchase of sustainable food is positively correlated with the degree of sustainable involvement.

Even more, the logistic regression analysis displayed that a decrease of the preference for quality has a negative effect on the convinced sustainable consumer group. The difference between convinced sustainable and convinced conventional consumers in preferences for these product attributes is confirmed by previous studies. These illustrate that the preference for quality motivate consumers to buy sustainable products (Vermeir and Verbeke, 2006; Hanss and Böhm 2012). Moreover, the higher preference for quality than for other attributes

such as e.g. price is confirmed by the assumption that purchase decisions of convinced sustainable consumers are not guided by offers and advertisements.

Concerning the self-evaluation of general information / knowledge of food production and agriculture shows that these are not characteristics distinguishing consumer groups. This result contrasts with some studies on the influence of consumer knowledge, like the one of Haron *et al.* (2005), who assumed that environmental knowledge encourages pro-environmental attitudes, behaviour and consumption. In turn, Reisch (2010) argued that education about the consequences of food consumption behaviour can improve sustainable consumption. However, this does not mean that a change of preferences and habits automatically results from more knowledge (ibid.).

6 Conclusion

Based on an online consumer survey about sustainable food consumption using tea as an example, this article examined the socio-demographic as well as attitudinal characteristics in which convinced sustainable consumers differ from convinced conventional consumers. The group of convinced sustainable consumers is bigger than the group of convinced conventional consumers.

A major difference between both convinced consumer groups is that more sustainable consumers are female. No differences in other socio-demographic factors were found. Convinced sustainable consumers can, however, be characterised on the basis of their psychographic features, especially their attitude. They have a higher willingness to contribute to sustainable development by their consumption of sustainable food, because they believe in the effectiveness of their personal purchase decision. Therefore, they also look for higher quality food. Furthermore, they are significantly more influenced by food quality than by offers and advertisements or other attributes such as price. Interestingly, convinced sustainable consumers and convinced conventional consumers do not significantly differ in their knowledge about agriculture and food production in general.

Knowledge about the characteristics of convinced sustainable consumers helps to identify the needs of the core target group for increasing sustainable food consumption. The results of this study show that marketing actors who want to promote sustainable food consumption should focus on motivating and convincing consumers that their personal purchase decisions matter for overall sustainable development. Signalling the sustainability of food products via labelling can help to inform consumers where and how to make their choice, however a pure rational marketing approach might not be very effective. To really convince consumers, they should be addressed emotionally and personally to evoke their feelings of making a positive contribution to the goal of sustainable development.

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Appendix
Classification of Participants according to their choice behavior

	Participants[a]	Choices						All sustainable without doubling		
		Conventional	Organic	Fair	Organic+Fair					
	Total	31	11	29	92			108		
1	lfdn	21	89	44	22	317	570	22	250	481
2	lfdn	46	177[b]	64	26	325	577	26	256	485
3	lfdn	75	199[b]	66[b]	36	328	584	36	260	497
4	lfdn	111	203	96[b]	38	332	590	38	267	501
5	lfdn	134	214	104[b]	42	344	595	42	268	502
6	lfdn	141	231	122[b]	53	352	600	44	286	503
7	lfdn	151	238	123	66	365	601	53	290	505
8	lfdn	176	244	201[b]	77	367	604	64	292	509
9	lfdn	183	292	256[b]	80	373		66	298	513
10	lfdn	194	334	260	82	381		77	305	517
11	lfdn	241	428[b]	290[b]	96	391		80	314	542
12	lfdn	252		325[b]	98	393		82	317	554
13	lfdn	257		333	100	400		89	325	556
14	lfdn	294		344[b]	104	407		96	328	561
15	lfdn	312		352[b]	122	410		98	332	564
16	lfdn	337		390	124	420		100	333	568
17	lfdn	339		404	133	423		104	334	570
18	lfdn	379		450	139	428		122	344	577
19	lfdn	386		480[b]	144	430		123	352	584
21	lfdn	412		554[b]	153	433		124	365	590
21	lfdn	424		570[b]	162	436		133	367	595
22	lfdn	426		590[b]	168	447		139	373	600
23	lfdn	435		595[b]	177	448		144	381	601
24	lfdn	486			181	456		153	390	604
25	lfdn	493			185	458		162	391	
26	lfdn	507			186	480		168	393	
27	lfdn	539			199	481		177	400	
28	lfdn	547			201	485		181	404	
29	lfdn	555			212	497		185	407	
30	lfdn	589			215	501		186	410	
31	lfdn	597			218	502		199	420	
32	lfdn				221	503		201	423	
33	lfdn				223	505		203	428	
34	lfdn				250	509		212	430	
35	lfdn				256	513		214	433	
36	lfdn				267	517		215	436	
37	lfdn				268	542		218	447	
38	lfdn				286	554		221	448	
39	lfdn				290	556		223	450	
40	lfdn				298	561		231	456	
41	lfdn				305	564		238	458	
42	lfdn				314	568		244	480	

[a] only participants who always selected a certain tea variety
[b] double because when possible participants chose organic plus fair

Binary logistic regression analysis

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	125	89.9
	Missing Cases	14	10.1
	Total	139	100
Unselected Cases		0	.0
Total		139	100

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Conventional	0
Sustainable	1

Classification Table[a,b]

	Observed		Predicted		
			Purchase Difference		Percentage Correct
			Conventional	Sustainable	
Step 0	Purchase Difference	Conventional	0	25	.0
		Sustainable	0	100	100
	Overall Percentage				80

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	1.386	.224	38.436	1	.000	4.000

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Index_ Evaluation of the own knowledge about food and food production	5.550	1	.018
		Evaluation of the own knowledge about sustainability	1.665	1	.197
		Index_ Knowledge about sustainable consumption	5.380	1	.020
		Evaluation of the sustainable situation in developing countries and in Germany	.957	1	.328
		Emotions towards the sustainable situation in developing countries and in Germany	2.637	1	.104
		Estimation of the own willingness to contribute to sustainable situation	20.780	1	.000
		Index_ Membership and donation to sustainable organizations	.322	1	.571
		Attitude towards consumer effectiveness for sustainable development	8.170	1	.004
		Importance of own consumption of sustainable food	14.555	1	.000
		Index_ Amount of own consumption of sustainable food	15.842	1	.000
		Reliability about label	3.008	1	.083
		To me, price is most important factor when buying food.	12.323	1	.000
		To me, taste is the most important factor when buying food.	.077	1	.781
		I always look out for high quality products.	16.674	1	.000
		I am willing to pay a price premium for gourmet products.	9.657	1	.002
		Before taking my decision, I compare the food product information.	9.965	1	.002
		Offers and advertisements assist me at my purchase decision.	1.338	1	.247
		When shopping I am a "creature of habit"	.370	1	.543
		I think such products are too expensive.	9.919	1	.002
		I would buy such products but I forget while shopping.	.774	1	.379
		I need to spend more time for shopping if I buy sustainable products.	1.310	1	.252
		Gender	11.642	1	.001
		Income	1.873	1	.171
		Education	3.827	1	.050
		Age	.011	1	.918
	Overall Statistics		49.115	25	.003

Omnibus Tests of Model Coefficients   (Block 1: Method = Forward Stepwise (Conditional))

		Chi-square	df	Sig.
Step 1	Step	21.068	1	.000
	Block	21.068	1	.000
	Model	21.068	1	.000
Step 2	Step	7.553	1	.006
	Block	28.621	2	.000
	Model	28.621	2	.000
Step 3	Step	5.856	1	.016
	Block	34.477	3	.000
	Model	34.477	3	.000
Step 4	Step	8.177	1	.004
	Block	42.654	4	.000
	Model	42.654	4	.000
Step 5	Step	5.158	1	.023
	Block	47.812	5	.000
	Model	47.812	5	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	104.033[a]	.155	.245
2	96.479[b]	.205	.324
3	90.623[b]	.241	.381
4	82.447[b]	.289	.457
5	77.289[b]	.318	.503

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

b. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Classification Table[a]

	Observed		Predicted		
			Purchase Difference		Percentage
			Conventional	Sustainable	Correct
Step 1	Purchase Difference	Conventional	4	21	16
		Sustainable	3	97	97
	Overall Percentage				80.8
Step 2	Purchase Difference	Conventional	6	19	24
		Sustainable	2	98	98
	Overall Percentage				83.2
Step 3	Purchase Difference	Conventional	11	14	44
		Sustainable	7	93	93
	Overall Percentage				83.2
Step 4	Purchase Difference	Conventional	10	15	40
		Sustainable	3	97	97
	Overall Percentage				85.6
Step 5	Purchase Difference	Conventional	10	15	40
		Sustainable	6	94	94
	Overall Percentage				83.2

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Index_ Estimation of the own willingness to contribute to sustainable development	-1.302	.329	15.622	1	.000	.272
	Constant	4.580	.897	26.081	1	.000	97.560
Step 2[b]	Index_ Estimation of the own willingness to contribute to sustainable development	-1.063	.347	9.382	1	.002	345
	I always look out for high quality products.	-.973	.380	6.552	1	.010	.378
	Constant	6.379	1.248	26.121	1	.000	589.417
Step 3[c]	Index_ Estimation of the own willingness to contribute to sustainable development	-.892	.364	6.016	1	.014	.410
	I always look out for high quality products.	-1.079	.404	7.126	1	.008	.340
	Gender	1.337	.577	5.367	1	.021	3.808
	Constant	4.341	1.487	8.525	1	.004	76.765
Step 4[d]	Index_ Estimation of the own willingness to contribute to sustainable development	-1.038	.384	7.300	1	.007	.354
	I always look out for high quality products.	-1.361	.446	9.314	1	,.002	.256
	Offers and advertisements assist me at my purchase decision.	.963	.373	6.659	1	.010	2.621
	Gender	1.688	.646	6.829	1	.009	5.411
	Constant	2.641	1.559	2.871	1	.090	14.025
Step 5[e]	Index_ Estimation of the own willingness to contribute to sustainable development	-.817	.385	4.496	1	.034	.442
	Index_ Amount of own consumption of sustainable food	-.830	.380	4.785	1	.029	.436
	I always look out for high quality products.	-1.264	.467	7.333	1	.007	.283
	Offers and advertisements assist me at my purchase decision.	1.065	.399	7.123	1	.008	2.901
	Gender	1.852	.699	7.027	1	.008	6.374
	Constant	3.817	1.783	4.583	1	.032	45.468

a. Variable(s) entered on step 1: Estimation of the own willingness to contribute to sustainable development
b. Variable(s) entered on step 2: I always look out for high quality products.
c. Variable(s) entered on step 3: Gender
d. Variable(s) entered on step 4: Offers and advertisements assist me in my purchase decision.
e. Variable(s) entered on step 5: Index_ Amount of consumption of sustainable food

Model if Term Removed

	Variable	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of Change
Step 1	Estimation of the own willingness to contribute to sustainable development	-63.026	22.020	1	.000
Step 2	Estimation of the own willingness to contribute to sustainable development	-53.896	11.314	1	.001
	I always look out for high quality products.	-52.125	7.771	1	.005
Step 3	Estimation of the own willingness to contribute to sustainable development	-48.759	6.895	1	.009
	I always look out for high quality products.	-49.681	8.739	1	.003
	Gender	-48.344	6.066	1	.014
Step 4	Estimation of the own willingness to contribute to sustainable development	-45.697	8.947	1	.003
	I always look out for high quality products.	-47.459	12.472	1	.000
	Offers and advertisements assist me at my purchase decision.	-45.643	8.839	1	.003
	Gender	-45.442	8.437	1	.004
Step 5	Estimation of the own willingness to contribute to sustainable development	-41.095	4.901	1	.027
	Index_ Amount of own consumption of sustainable food	-41.288	5.286	1	.021
	I always look out for high quality products.	-43.406	9.523	1	.002
	Offers and advertisements assist me at my purchase decision.	-43.634	9.980	1	.002
	Gender	-43.175	9.062	1	.003

			Score	df	Sig.
Step 1	Variables	Index_ Evaluation of the own knowledge about food and food production	1.337	1	.247
		Evaluation of the own knowledge about sustainability	.118	1	.732
		Index_ Knowledge about sustainable consumption	3.892	1	.049
		Evaluation of the sustainable situation in developing countries and in Germany	.768	1	.381
		Emotions towards the sustainable situation developing countries and in Germany	1.634	1	.201
		Index_ Membership and donation to sustainable organisations	.122	1	.726
		Attitude towards consumer effectiveness for sustainable development	2.273	1	.132
		Importance of own consumption of sustainable food	1.496	1	.221
		Index_ Amount of own consumption of sustainable food	6.417	1	.011
		Reliability about label	.068	1	.794
		To me, price is most important factor when buying food.	6.658	1	.010
		To me, taste is the most important factor when buying food.	.183	1	.668
		I always look out for high quality products.	7.214	1	.007
		I am willing to pay a price premium for gourmet products.	5.290	1	.021
		Before making my decision, I compare the food product information.	4.474	1	.034
		Offers and advertisements assist me in my purchase decision.	4.089	1	.043
		When shopping I am a "creature of habit"	.617	1	.432
		I think such products are too expensive.	4.629	1	.031
		I would buy such products but I forget while shopping.	1.845	1	.174
		I need to spend more time for shopping if I buy sustainable product.	3.025	1	.082
		Gender	4.947	1	.026
		Income	1.740	1	.187
		Education	2.753	1	.097
		Age	.507	1	.476
	Overall Statistics		33.541	24	.093

			Score	df	Sig.
Step 2	Variables	Index_ Knowledge about food and food production	.084	1	.771
		Evaluation of the own knowledge about sustainability	.062	1	.804
		Index_ Knowledge about sustainable consumption	1.787	1	.181
		Evaluation of the sustainable situation in developing countries and in Germany	1.058	1	.304
		Emotions towards the sustainable situation in developing countries and in Germany	2.098	1	.148
		Index_ Membership and donation to sustainable organisations	.367	1	.545
		Attitude towards consumer effectiveness for sustainable development	1.200	1	.273
		Importance of own consumption of sustainable food	1.010	1	.315
		Index_ Amount of own consumption of sustainable food	4.413	1	.036
		Reliability about labels	.370	1	.543
		To me, price is most important factor when buying food.	4.707	1	.030
		To me, taste is the most important factor when buying food.	3.099	1	.078
		I am willing to pay a price premium for gourmet products.	1.593	1	.207
		Before making my decision, I compare the food product information.	1.952	1	.162
		Offers and advertisements assist me at my purchase decision.	5.605	1	.018
		When shopping I am a "creature of habit"	.855	1	.355
		I think such products are too expensive.	4.799	1	.028
		I would buy such products but I forget while shopping.	1.099	1	.295
		I need to spend more time for shopping if I buy sustainable products.	1.800	1	.180
		Gender	5.754	1	.016
		Income	.938	1	.333
		Education	.880	1	.348
		Age	.118	1	.731
	Overall Statistics		28.996	23	.180

Step 3	Variables	Index_ Knowledge about food and food production	.094	1	.760
		Evaluation of the own knowledge about sustainability	.009	1	.924
		Index_ Knowledge about sustainable consumption	3.254	1	.071
		Evaluation of the sustainable situation in developing countries and in Germany	.685	1	.408
		Emotions towards the sustainable situation in developing countries and in Germany	1.762	1	.184
		Index_ Membership and donation to sustainable organisations	.109	1	.741
		Attitude towards consumer effectiveness for sustainable development	.687	1	.407
		Importance of own consumption of sustainable food	.703	1	.402
		Index_ Amount of own consumption of sustainable food	4.217	1	.040
		Reliability about labels	.381	1	.537
		To me, price is most important factor when buying food.	3.961	1	.047
		To me, taste is the most important factor when buying food.	3.669	1	.055
		I am willing to pay a price premium for gourmet products.	1.714	1	.190
		Before taking my decision, I compare the food product information.	1.005	1	.316
		Offers and advertisements assist me in my purchase decision.	7.294	1	.007
		When shopping I am a "creature of habit"	.411	1	.522
		I think such products are too expensive.	5.398	1	.020
		I would buy such products but I forget while shopping.	1.864	1	.172
		I need to spend more time for shopping if I buy sustainable products.	4.128	1	.042
		Income	.324	1	.569
		Education	1.083	1	.298
		Age	.176	1	.675
	Overall Statistics		25.982	22	.252

Step 4	Variables	Index_ Knowledge about food and food production	.041	1	.839
		Evaluation of the own knowledge about sustainability	.212	1	.646
		Index_ Knowledge about sustainable consumption	1.421	1	.233
		Evaluation of the sustainable situation in developing countries and in Germany	.032	1	.858
		Emotions towards the sustainable situation in developing countries and in Germany	3.056	1	.080
		Index_ Membership and donation to sustainable organisations	.002	1	.962
		Attitude towards consumer effectiveness for sustainable development	1.311	1	.252
		Importance of own consumption of sustainable food	.488	1	.485
		Index_ Amount of own consumption of sustainable food	5.259	1	.022
		Reliability about labels	.023	1	.879
		To me, price is most important factor when buying food.	.843	1	.359
		To me, taste is the most important factor when buying food.	2.245	1	.134
		I am willing to pay a price premium for gourmet products.	.223	1	.637
		Before making my decision, I compare the food product information.	.784	1	.376
		When shopping I am a "creature of habit"	.003	1	.953
		I think such products are too expensive.	3.068	1	.080
		I would buy such products but I forget while shopping.	1.176	1	.278
		I need to spend more time for shopping if I buy sustainable products.	2.021	1	.155
		Income	.446	1	.504
		Education	.612	1	.434
		Age	.145	1	.703
	Overall Statistics		21.694	21	.417

Step 5	Variables	Index_ Knowledge about food and food production	.318	1	.573
		Evaluation of the own knowledge about sustainability	.024	1	.878
		Index_ Knowledge about sustainable consumption	.273	1	.602
		Evaluation of the sustainable situation in developing countries and in Germany	.384	1	.536
		Emotions towards the sustainable situation in developing countries and in Germany	2,189	1	.139
		Index_ Membership and donation to sustainable organisations	.013	1	.910
		Attitude towards consumer effectiveness for sustainable development	.800	1	.371
		Importance of own consumption of sustainable food	.119	1	.730
		Reliability about labels	1.217	1	.270
		To me, price is most important factor when buying food.	.782	1	.377
		To me, taste is the most important factor when buying food.	2.716	1	.099
		I am willing to pay a price premium for gourmet products.	.013	1	.911
		Before making my decision, I compare the food product information.	.092	1	.761
		When shopping I am a "creature of habit"	.003	1	.954
		I think such products are too expensive.	2.290	1	.130
		I would buy such products but I forget while shopping.	3.198	1	.074
		I need to spend more time for shopping if I buy sustainable products.	2.032	1	.154
		Income	.304	1	.581
		Education	.885	1	.347
		Age	.024	1	.878
	Overall Statistics		18.450	20	.558