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# **AN APPROACH TOWARDS EXPLAINING MARKET SHARES OF ORGANIC FOOD – EVIDENCE FROM SWISS HOUSEHOLD DATA**

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Schriftlicher Beitrag anlässlich der 55. Jahrestagung der  
Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues e.V.  
**„Perspektiven für die Agrar- und Ernährungswirtschaft nach der Liberalisierung“**

Gießen, 23.-25. September 2015

# **AN APPROACH TOWARDS EXPLAINING MARKET SHARES OF ORGANIC FOOD – EVIDENCE FROM SWISS HOUSEHOLD DATA**

## **Abstract**

The market share of organic food in Switzerland is high compared with that in other European countries, and has grown notably in recent years. However, little is known about why the market share of certain organic food products is higher than that of others. Swiss household expenditure data distinguishing between organic and conventional products allow an analysis at the product level. As a result, factors which determine the market share level of different organic food products are identified. Based on the results of the analysis, the driving factors are categorised into three dimensions. First, a low level of processing is positively related to a high organic market share, suggesting that communicating the benefits of organic food is more successful for unprocessed than for processed products. Second, it appears that the organic consumer in Switzerland is rather critical about buying products that are relatively expensive compared to their conventional counterpart. Products with high price premiums as well as products that are of particular importance for the household in terms of its food budget, therefore, have a clear disadvantage on the market, suggesting that consumers of organic food are price-conscious. Third, Swiss consumers seem to have a high preference for domestically produced organic products, since the characteristic of being an imported product is negatively related to the organic market share level. The results give a first understanding of what is important to Swiss consumers when it comes to the consumption of organic food and imply that supporting organic food production in Switzerland is still promising from a policy perspective as long as the price premium for organic quality stays at a reasonable level.

## **Keywords**

consumer behaviour, organic food, generalized linear model, Switzerland.

## **1 Introduction**

The market for organic food has become an important part of the global food market, especially in wealthy parts of the world. Even though the market share of organic food is still fairly low, the market is growing continuously since the 1990s (Thompson, 1998). In terms of market shares, the market for organic food in Switzerland, together with that in Denmark, is one of the most mature ones with a share of 6.3% in 2012 which is considerably higher than the shares in other countries like the U.S. (4.3%), Germany (3.7%), France (2.4%) and the Netherlands (2.3%) (FITCH HAUMANN, 2014; WILLER et al., 2014).

Over the past two decades, the market for organic food in Switzerland has grown and is still evolving dynamically – in terms of production<sup>1</sup> as well as in terms of product variety and availability. In Switzerland, organic products are mainly sold via two large retailers – Coop and Migros. In 1993 and 1995 respectively, these supermarket chains launched their first organic food products. Today organic food is no longer a niche market. The opposite is the case: Selling organic food accounts for a considerable fraction of the turnover that these food retailers make nowadays. In terms of turnover, the share of Coop and Migros together accounted for 74% of all organic sales in Switzerland in 2014 (BIO SUISSE, 2015). The sales

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<sup>1</sup> The area of organically farmed land has nearly doubled from 1997 to 2013 to around 128 000 ha (SFSO, 2014).

have grown continuously throughout the last years and it can be expected that they will further grow in the future.

Even though the organic food market has become an important part of the food industry, especially in Switzerland, there is a lack of studies regarding the demand side. Surveys have been an important source of information on why consumers buy organic food (HARPER and MAKATOUNI, 2002; LOCKIE et al., 2004; HUGHNER et al., 2007; MOHAMAD et al., 2014). In some cases, such consumer surveys are complemented by experiments to learn about behavioural patterns not mentioned by respondents (VERMEIR and VERBEKE, 2006; BATTE et al., 2007). By analysing actual purchasing choices rather than consumer statements, this paper presents an alternative way to study purchasing decisions regarding organic food. As LEE and YUN (2015) study how consumers in the U.S. perceive organic food attributes and how this perception influences their buying decisions, we focus on how different product attributes are valued by Swiss consumers (reflected in their buying decisions) and thereby affect the organic market share level. By comparing and explaining organic market shares of different food products, patterns emerge which provide a new perspective on the underlying motives to participate in the Swiss organic food market.

The literature about market shares of organic food is yet too general to accomplish this objective. Most studies concerned with organic markets mention the market share of organic food as a whole (BAKER et al., 2002; RAYNOLDS, 2004; SAHOTA, 2010). Where market shares of individual products are mentioned, this usually happens in a descriptive way: We learn that fresh produce is the largest sector of organic food (OBERHOLTZER et al., 2005). The market share of meat is low (MICHELSEN et al., 1999), while the market share of organic poultry is very low (VON BORELL and SØRENSEN, 2004; OBERHOLTZER et al., 2006) and sectors like frozen foods show particular growth (LOHR, 2001). However, systematic comparisons of different market shares are rarely cited. Within the framework of this study, we aim to identify the reasons behind the variations of the organic market share level.

In the next section, this paper develops hypotheses from the existing literature about variables likely to influence the market share of organic products. The subsequent section introduces the data base and sample as well as the methodology used to test the hypotheses. Results are presented and discussed in section 4, before the final section summarises the results and concludes this study.

## **2 Literature Review and Hypotheses**

Consumers of organic food are considered to be more conscious buyers compared to conventional food shoppers and emphasise reflection traits such as healthiness, ethical and environmental aspects in addition to observation traits (outer appearance, taste etc.) when they make their buying decision (TORJUSEN et al., 2001). In the early phase of organic farming, environmental awareness was the main motive to produce and consume organic food (MELLOR, 1989). Soon, however, the motives shifted towards health reasons. In a survey by HUTCHINS and GREENHALGH (1997), for example, 93% of organic food consumers state health consciousness as one of the main reasons for their buying decision. The studies of WIER et al. (2008), HAUSER et al. (2011), and GOETZKE et al. (2014) find further evidence that the consumption of organic food is closely related to a healthy lifestyle and that organic food products ‘symbolise what is personally important to people’ (HAUSER et al., 2011, p. 336).

In particular, fresh products such as fruit and vegetables are popular among consumers and show high and increasing market shares in Switzerland. This positive trend can be related to the discussion above. Fruits and vegetables are generally considered healthy food choices (MARSHALL et al., 1994; HAUSER et al., 2011). The notion that organic food is most attractive where food choices are related to health consciousness suggests that health-related factors

play a strong role in the decision to consume organic food. Based on these suggestions we formulate the first two hypotheses.

First, the dichotomy between ‘healthy and unhealthy eating’ (POVEY et al., 1998, p. 171) is much more common than a likewise possible dichotomy between healthy and unhealthy drinking<sup>2</sup>. The health aspect regarding drinks is usually related to whether a drink contains alcohol or not and less to the other ingredients, as alcoholism is an ‘important public health problem world-wide’ (RABANALES SOTOS et al., 2015). Therefore, it can be assumed that – regarding the health aspect – the dichotomy between alcoholic and non-alcoholic beverages clearly overshadows the question whether the other ingredients of the particular beverage are produced organically or conventionally. This leads to the first hypothesis:

H1: The fact that an organic product is a drink is negatively related to its market share in contrast to organic products that are solid foods.

Today, consumers are increasingly suspicious of conventional food value chains and production regimes. HAUSER et al. (2011) find that consumers’ perceptions of modern food production as well as the ‘current eating culture’ (p. 335) contrasts strongly with the kind of food consumers wish to eat. Consumers perceive today’s food production systems as highly obscure and are ‘sceptical about ingredients’ (ibid.). Health aspects as well as the naturalness of food are closely related to how consumers want to eat and what is important to them personally regarding their nutrition. GUERRERO et al. (2009), by studying consumer perceptions of food internationally, find a negative relationship between the degree of processing and a perceived positive impact (an added value) on human health. Based on these findings and the great popularity of fresh products like fruits and vegetables, we propose that the more processed food is, the less often will it be bought for health reasons. This leads to the next hypothesis:

H2: The fact that an organic product is processed is negatively related to its market share in contrast to organic products that are raw and unprocessed.

Another important product characteristic likely affecting the consumption decision is the price. For the supply side, PARK and LOHR (1996) find that for individual products an increased percentage price difference (price premium) between organic and conventional substitutes spurs the output of organic products. It is reasonable to assume that the opposite is the case for the demand side. MAGNUSSON et al. (2001), and SHAFIE and RENNIE (2012) suggest that the additional premium paid for organic quality is one of the main reasons that organic consumption is currently not higher. LEE and YUN (2015) find that the organic price premium influences consumers’ attitudes towards buying organic food in a negative way. YUE et al. (2010) argue that for the potato market it will be crucial to keep the price difference between organic and conventional food low in order to achieve a high market share. This leads to the following hypothesis:

H3a: The fact that an organic product has a high price premium is negatively related to its market share, while a smaller price premium is positively related to the organic market share.

Hypothesis H3a can be complemented by further considering the relative importance of a product in terms of the food budget of the household. The relative importance of a food product can be assessed by means of the budget share. In our study, we define the budget share as the overall expenditure (organic and conventional) for a certain food product relative to the total expenditure for all food products. It can be assumed that buying a product with a price premium is a higher economic burden when the household spends a high fraction of its food budget on that product compared to the situation when the household spends only a small fraction on a product. A high budget share might, therefore, hinder households to buy a product in organic quality. This leads to the following hypothesis:

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<sup>2</sup> We consider alcoholic and non-alcoholic drinks in our study. Milk is considered as a food product.

H3b: The fact that a product has a high budget share (organic and conventional) is negatively related to its organic market share.

If we hypothesize an influence of an extra percentage paid for organic quality and an impact of the budget share on the market share of organic food products, it is likely to assume an interaction of these two factors. We expect that a given price premium for organic quality hurts consumers less when they spend only a small fraction of their food budget on that product. This implies that hypotheses H3a and H3b can be complemented by taking the interaction of the price premium and the budget share into account:

H3c: The impact of the organic price premium on the market share is stronger, the higher the budget share of the product is.

Another aspect worth investigating is the comparison between plant and animal products. The legal framework for keeping farm animals on conventional farms in Switzerland is strict in comparison to other countries. Furthermore, the Swiss government has developed agricultural programmes (which include financial incentives for farmers) to go beyond this legal framework and further improve the conditions under which farm animals are kept in organic and conventional production systems<sup>3</sup>. At least partly due to the financial incentives, a high percentage of farms participate in these programmes. The level of animal welfare is therefore not necessarily higher in organic agriculture than in conventional systems. However, HARPER and MAKATOUNI (2002) show that even though consumers buy organic animal products such as eggs and meat mainly because of health reasons, ethical aspects such as animal welfare (e.g. natural rearing) are also important for their consumption decision. Besides animal welfare considerations, several food scandals in recent years have left consumers increasingly 'uncertain, anxious and [...] critical about the safety of their food', even though food standards and safety have never been higher than today, and food scandals usually affect only small parts of the production (BÁNÁTI, 2011, pp. 56-57). Furthermore, it should be taken into consideration that the media is influencing the consumer perception of food (both in a positive and negative way). It follows that there seems to be an information asymmetry with regard to the housing conditions of farm animals and how consumers perceive them. Based on the consumer perception that organic animal products are not only healthier but also more animal friendly, we propose the next hypothesis:

H4: The characteristic of being an animal product is positively related to the organic market share, in contrast to organic products of plant origin.

A last aspect is the origin of the products. In general, consumers place higher trust in agricultural goods produced in their own country than in imported goods (NYGARD and STORSTAD, 1998). In Switzerland, high standards of animal welfare and conservation might explain this high degree of consumer trust. As buying organic is often a consequence of a lack of trust regarding conventional farming, it is reasonable to assume that consumers favour organic quality when they buy imported food products. Hence, our last hypothesis is as follows:

H5: The characteristic of being an imported product is positively related to the organic market share level, in contrast to products that originate from Swiss production.

### **3 Data and Methodology**

#### **3.1 Data Base and Sample**

For the first time since 2001 (SCHLETTI, 2001) the Swiss Household Budget Survey (HBS, 2013) is analysed with regard to the consumption of organic food. Since the year 2000, the

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<sup>3</sup> These programmes are called BTS (special animal-friendly housing systems) and RAUS (regular access to free-range areas outdoors for animals).

Swiss Federal Statistical Office continuously conducts the data of about 250 randomly selected Swiss households every month. In the analysed sample that covers the years 2006-2011, the data of 19 653 private households are recorded. These households depict the Swiss residential population representatively. The households participate once in the survey and document their income and expenditures for the period of one month (repeated cross-sectional survey). Hence, a large variety of households are included in the sample.

Because the HBS records the data on the household level, we aggregate over all households for each product and each observation year. A total of 60 product categories<sup>4</sup> are analysed within the framework of this study resulting in 360 observations over the six-year observation period.

The product characteristics that are included in the analysis are not part of the HBS. The characteristics are assigned to each product by the authors (explained in the subsequent section).

### 3.2 Methodology and Summary Statistics

This analysis aims at identifying and ranking the product attributes as they are valued by consumers. To do so, the influence of different product characteristic on the organic market share is estimated. Thus, in our study, we model a variable  $y$  which is bounded between 0 and 1 ( $0 \leq y \leq 1$ ). From the binomial (Bernoulli) distribution of the dependent variable it follows that the methodology has to be chosen with care. A linear OLS regression of the following form:

$$E(y|\mathbf{x}) = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k = \mathbf{x}\boldsymbol{\beta} \quad (1)$$

with  $\boldsymbol{\beta}$  as a  $K \times 1$  vector, explaining the effect of the explanatory variables  $\mathbf{x}$  on the variable to be explained  $y$ , is rarely suitable to model data that are restricted to certain value ranges. If the dependent variable  $y$  is limited, e.g. as in our case is a fraction ( $0 \leq y \leq 1$ ), the predicted values of  $y$  conditional on  $\mathbf{x}$  will not necessarily lie within the boundaries of 0 and 1, unless for small ranges of  $\mathbf{x}$ . PAPKE and WOOLDRIDGE (1996) developed an approach that accounts for the fact that the dependent variable can be distributed other than normally (see also BAUM, 2008 for an application). Instead of using a regression model as in (1), PAPKE and WOOLDRIDGE suggest applying a *generalized linear model* (GLM) of the form

$$E(y|\mathbf{x}) = G(\mathbf{x}\boldsymbol{\beta}) \quad (2)$$

with  $G(\cdot)$  as a known (transformation) function that satisfies that  $G(\cdot)$  lies within the required value range. For the case that the dependent variable is a fraction, PAPKE and WOOLDRIDGE (1996) suggest using  $G(\cdot)$  as the logit link function. Our empirical model is then specified as follows:

$$E(ms_{it}^{org} | x_{it}) = G(\beta_0 + \beta_1 drink_i + \beta_2 animalpr_i + \beta_3 processed_i + \beta_4 domestic_i + \beta_5 bs_{it} + \beta_6 priceprem_{it}^{org} + \beta_7 bs\_priceprem_{it} + \beta_8 D_{2007} + \beta_9 D_{2008} + \beta_{10} D_{2009} + \beta_{11} D_{2010} + \beta_{12} D_{2011} + u_{it}) \quad (3)$$

$i$  = products and  $t$  = time/year

$u$  = error term

The organic market share ( $ms_{it}^{org}$ ) (the dependent variable) is the quantity share of the organic product. It is calculated by summarising over all households for each product and each observation year:

$$ms_{it}^{org} = quantity_{it}^{org} / (quantity_{it}^{org} + quantity_{it}^{conv}) \quad (4)$$

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<sup>4</sup> For reasons of limited space, a list of the analysed products is not included. The product list is available upon request.

Because the HBS does not include information on prices, quantity-weighted unit values are calculated by dividing expenditure by quantity (taking the sums of expenditures and quantities across all households for each product category and each year). Because market prices are not recorded in the HBS, the organic price premium ( $priceprem_{it}^{org}$ ) is calculated using the organic and conventional unit values<sup>5</sup>. The explanatory variables further comprise dummy variables to distinguish drinks from solid food products ( $drink_i$ ), animal from plant products ( $animalpr_i$ )<sup>6</sup> and domestically grown from imported products ( $domestic_i$ )<sup>7</sup>. Moreover, three levels of processing ( $processed_i$ ) are considered: unprocessed (0), low-processed (1) and highly processed (2)<sup>8</sup>. To consider the relative importance of a product for the household, the average budget share of each product category and observation year ( $bs_{it}$ ) is included in the model. The budget share is defined as the average ratio of the sum of organic and conventional expenditure for the particular product category to the overall expenditure for food and beverages of the household. To account for a possible interaction of the budget share and the price premium, an interaction term ( $bs\_priceprem_{it}$ ) is included in the model. That way it is possible to test whether the impact of the price premium changes with varying budget shares<sup>9</sup>. To control for year specific effects, we include dummy variables for the years 2007 to 2011.  $\beta_0$  is the constant term, and  $\beta_1$  to  $\beta_{12}$  are the corresponding parameters of the explanatory variables. Note that those explanatory variables without a time index  $t$  are constant over time. The model is estimated by Maximum Likelihood with robust standard errors (using the Huber/White/sandwich estimator).

Table 1 gives an overview of the dependent variable and the regressors included in the analysis.

**Table 1: Summary statistics of the variables included in the analysis**

Variable name		Mean	Minimum	Maximum	Std. Dev.
Market share (organic)*	$ms_{it}^{org}$	<b>0.0670</b>	0.0001	0.5449	0.0665
Budget share (org. & conv.)	$bs_{it}$	<b>0.0138</b>	0.0003	0.0707	0.0136
Price premium (organic)	$priceprem_{it}^{org}$	<b>0.3908</b>	-0.6916	2.8662	0.3907
Dummy 'drink'	$drink_i$	<b>0.2</b>	0	1	0.4006
Dummy 'animal product'	$animalpr_i$	<b>0.25</b>	0	1	0.4336
Degree of processing	$processed_i$	<b>0.8</b>	0	2	0.7034
Dummy 'domestic product'	$domestic_i$	<b>0.5</b>	0	1	0.5007

\* dependent variable

**No. of observations: 360**

Source: HBS (2013), own calculations

<sup>5</sup> The organic price premium is the relative difference between the organic and the conventional unit value (average over all households for each observation year).

<sup>6</sup> A threshold of 50% was set to distinguish animal from plant products in cases where products are composed of ingredients of animal and plant origin.

<sup>7</sup> For the distinction between animal and plant products, data from the Swiss Farmers Union (SFU, 2013) is used. Accordingly, products with a self-sufficiency rate of less than 50% (in 2011) are categorised as imported and 'domestic' in case of a self-sufficiency rate of 50% or higher.

<sup>8</sup> Low-processed products are those that are processed and consist of one main ingredient (e.g. whole milk, meat, pasta), while highly processed products are processed and contain two or more main ingredients (e.g. jam, soda, alcoholic beverages).

<sup>9</sup> Thus we want to test whether the influence of the price premium on the organic market share changes as the importance of the product in the household's food basket changes.



## 4 Results and Discussion

This section discusses the results reported in Table 2 in detail. Since the regression model is non-linear, we report the coefficients as well as the marginal effects (evaluated at the means of the explanatory variables) with the corresponding significance levels and robust standard errors.

**Table 2: Determinants of the level of the organic market share, regression results: coefficients and marginal effects**

		Coefficient	P> t	Std. Err.	Marginal Effect	P> t	Std. Err.
Monetary variables	$bs_{it}$	<b>-20.9740</b>	***	7.3621	<b>-1.2001</b>	***	0.4304
	$priceprem_{it}^{org}$	<b>-0.8156</b>	***	0.2425	<b>-0.0467</b>	***	0.0141
	$bs\_priceprem_{it}$ (interaction term)	<b>9.4714</b>		16.6517			
Product characteristics	$drink_i$ (•)	<b>0.3549</b>		0.2768			
	$animalpr_i$ (•)	<b>0.0828</b>		0.1006			
	$processed_i$	<b>-0.3930</b>	***	0.0952	<b>-0.0225</b>	***	0.0055
	$domestic_i$ (•)	<b>0.4999</b>	***	0.1166	<b>0.0288</b> <sup>a</sup>	***	0.0070
Observation year	$D_{2007}$ (•)	<b>0.0965</b>		0.1948			
	$D_{2008}$ (•)	<b>-0.0048</b>		0.1692			
	$D_{2009}$ (•)	<b>0.1300</b>		0.1771			
	$D_{2010}$ (•)	<b>0.1445</b>		0.1813			
	$D_{2011}$ (•)	<b>0.2147</b>		0.1738			
	Constant term	<b>-2.2895</b>	***	0.1799			

(•) dummy variable (0/1)

No. of observations: 360

**Pseudo R<sup>2</sup>: 0.221**

Significance levels: \*\*\* p<0.01 \*\* p<0.05 \* p<0.1

<sup>a</sup> Marginal effect for a discrete change of the dummy variable from 0 to 1.

The marginal effects are depicted for those variables that are significant determinants of the organic market share level.

Source: HBS (2013), own calculations

The results in Table 2 show that some of the product attributes significantly determine the level of the organic market share. The coefficients of the year dummies are included in Table 2. However, they are not significant for any of the years, suggesting that, at least in our sample, there are no detectable year specific effects within the observation period.

According to the results of the regression model, three out of seven hypotheses cannot be rejected.

Hypothesis H1 has to be rejected. We do not find sufficient evidence that the organic market share of products that are drinks differs significantly from that of solid food products (*ceteris paribus*). It may thus be concluded that the fact that a product is a drink or solid food does not have a systematic positive or negative effect on the organic market share.

The regression results support hypothesis H2. We find a negative relation between the degree of processing and the organic market share. It can be shown that the fact that an organic product is raw and unprocessed has a positive influence on the market share. We therefore can expect that consumers of organic food prefer raw and unprocessed organic products over low-processed and highly processed ones. Hence, we conclude that the higher the degree of processing of an organic product is, the lower is its market share. The results are consistent with those of SCHIFFERSTEIN and OUDE OPHUIS (1998) and GUERRERO et al. (2009). These studies find that consumers buy unprocessed products because they relate them to naturalness and a healthy lifestyle. If products have undergone milling, baking or pressing, the consciousness for the primary production (be it organic or conventional) seems to decrease. Therefore, the food industry engaged in organic products could benefit from an increased public awareness that the advantages of organic farming are hardly compromised by the level of processing.

Regarding the influence of the price premium on the organic market share level, hypothesis H3a cannot be rejected. We find that the fact that an organic product has a high price premium is negatively related to its market share. The relative difference between the organic and the conventional product price, therefore, affects the level of the organic market share. It can be assumed that when an organic product has a high price premium, thus is much more expensive than its conventional counterpart, it has a clear disadvantage on the market. This is consistent with the findings of MAGNUSSON et al. (2001). Obviously the percentage price difference is one of the reasons why the organic market share of certain products is lower than that of others. This suggests that consumers compare organic products with their conventional counterparts when they make their buying decision; not necessarily with other organic options. According to our findings, the additional price premium matters to consumers of organic food.

The regression results also provide verifiable evidence for hypothesis H3b. Food products that are relatively important for the household in terms of their food budget are bought less frequently in organic quality. Consequently, less important goods have higher organic market shares and vice versa. This result is somewhat surprising as the health aspect is important to an increasing number of consumers today (SCHIFFERSTEIN and OUDE OPHUIS, 1998; GOETZKE et al., 2014). One might expect consumers to buy especially those products in organic quality that represent a large part of what they eat on a daily basis. The financial disadvantage of buying a product with an additional price premium might outweigh the health aspect in this case. From this it can be followed that households react more cautious when prices change and make their buying decisions more carefully when they spend a high proportion of their food budget on a product. Surprisingly, a systematic interaction between the budget share and the price premium cannot be found. There appears to be no systematic relationship between these two variables. Thus we cannot prove that the impact of the price premium changes with varying budget shares. Therefore, hypothesis H3c has to be rejected.

The results of the analysis also do not provide sufficient evidence for hypothesis H4. Thus we do not find that the fact that a product is of animal or plant origin significantly affects the organic market share. At first glance, this result is surprising as we expected consumers to buy organic animal products to ensure a high level of animal welfare in production as suggested by HARPER and MAKATOUNI (2010). However, it has to be kept in mind that not all consumers who are concerned with animal welfare actually consume animal products. According to HARPER and MAKATOUNI (2010), consumers of organic food are also 'more likely to be vegetarian than non-organic buyers' (p. 297). Hence, it can be assumed that a high consciousness and awareness of animal welfare does not necessarily result in the consumption of organic animal product, but, potentially, also in going vegetarian or vegan.

Regarding the origin of food products, GUERRERO et al. (2009) find that consumers care about where their food comes from. NYGARD and STORSTAD (1998) state that consumers associate domestically produced food with a high level of quality. In a globalised world in which a considerable share of what we eat is not produced within the country, consumers are increasingly sceptical about the production conditions and the quality of imported food because food value chains become less and less traceable. In contrast, consumers know the conditions of agricultural production methods inside their own country better. Furthermore, reports in the media about dangerous animal diseases or harmful agricultural practices in other parts of the world make them even more conscious when it comes to what they eat. Contrary to our expectations, we cannot prove that Swiss consumers buy imported food products in organic quality to ensure that these products are of high quality. Hypothesis H5 has to be rejected. The analysis reveals a positive relationship between the fact that a product is produced in Switzerland and the organic market share level. Therefore, the organic market share is on average higher when a product is produced in Switzerland compared to products that are imported (*ceteris paribus*). This result suggests that Swiss consumers have a higher preference for products that are produced in their own country. This preference for domestically produced food (called 'Swissness') might be related to a greater willingness to pay, as confirmed by a Swiss consumer study (USG, 2013).

## **5 Summary and Conclusions**

This study was conducted to explore how consumers value different attributes of organic food products and thereby affect market shares. An analysis at the product level explaining differences in organic market shares of individual product categories was carried out. In contrast to the existing literature, our study is based on actual consumption choices. For the first time since 2001 (SCHLETTI, 2001), the Swiss Household Budget Survey (HBS) was analysed with regard to organic consumption. More than 19 000 Swiss households are recorded in the analysed data sample, depicting the Swiss population representatively. Exploiting this unique dataset at the product level allows to test hypotheses regarding the following three dimensions of organic consumption.

The first dimension is the apparent demand for unprocessed food, mirroring the longing of Swiss consumers for a natural nutrition. In an increasingly industrialised and specialised world with growing rates of cardiovascular diseases and obesity, a growing number of consumers cares about a healthy lifestyle, which also affects the consumption of food. Consumers' interest in the production of agricultural products and especially in the origin of their food has increased in recent years. This study confirms that the dimension of naturalness is important to the average consumer. In the consumer perspective, organic products are closely related to a healthy, responsible and sustainable lifestyle. This includes the preparation of fresh and nutritious home-cooked meals and the consumption of unprocessed food products. Where a low degree of processing plays a role, organic products have a clear advantage on the market and thus higher market shares. The organic market share of products that are raw and unprocessed are therefore unsurprisingly far above those of products that are processed in any way. For the food industry, this means that promoting highly processed organic foodstuffs is less promising than promoting unprocessed ones. At the same time, it is of major importance to promote the fact that the authentic nature of organic food products is hardly compromised when a product is processed in any way or part of a multi-ingredient product.

The second dimension refers to the product's budget share and the price premium for organic quality. We learn that the higher the share is that is spend on a certain product, the more reluctant is the household to buy this product in organic quality. In general, the household's budget is more affected when a product is of great importance for the household. Therefore organic products might be bought more often, when the household spends only a small

fraction of its budget on this product. That financial considerations matter to consumers when they buy organic food is supported by the finding that organic products with high price premiums have on average lower market shares than organics with small price premiums. Organic products with high price premiums therefore have a disadvantage on the market. For the food industry it is crucial to convince consumers of the advantages of buying those food products in organic quality that they already spend a substantial part of their budget on. Furthermore, the food industry is challenged to convince consumers of the advantages of organic products with high price premiums. A deeper investigation of what drives and hinders consumers to purchase organic products of different budget share levels might be helpful.

The third dimension of importance is the preference for locally produced food. The results of this analysis reveal that the characteristic of being a domestically produced food item is positively related to the organic market share. The food industry might on the one hand use this existing preference for domestically produced food to further increase their sales. On the other hand it might be promising to supply consumers with information on how organic food is produced in other countries. If it is possible to point out to consumers under which conditions organic food is produced, the market share of imported organic products might increase.

It should be noted that food related consumption decisions are complex. Covering all factors that influence this buying decision is neither possible nor realistic. This analysis is designed to give a first understanding of what the influencing factors of the market share of different organic food products in Switzerland are. What we learn from this analysis is that some product attributes influence the organic market share level. What this analysis cannot reveal is which types of households are more likely to consume organic food and which households do not consume any organics at all. It is conceivable that different types of households (in terms of household structure, income level, preferences etc.) consume certain kinds and varying quantities as well as combinations of organic food products (or even no organics at all). Analysing the organic food market at the household level might reveal which household characteristics influence the households' buying decisions. The HBS offers more information than can be included within the framework of this study. A deeper exploration of the data has most certainly the potential to give further indications on the motives behind the consumption of organic food in Switzerland. If it is known which consumers prefer which products and why certain consumer groups refuse to consume organic products, agricultural policies (as well as marketing campaigns of the food industry) might be targeted more specifically. From a marketing and from a policy perspective it is certainly worthwhile to explore the Household Budget Survey in more detail.

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