

Differences between Occasional Organic and Regular Organic Food Consumers in Germany

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Abstract

It was the aim of this study to understand the differences between occasional organic consumers (OOC) and regular organic food consumers (ROC). A total of 571 consumers, interviewed directly after grocery shopping, were classified as conventional, occasional organic or regular organic consumers depending on the number of organically produced items bought. In order to gain encompassing insights on the differences between the ROC and OOC consumer groups, a large set of psychological and socio-demographic factors was studied. They differ with respect to general food choice motives with OOC placing significantly less importance on animal welfare, food security, environmental protection and more importance on caloric content, convenience and price compared to ROC; with respect to beliefs about the consequences of organic food consumption OOC expect greater expense, less choice, no increase in vitamins and no improvement in taste compared to ROC, and finally OOC show a less positive attitude, weaker social norms and lower intentions of buying organic food regularly in the future and give a lower importance in their lives to protection of the environment. OOC finally prefer different grocery stores and use a larger variety of stores than ROC.

Keywords

Food Choice Motives, Attitudes, Personal Norm, Social Norm, Values, Retailer

1. Introduction

The production of conventional food is associated with substantial negative impacts on the environment [1]. Therefore, the purchase of organic food can be understood as a contribution towards more sustainable produc-

tion and consumption patterns. Though the consumption of organically produced food has been rising in many countries in the last few years, the market share of organic food remains small with 4.2% of the total food market in the US and 3.8% in Germany, the country with the highest share in Europe [2]. Thus, it remains important to understand the hindrances and fostering factors involved in organic food consumption. A deeper understanding of the reasons for the purchase organic foods would allow the design of more effective intervention measures to further promote this consumer behaviour. The choice of organic foods has received substantial attention in the last years [3]-[5] and research has identified central differences between conventional and organic consumers, such as beliefs about health and food safety. Little is known however, about the consumers that buy organic food occasionally, since this has rarely been distinguished [6] [7]. Occasional purchasers could have the potential to become more regular consumers of organic food, especially since organic food availability has expanded in the last several years. In Germany organic food products have traditionally been offered in specific “green” food stores that offered organic items exclusively. Yet, over the last decade a substantial diversification of the organic food market was observed: more and more classic grocery stores offered at least some organic food items, including so called “discounter”, discount stores that offer low price foods [8]. As a consequence of this diversification, the availability of organic food has grown and the interested consumer has plenty of opportunities to buy organic food. Hence studying the differences between consumer groups might help to understand the processes of change from not being interested in organic food to regularly buying organic food.

The purpose of this paper is therefore to investigate differences between conventional food consumers, occasional organic consumers (OOC) and regular organic consumers (ROC), with particular attention given to the differences between OOC and ROC in order to analyse underlying motives and barriers. It seems important to understand differences between ROC and OOC with respect to the known drivers of organic food choice. This specific group of occasional organic consumers tested organic food and demonstrated some openness to these products, however they did not buy these foods on a regular basis. Are the OOC different from the ROC with respect to behavioural determinants, covering beliefs about benefits and costs for organic food and related attitudes as well as moral norms, general food attitudes, and socio-economic factors? Knowing of the difficulties in relying on self-reported buying behaviour only [9] [10], we sought to develop an alternative approach in order to survey regular and occasional organic food consumers more reliably. We therefore contacted our sample of different consumers directly after their grocery shopping.

2. Background

Drawing on past research about organic food choice, the following factors were taken into account to examine differences between occasional (OOC) and regular organic consumers (ROC).

2.1. Variables of Action Theory: Attitude, Behavioural Control, Social Norm

Studies using one of the most prominent behavioural theories, notably the theory of planned behaviour [11], indicate that the attitude towards buying organic food, the perceived behavioural control and social norm influence organic food buying behaviour or the intention to do so [12]-[14]. The attitude is usually understood as a positive or negative evaluation of the behaviour. Control considers whether a consumer feels able to actually perform the intended behaviour. Social norm refers to the expectation that relevant others approve the intended behaviour. In line with the theory of planned behaviour, it can be expected that frequent organic consumers show the most positive attitude, the strongest behavioural control and the strongest social norms, followed by occasional organic consumers, and that conventional consumers show the lowest scores on these variables.

2.2. Personal Norm and Values

Also, moral factors seem to be relevant determinants of organic food choice. Some approaches added a moral component to the theory of planned behaviour [15] [16]. Some approaches refer to Norm-Activation theories [17]. Other approaches analyse the link between values and organic food choice [18]-[20]. Specifically, the value theory as developed by Schwartz [21] [22], gained an important influence in the context of sustainable consumption. Values are understood as principal guidelines and purposes in life that direct evaluations and actions. It consistently shows that mainly the value dimension “universalism” is related to pro-environmental attitudes and behaviours in general [23] [24] as well as specifically to organic food choice [25] [26]. This dimension expresses aims such as “caring for others, harmony with nature, social justice” and is part of diverse “self-

transcendence” orientations claimed by Schwartz. It can be expected, that universalism values (protection of nature/environment) are strongest for regular, followed by occasional organic consumers and weakest for conventional food consumers.

2.3. Beliefs about Consequences

A variety of beliefs about positive or negative consequences of organic food consumption have been studied. It shows that beliefs concerning positive consequences for health [27]-[29], taste [30] [31], environmental impact [5] [29] [32], animal welfare [5] [20] [33] and food safety (e.g. toxic substances, BSE, genetically modified organisms GMO) [34]-[36] are good predictors of organic food consumption. Beliefs about negative consequences when buying organic food are also relevant and they concern price, choice limitations and aesthetic or sensory deficits (does not look good) [5] [37]. In line with these findings it is expected that frequent organic consumers will show the strongest ratings on the positive consequences, followed by the occasional group and that the conventional food consumers should express the least positive ratings. The vice versa should hold true for the negative consequences.

2.4. Trust in Labels and Knowledge

Another important issue concerning the purchase of organic food is the trust in label schemes [38]-[42]. Labels are meant to provide information about the quality and method of production to the consumer. Before the EU mandatory label was established in 2010, at least six labels existed in Germany, which represented different organic food producing organisations each with different standards. Having different labels could diminish credibility because this hints at potential inconsistency in the labelling policy and transports the complexity of identifying criteria, and controlling and describing them [43]. Further, repetitive scandals in the food sector could cast doubt on the credibility of the labels. Several studies hint at the importance of the credibility of labels [5] [44]-[47]. Consequently, trust in labels was considered in this work. Apart from the question of whether a label is trusted or not, it needs to be identified as an organic label. Only a few studies have examined consumer knowledge about organic logos [47] and they found that knowledge is often not very accurate and that trust and attitudes towards the logos matter more than objective knowledge. In this study, knowledge was tested by presenting two true and two false labels to the participants. It was expected that trust and knowledge would be strongest for frequent organic consumers, lowest for conventional consumers, and that occasional organic consumers would take a middle position.

2.5. General Food Choice Motives

Beliefs about food in general have rarely been investigated in the context of organic food choice. One study about functional food found that people with “modern health worries” more often consume organic food than those without such health worries [48]. In line with the findings about personal norms and values (s. above), another study, which compared ecological/animal welfare, and political and religious beliefs with respect to food, found that ecological motives form the strongest predictor of a positive attitude towards organic food [20]. The aspects of environmental protection and animal welfare on the one hand and the desire for “unspoiled” food due to GMO and pesticides on the other hand are known to be important in the context of organic food choice (s. above). Additionally, based on the “Food Choice Questionnaire” [49] other general attitudes towards food were considered in this study. The instrument bundles multidimensional attitudes towards food, such as caloric content, sensory appeal, desire for convenience, and price or nutritional aspects. It is an open question as to whether some of these additional aspects are more prominent in a particular consumer group.

2.6. Identity

Food consumption in general, as well as food choices and eating styles have frequently been seen as expressions of identity [50]-[56]. Consumption has an expressive function in demonstrating to others what type of person one is [57]-[60]. Therefore, the socially shared symbolic meaning of the object of consumption is important. For instance, eating a bloody steak has a different social meaning than eating a little salad with yoghurt dressing. Further, the choice of organic food is expected to be an expression of certain values and of a certain life-style that is not shared by all people, but conveys a connotation of being “green” and therefore belonging to the group

of “greenies”. This self-description should be lowest in the group of conventional food consumers, followed by the OOC and ROC.

2.7. Socio-Demographic Characteristics

Most studies found that socio-demographic characteristics, *i.e.* female sex, infants in the household and a higher age, were positively associated with organic food buying behaviour [5] [61]. However, other studies found that mainly younger people buy organic food [62]. Hence, effects of sex, age, education and children in the household can be expected, though the direction is an open question for age.

3. Methods

3.1. Procedure and Participants

In order to recruit consumers who were likely to buy organic food with different frequencies (never, occasionally and regularly), we invited clients from different types of food markets right after their grocery shopping to participate in the study. All food markets located in and up to app. 3 km around the city centre were identified and classified according to type: discount store, regular (brand) supermarkets, mixed supermarkets and organic food stores. “Mixed supermarkets” (TEGUT in North Hessa), provide a regular brand line and a complete line of organic products, *i.e.* all products offered in the store are available conventionally and organically. In all of these markets it was possible to buy a minimum of 4 different organic food items (milk, fruit and vegetables). To obtain an equal number of stores for each type, discount stores and regular brand supermarkets were chosen randomly, whereas due to the smaller number of mixed supermarkets and the special organic food stores all of these were included in the sample. In total 16 stores were included, 4 per type.

To minimize selection bias participants were recruited with a standardized procedure: every second customer leaving the respective store was invited to answer a standardized questionnaire in a face-to-face interview (s. below). Refusal rate to participate was 31%. The interviews were conducted by a total of 33 master students in social sciences as one of their tasks in a class on nutrition and environment. Every student conducted 20 interviews, each lasting about 15 minutes. The students were trained during their class on how to conduct the interview. The interviews were carried out from 10:00 am to 6:00 pm on Monday to Friday during one week in July 2006 in Kassel, Germany. A total of 659 German consumers were interviewed. The average age was 39.6 years (sd = 15.13), ranging from 18 - 85 years, 64% were women, 60% living in 1 or 2 person households, 51% having children living in the household, 44% with basic education, 37% college and 18% with a university degree. N = 88 of those did not buy any food, thus for N = 571 the food buying behaviour could be observed. Of those, 30.1% (N = 172) were interviewed after their grocery shopping in a discount store (Aldi, Lidl, Plus), 23.3% (N = 133), in a regular supermarket (Rewe, Edeka, Real), 21.4% (N = 122) in the mixed supermarket (TEGUT) and 25.2% (N = 144) after grocery shopping in an organic store. In comparison to the German population [63] the sample over-represents 3-person households and under-represents single-person households. The sample group is better educated with a larger number of college (Gymnasium) degrees, and encompasses more women than the general German population.

3.2. Classification of Consumers

Since the interview included questions about social and subjective norms, we had to expect social-desirability responses and consistency effects. We therefore differentiated between regular and occasional organic food consumers based on the number of organic items they just bought. Products were assigned to one of the seven classes of food items: dairy products, fruits/vegetables, bakery products/bread, staple foods (noodles, flour etc.), meat/fish, beverages and snacks/sweets. Subsequently, consumers were asked whether one of the products was a certified organically produced product. Because it was difficult for practical reasons to ask for a look into a packed shopping bag, no actual verification was undertaken. Customers who bought no organic products were classified as conventional consumers (52%, N = 297), those who bought 1 - 2 organic items were classified as OOC (35%; N = 202), and those who purchased 3 or more organic products were classified as ROC (13%, N = 72). Though other divisions are possible we sought to create a rather stern measure to classify regular organic consumers. In order to validate our measure, we also included a self-report measure of how often organic food is bought and of how many items are usually bought, both items could be answered on a 5-point unipolar scale

from 1—all/always to 5—none/never.

3.3. Measures: Items on the Questionnaire

Observed food buying behaviour and *Self-reported food buying behaviour*: as described for the classification of consumers. *Future Intention*: “How strong is your intention to often buy certified organic food in the future?” (bipolar 5 point scale, ranging from 1—very strong to 5—not at all. Unless indicated differently, this scale was used for all subsequent items). *Attitude*: “How positive or negative do you think it is to often buy certified organic food?” *Perceived Control*: “How possible or impossible is it for you to buy certified organic food often?” *Social Norm*: “Would people important to you support you often buying certified organic food?” *Personal Norm*: “Because of my values I feel obliged for moral reasons to often buy certified organic food.” *Identity*: “I do not have anything in common with people who buy regularly certified organic food.” *Trust in Labels*: “I do not trust the labels which indicate that food is produced organically.” *Knowledge*: Four labels were presented; two of them were bogus ones and two of them were real ones (“Demeter” and “governmental label”). Participants were asked to judge “which of these labels indicates certified organic food?” A sum score of the correct classifications was built, ranging from 1—none to 5—all of labels rated correctly. *General Attitudes toward Food*: “How important is it to you that the food you eat on a normal day ... looks nice*, is low in calories*, is easy to prepare*, is not expensive*, contains a lot of vitamins and minerals*; respects animal welfare, was not genetically modified, does not harm the environment, does not affect humans by diseases or pollutants”, (marked items (*) are taken from Steptoe, Pollard [49]. *Beliefs*: “If you often buy/or have often bought certified organic food, to what degree are the following characteristics true: the groceries become more expensive, the choice is smaller, the food looks worse, you do not get the needed quantity, you can protect yourself from infections (for instance through BSE, swine fever, bird flu), you contribute to environmental protection, you eat food richer in vitamins and minerals, you get food that tastes better, you have a guarantee of food without genetic modification, it does not make a difference to other food”. *Values*: “How important or unimportant is the aim to protect nature/environment in your life”. *Preferred grocery store*: “Where do you usually buy your food?”

3.4. Statistical Procedure

Data were analyzed by performing multivariate and univariate variance analyses and additionally non-parametric Man-Whitney U test. In order to avoid alpha inflation due to multiple hypotheses testing, the level of significance was set to $\alpha = 0.01$. SPSS, version 20 was used for all analyses.

4. Results

The number of organic food items consumers bought ranged from 0 - 7 (median = 0, mean = 1, SD = 1.4) with 52% buying no organic items and 1.4% buying 7 organic items. The correlation of self-reported measures of how often and how many organic food items are usually bought is with $r = 0.85$ very high. The correlations between the respective self-reported measures and the number of items bought indeed are similar, indicating that frequency and quantity are similar: $r = 0.55$ for the self-reported quantity and observed quantity and $r = 0.54$ for the self-reported frequency and observed quantity. We therefore consider the procedure for identification of the groups as a valid measure.

The three consumer groups show the expected pattern across the examined variables. In **Figure 1** the mean scores are depicted. Scores for the general food attitudes and beliefs about consequences of organic food consumption are summarized into four factors for the purpose of visualisation (beliefs “advantages” versus “disadvantages”, attitudes to food “health and environment” versus “fast and cheap”; variables are explained in more detail in **Table 1**). The regular organic consumers’ scores are always strongest in those variables that have been shown to be positively associated with the organic food purchase: intention, attitude, social norm, personal norm, control, and knowledge about label schemes, and they show stronger beliefs about advantages of organic food consumption and stronger general food attitudes with respect to health and environment. ROC’s scores are weakest for those variables associated negatively with the purchase: negative Identity, disadvantages, attitudes towards food “fast and cheap”, distrust in labels. The opposite is true for the conventional consumers. The occasional consumers take a middle position with respect to the described scores. Results of multivariate analysis of variance indicate overall significant differences between the OOC and ROC with $F(29,231) = 3$, $p = 0.000$,

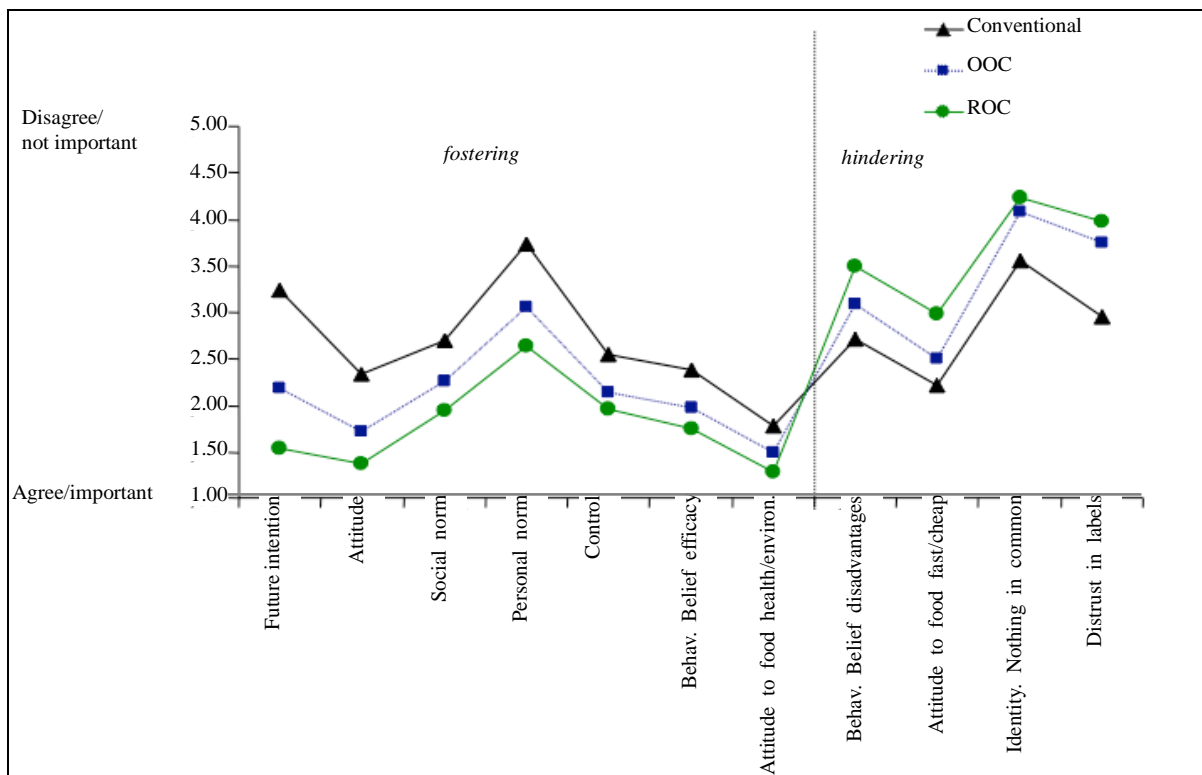


Figure 1. Group means for all variables across the three consumer groups.

Wilks Lambda = 0.73, partial Eta squared = 0.27. Results of the univariate analyses of variance for the differences between ROC and OOC are presented in **Table 1**. OOC and ROC differ significantly with respect to what is important to them in their daily nutrition (general food attitudes): OOC place less emphasis on animal welfare, food security from infectious diseases and protection of the environment and place more emphasis on inexpensive foods than ROC. Furthermore, OOC show a stronger preference for food that is low in calories and is easily prepared than ROC. The perception of positive and negative consequences of organic food consumption goes along with these motives: OOC beliefs are stronger than ROC that organic food choice comes along with higher expense and less choice; also they are less convinced than ROC that they get more vitamins and eat food that tastes better when consuming organic items. These beliefs finally go along with a less positive attitude towards organic food consumption, weaker social norms and a weaker future intention to buy organic food regularly for the OOC compared to the ROC. Also, the basic value of the protection of nature and the environment is less important in the lives of OOC compared to the ROC. In this sample OOC and ROC do not differ significantly with respect to any of the measured socio-economic variables. However, in the group of ROC slightly more people than statistically expected have a university degree compared to the OOC ($\chi^2 = 5.43$; $p = 0.02$). **Table 2** indicates in which stores the respective consumer groups usually buy groceries. Conventional consumers mostly report having no specific preference (44.4%) and to using discount stores (26.4%), the majority of the OOC report no specific preference either (35.6%), followed by those preferring organic and/or another type of store (27.7%). The ROC prefer to buy their groceries in organic stores and/or other stores (44.4%), followed by about a third (29.2%) preferring organic stores exclusively.

5. Discussion

This study was conducted with the aim of learning more about how occasional organic consumers differ from regular organic consumers, a research question which has rarely been studied [6] [7]. While expected differences were found in the overall picture with conventional consumers showing lowest, OOC medium and ROC the strongest scores on “pro variables” for organic food choices and vice versa for the “contra variables”, some particular differences between OOC and ROC emerged that might explain why OOC are reluctant to become ROC:

Table 1. Descriptive results and results of analyses of variance for the occasional and regular organic consumers across all studied variables.

| Variables | OOC (N = 193) | | ROC (N = 68) | | Multivariate ^a F(29,231) = 3, p = 0.000, Wilks Lambda = 0.73, partial η^2 = 0.27. | | | Non-parametric statistic |
|--|------------------|------|-----------------|------|--|------|------------------|--------------------------|
| | M | SD | M | SD | Univariate F (1/259) | p | Partial η^2 | Mann-Whitney U/p |
| General food attitudes: | | | | | | | | |
| Inexpensive | 2.39 | 1.06 | 2.94 | 1.06 | 13.64 | 0.00 | 0.05 | 9646.5/0.00 |
| Animal welfare | 1.57 | 0.83 | 1.18 | 0.42 | 13.89 | 0.00 | 0.05 | 5366.5/0.00 |
| No transmitted infections/security | 1.40 | 0.65 | 1.13 | 0.34 | 10.51 | 0.00 | 0.04 | 5917.5/0.00 |
| Quickly prepared | 2.61 | 1.10 | 3.09 | 1.05 | 9.97 | 0.00 | 0.04 | 8950.0/0.00 |
| Low in calories | 2.68 | 1.10 | 3.07 | 1.10 | 6.53 | 0.01 | 0.03 | 8652.0/0.01 |
| No impact on the environment | 1.60 | 0.79 | 1.32 | 0.72 | 6.30 | 0.01 | 0.02 | 6685.0/0.00 |
| Many vitamins | 1.38 | 0.54 | 1.29 | 0.60 | 1.30 | 0.26 | 0.01 | 6598.0/0.15 |
| Good looking | 2.49 | 1.04 | 2.76 | 1.08 | 3.38 | 0.07 | 0.01 | 8300.0/0.06 |
| No GMO | 1.55 | 0.80 | 1.40 | 0.88 | 1.71 | 0.19 | 0.01 | 6154.5/0.02 |
| Beliefs about consequences: | | | | | | | | |
| Less choice | 2.92 | 1.15 | 3.59 | 1.00 | 17.92 | 0.00 | 0.07 | 9403.5/0.00 |
| More expensive | 2.05 | 0.97 | 2.65 | 1.10 | 17.68 | 0.00 | 0.06 | 9646.5/0.00 |
| More vitamins | 1.77 | 0.80 | 1.41 | 0.63 | 11.39 | 0.00 | 0.04 | 5460.5/0.00 |
| Better taste | 2.07 | 0.99 | 1.69 | 0.87 | 7.72 | 0.01 | 0.03 | 5832.0/0.01 |
| Grocery more time-consuming | 3.18 | 1.25 | 3.57 | 1.15 | 5.26 | 0.02 | 0.02 | 8251.5/0.05 |
| Not sufficient quantity | 3.67 | 1.09 | 3.99 | 1.03 | 4.26 | 0.04 | 0.02 | 8319.5/0.06 |
| No difference | 3.99 | 1.13 | 4.35 | 0.99 | 5.38 | 0.02 | 0.02 | 8488.5/0.02 |
| Protection of the environment | 1.68 | 0.74 | 1.51 | 0.66 | 2.77 | 0.10 | 0.01 | 6531.0/0.16 |
| No GMO | 2.00 | 0.97 | 1.84 | 1.00 | 1.37 | 0.24 | 0.01 | 6631.0/0.24 |
| Worse looking | 3.68 | 0.99 | 3.81 | 1.08 | 0.83 | 0.36 | 0.00 | 7681.5/0.42 |
| No transmitted infections | 2.24 | 1.02 | 2.26 | 1.23 | 0.03 | 0.86 | 0.00 | 6985.0/0.60 |
| Other behavioural theory variables: | | | | | | | | |
| Intention | 2.20 | 1.00 | 1.53 | 0.70 | 26.07 | 0.00 | 0.09 | 4508.5/0.00 |
| Attitude | 1.72 | 0.73 | 1.37 | 0.62 | 12.78 | 0.00 | 0.05 | 5241.5/0.00 |
| Social norm | 2.26 | 0.87 | 1.94 | 0.81 | 7.18 | 0.01 | 0.03 | 5575.0/0.01 |
| Knowledge about label ^a | 4.19 | 1.02 | 4.56 | 0.66 | 7.74 | 0.01 | 0.03 | 8188.5/0.01 |
| Value: protection of nature | 1.57 | 0.76 | 1.28 | 0.54 | 8.52 | 0.00 | 0.03 | 5662.5/0.00 |
| Personal norm | 3.05 | 1.31 | 2.60 | 1.31 | 5.79 | 0.02 | 0.02 | 5634.0/0.30 |
| Behavioural control | 2.25 | 1.13 | 2.03 | 1.18 | 1.85 | 0.18 | 0.01 | 6073.5/0.13 |
| Distrust label | 3.77 | 1.10 | 3.96 | 0.98 | 1.48 | 0.22 | 0.01 | 7671.0/0.14 |
| Identity: Nothing in common | 4.08 | 1.00 | 4.22 | 0.90 | 1.01 | 0.32 | 0.00 | 7389.0/0.31 |

Response scale ranged from 1—agree/important to 5 disagree/not important; ^aSum score from 1—no knowledge to 5—high knowledge; The assumption of homogeneity of covariance matrices was violated (Box's test < 0.05); however, since inspection of variances and covariance revealed that the larger group produced greater variances, probability values can be trusted [67], additionally, a non-parametric test was used for the univariate comparison, which confirm stability of test results.

Table 2. Grocery stores usually frequented by conventional consumers, OOC and ROC.

| Preferred supermarkets | All consumers (N = 569) | | Conventional consumers (0 organic Items) (N = 295) | | | OOC (1-2 organic items) (N = 202) | | | ROC (3+ organic items) (N = 72) | | |
|--|-------------------------|--------------------|--|----------------------|-------|-----------------------------------|--------|-------|---------------------------------|--------|-------|
| No specific preference | 216 | 38.0% ^a | 131 | (112.0) ^b | 44.4% | 72 | (76.7) | 35.6% | 13 | (27.3) | 18.1% |
| Organic store + any other type of market | 108 | 19.0% | 20 | (56.0) | 6.8% | 56 | (38.3) | 27.7% | 32 | (13.7) | 44.4% |
| Discount store | 101 | 17.8% | 78 | (52.4) | 26.4% | 21 | (35.9) | 10.4% | 2 | (12.8) | 2.8% |
| Brand supermarket | 62 | 10.9% | 48 | (32.1) | 16.3% | 12 | (22.0) | 5.9% | 2 | (7.8) | 2.8% |
| Mixed supermarket | 37 | 6.5% | 13 | (19.2) | 4.4% | 23 | (13.1) | 11.4% | 1 | (4.7) | 1.4% |
| Organic store only | 37 | 6.5% | 1 | (19.2) | .3% | 15 | (13.1) | 7.4% | 21 | (4.7) | 29.2% |
| Other type of store | 8 | 1.4% | 4 | (4.1) | 1.4% | 3 | (2.8) | 1.5% | 1 | (1.0) | 1.4% |

^aPercentages refer to the subgroup indicated in each row; ^bThe numbers in brackets indicate the statistically expected number according to total number of each consumer group

Occasional organic consumers seem to be the most demanding consumers: exactly those food attributes such as animal welfare, food security and impact on the environment, attributes that are promised by organic food, are less important to them compared to ROC. Indeed, OOC and ROC do not differ in their perception of consequences of organic food consumption with respect to these attributes: both agree that organic food consumption goes along with food not genetically modified, security from transmitted diseases and better environmental impact. However, these consequences are less important to OOC. On the other hand, criteria that are more important to the OOC, such as being inexpensive, low in calories and quickly prepared, are either attributes not available with organic food (price) or not necessarily predominant for organic food (calories and convenience). At the same time, OOC do not see other advantages of the actual consumption of organic food: they are less convinced of better taste and more vitamins. Vitamin rich food for instance is of similar importance to ROC and OOC, however ROC believes more strongly than OOC, that organic food fulfils this criterion.

Thus, some of the food attributes, which are important to OOC are not met by organic food items. This goes together with the OOC's lesser emphasis on the value "protection" compared to the ROC. Our results are in line with findings from Thøgersen [64], which indicate that (regular) organic consumers are principally motivated by general protection/universalism values. The OOC however, seem to be driven less by protection/universalism motives, but more "egoistic matters", as reflected in the higher importance of a broader set of food choice motives. Still, protection motives are more important compared to conventional consumers. However, further investigation is needed to understand the interplay between basic values and a broad set of food choice motives. For instance, a study found in line with ours, *i.e.*, that there is a higher consensus among those frequently buying organic food, for environmental matters, compared to occasional organic buyers who put more emphasis on health and taste. However, in that study the value dimension that corresponded to environmental protection values was not correlated with organic food consumption [18]. In our study the differences in the protection value are small and also there was no significant difference in the corresponding moral personal norm that is among the proximal drivers for organic food consumption [17] [65]. Thus, it remains to be analysed in which conditions basic values gain influence on a broad set of food choice motives and energize an organic choice. One of the strongest differences concerns the perception of choice: OOC perceive significantly less choice for organic food compared to ROC. Interestingly, this can only be in part explained with the type of grocery store frequented by the OOC and could also be related to their higher demand on food characteristics to be fulfilled. A large proportion of the OOC clearly prefer a different shopping strategy than the ROC: Among the ROC almost a third report buying in organic stores exclusively and among the OOC this is only reported by a minority (7.4%). Similar to the conventional consumers the OOC report in more than a third of the cases, no specific preferences, *i.e.* they frequent a large variety of types of stores, followed by those who combine an organic store with any other store. Looking at the preferred type of grocery store the OOC form the largest client clusters in the category of "organic store plus another" and in the "mixed supermarket" category, indicating that a mixed offer can best serve their broad interests. The OOC identified in this study might nevertheless be different from "first time organic buyers" as identified in another study focussing on the question whether discount stores can have an "icebreaker"

function to continue organic food consumption. It seems well supported that discount stores contributed to the rising demand in organic food [7]. Only 10% of the OOC prefer discount stores as grocery stores, indicating that the multitude of food choice motives of the OOC are not exclusively fulfilled in the discount stores either. Another study examined whether OOC would prefer so-called “conventional plus” products [66]. These are conventionally produced products with additional attributes such as “without GMO” or “low in pesticides”, which are often less expensive than organic products. The authors found in their simulation studies that the OOC still preferred the organic to the conventional-plus products. Our study contributes to these results and underlines that OOC do not want “less organic” in their products but more other features, such as easily prepared or weight relevant features (low in calories). Consequently, the OOC as identified in this study would need a diversification within the organic products offered to become ROC. Also the strategy currently pursued by many food retailers to offer organic food in “normal” supermarkets or discount stores seems the right one. However, specific stores remain meaningful, since a substantial part of the ROC and some parts of the OOC prefer explicitly organic stores.

While it is the strength of this study to have considered a broad set of variables to understand the differences between OOC and ROC, among them general food choice motives, we also see some restrictions. Due to our procedure for distinguishing between the three types of consumers it is possible that we miscategorised some OCC, since they might have bought—by coincidence—more or less organic items than usual on that day when participating in our study. Consequently, some of the ROC or conventional consumers could be misclassified as well. The moderate correlations between number of items de facto bought and self-reported measures of frequency and amount of organic food normally bought might reflect this problem. But as explained earlier, we wanted to refrain from self-report measures in order to avoid mere consistency effects, and considering the overall consistent pattern of results (Figure 1) and differences in the types of grocery stores usually frequented, we see our measure sufficiently supported.

Our results might be affected by peculiarities of the German organic food market. Buying organic food has a long tradition in Germany, in particular for certain groups (e.g. the anthroposophists who traditionally prefer “dynamic” organic food, still mainly offered in typical organic food stores) and thus food preferences and choice of stores can be assumed to be more strongly connected to values and norms than in other countries. Nevertheless, specifically because there is a rather established organic market, it is interesting to observe how organic food consumption seems to quit its niche status and reach broader consumer segments.

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