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Sustainable Consumption and the Attitude-Behaviour-Gap Phenomenon - Causes and Measurements towards a Sustainable Development

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ABSTRACT

This paper presents a review of interdisciplinary research literature on the complexity of sustainable food consumption and offers an empirical analysis of selected countries worldwide. It seems that the consumer behaviour is the most unstable and unpredictable part of the entire supply chain and requires special attention. Concrete measures to influence consumer behaviour towards sustainable consumption are highly complex. The Danish example, explored in this paper, with its well-functioning organic market demonstrates that sustainable food consumption is realistic. Successful development of organic food and farming in Denmark is the result of pioneers as well as shared responsibility of a consumer, state, and business.

Keywords. *Responsible consumer; Interdisciplinarity; Consumer behaviour; Change agents; Proactive state; corporate social responsibility (CSR)*

1 Introduction

Current *global challenges* such as climate change, lack of resources, desertification, land degradation as well as loss of biodiversity can ultimately be due to human actions. Reasons are excessive production and consumption of goods and services, along with using and consuming natural resources, causing emissions and waste products. Demand in the form of consumption and supply in the form of production are closely intertwined. *Changes in consumer behaviour*, technological and organisational innovations as well as an appropriate political and economic framework are of major importance for a sustainable development based on responsible demand and supply. *Interdisciplinary cooperation* between such disciplines as psychology, anthropology, sociology, neurology, evolutionary and behavioural economics as well as marketing is required.

Sustainable or responsible consumption implies the satisfaction of personal needs without an adverse impact on the lives and consumption potentials of present and future generations and complies therefore with the principles of sustainability (Agenda 21, 1992; Belz et al., 2007; Belz and Peattie, 2009). The responsible consumer tries to consider equally economic (in terms of personal welfare), ecological (including animal welfare) as well as social aspects across the entire consumption chain such as type and number of products, their use and disposal.* His decisions are dependent on underlying strategies. The *consistency strategy* refers to products where the production process is in line with nature, such as renewable energies and organic products. The *sufficiency strategy* refers to consumer abandonment

* Additionally, the individual has a double function, being a consumer of goods and services as well as a citizen; Heidbrink und Schmidt 2011

(boycott of certain food companies) or a reduced consumption practice. The *efficiency* strategy is based on the efficient use of energy and products and selection of low environmental impact equipment or services (Unmüßig et al., 2012). The latter can lead to *rebound effects* with an offsetting behaviour and increased consumption (Balderjahn, 2013; Pufe, 2012).

When it comes to the actual purchase of sustainable products, a clear inconsistency between attitudes towards sustainable consumption and actual behaviour is observed. This phenomenon is called the *attitude-behaviour-gap*. For example while, in different surveys, 30% to 50% of consumers indicate their intention to buy sustainable products, the market share of these goods is often less than 5% of the total sales (Carrington et al., 2010; Young et al., 2010). This phenomenon is also confirmed by international studies (e.g. Greenindex, 2012; see also figure 3).

The *reasons* for this behaviour gap have not yet been sufficiently researched. On the one hand it is possible that the respondents answer to comply with accepted social norms and this is not reflected in their individual consumption behaviour (Carrington et al., 2010). But apart from the social desirability of respondents within the surveys, studies on consumer behaviour emphasise that consumers are increasingly *motivated* to buy organic food products (Cottingham and Winkler, 2007; Hughner et al., 2007; Naspetti and Zanolli, 2009; Oughton and Ritson, 2007; Schöberl, 2012). On the other hand there may be special *purchasing barriers*, especially in everyday consumption, which complicate sustainable behaviour.

The *goal of this paper* is to illustrate and analyse the gap between purchase attitudes and actual buying behaviour of responsible consumers and derive appropriate recommendations. It is based on reviews of interdisciplinary research literature on behavioural psychology, behavioural economics and consumer behaviour with a view to sustainable food. The example of Denmark serves as a 'best practice' case study to illustrate how sustainable food consumption can be encouraged.

2 Decision-Model of Sustainable Consumption: Determinants and Motivations

The observed sustainable consumption contradicts the basic key assumptions of *traditional economics*. It implies a rationally acting consumer who strives to maximise his own expected profit, the so-called *homo oeconomicus*. The new *behavioural economics*, which deals explicitly with the human behaviour in the economic decision-making processes, detects in many studies systemic behavioural deviations due to 'cognitive bias' or ethical values. They result from or are expressed in our herd instinct, over-optimism, illusion of control, short-term oriented behaviour, addictive behaviour as well as *fairness* and *ethical* (sustainable) *behaviour* (Kahneman and Tversky, 2003; BMELV, 2008; Ruckriegel, 2011).

Attempts to *explain or change behaviour* towards a more sustainable consumption must start off with the diverse and interdependent *influence quantities* of sustainable consumption. Figure 1 gives an overview of a general decision-making model of sustainable consumption derived from different studies. It implies that *beliefs* lead to *attitudes*, which in their turn derive *intentions*. Intentions determine the *actual buying behaviour*. Many different individual, social and situational factors influence this decision process.

- *Individual determinants* cover socio-economic characteristics such as age, sex, education and income; *needs* and *wants*, motivation, personal values and norms, habits, abilities to act (cognitive, time, price, and obtaining information) as well as action control in terms of ability to implement attitude or intention to buy.
- *Social quantities* cover societal norms, embedding into cultural context as well as mass media with its *agenda-setting*.
- *Situational parameters* relate to the act of the purchase, such as the purchase situation (e.g. visibility of products on retail shelves), incentives (e.g. political incentives) as well as consumption options (e.g. availability of sustainable products).

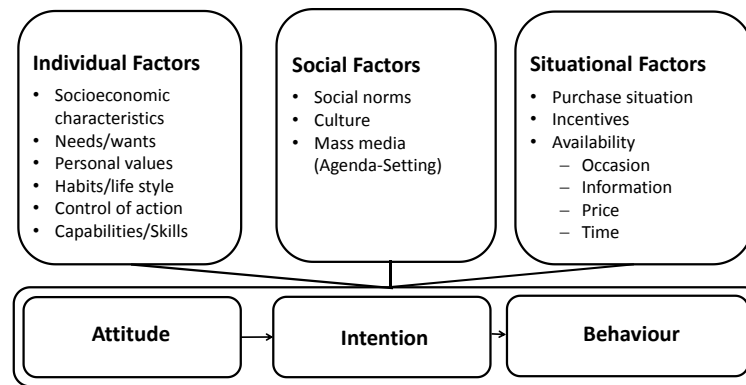


Figure 1: Decision-making model of sustainable consumption (based on Balderjahn, 2013; Carrington et al., 2010; Vermeier and Verbeke, 2006)

Nevertheless it is observed that attitudes towards sustainable consumption deviate from the actual consumption behaviour. This inconsistency is called *attitude-behaviour-gap* or attitude-intention-behaviour gap (Follows and Jobber, 2000; Carrigan and Attala, 2001; Gupta and Ogden, 2006; Auger and Devinny, 2007; Carrington et al., 2010; Balderjahn and Peyer, 2012, 2012a).

Many different explanations *focus on special aspects* of sustainable consumption. For example

- Bamberg and Möser (2007) focus on *environmentally compatible consumption* based on Schwartz (1977) and Ajzen (1991). Parameters for such consumption are attitude (environmental awareness), personal action control (ability to act) and personal moral norm.
- Carrington, Neville and Whitwell (2010) analyse linkages between *purchase intention* and consumption. They also take situational contexts into account.
- Balderjahn and Peyer (2012) focus on the social, *fair consumption awareness* based on the *adequacy-importance models* developed by Foscht and Swoboda (2011). It assumes that ‘*belief*’ and ‘*importance*’ have a major influence on the consumer’s attitude. The ‘*belief*’ component assumes that the production took place under fair labour conditions, whereas the ‘*importance*’ component relates to personal values of fair production. When adding up the individual components, the result is the awareness of a consumer or population group of a fair consumption.

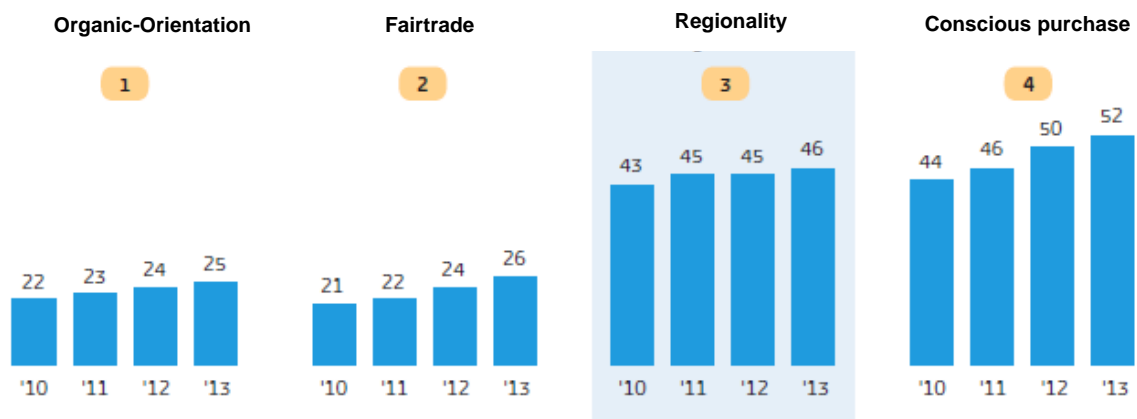
It is important to note that there is no *classic* organic consumer or *classic* bio-consumer. And it is not only the socio-demographic characteristics which differentiate between consumers of organic (sustainable) food (Aertsens et al., 2009; Buder et al., 2010; Hoffmann and Spiller, 2010). Depending on purchase intensity, there are different groups of consumers such as intensive buyers, occasional consumers and non-buyers. They may have similar consumption *motivations* and *attitudes* (GfK Panels, 2012, 2013, 2014; Hübsch 2013), summarized by Schöberl (2012) as follows:

- *Health*: all aspects associated with health and personal well-being. Consumers are of the opinion that organic food is more wholesome than its conventional “counterpart” (Hughner et al., 2007; Oughton and Ritson, 2007). This assumption relates esp. to vegetables and fruits (Naspetti and Zanolli, 2009).
- *Taste*: associations with real/genuine taste and good texture (Schöberl, 2012) as well as naturalness and authenticity (Asioli et al., 2011).
- *Animal welfare*: different concerns about animal rights and animal welfare issues. Beside the purely ethical component, consumers are of the opinion that products from species-appropriate husbandry are healthier and tastier (Naspetti and Zanolli, 2009). At this point it is shown that different buying motives for organic food cannot be viewed independently.
- *Environmental protection and locally produced food*: without chemical contamination, but also shorter transport and potentially higher production quality.
- *Affinity to fair trade*: Consumers often associate organic agriculture with other ethical principles, such as fair trade. However this connection cannot be guaranteed (e.g. EU organic label) (Oughton and Ritson, 2007; Cottingham and Winkler, 2007).

The following sections of this paper are based on an interdisciplinary research and empirical analysis of selected countries worldwide. A more in-depth investigation of the Danish ‘best-practice’ example highlights increasingly widespread national organic food consumption. Possibilities of closing the attitude-behaviour-gap and appropriate measures are discussed.

3 Sustainable Consumption: Causes and Barriers

Greater (environmental and social) consumer awareness fosters the attitude building towards more sustainable products, the intention to buy and actual purchases of such products. For example in Germany an *increased sustainable and ethical consumer awareness of food products* are obvious (see figure 2). According to study results, consumers look more consciously for these products and the importance of regional products continues to grow significantly.



1 “When I buy food I prefer organic products”. “I am willing to spend more money for organic products”.

2 “I consciously buy fair trade products”.. “I am willing to spend more money on fair trade products”.

3 “I am willing to spend more money for food from my region”.

4 “I consciously buy less food ahead so that I will not throw away so much.”

Figure 2: Consumption awareness of sustainable food, approval in % (based on GFK 2013, 2014)

However, in a number of studies consumers have tended to overstate when answering questions about their (sustainable or organic) consumption attitude. For example, in the Greenindex[†] (2012) the percentage of respondents who describe themselves as ‘green’ is significantly higher than the actual ‘green’ purchasers; see figure 3.

[†] To determine the **Greenindex**, 17.000 consumers in 17 countries (1.000 per country) were questioned about their consumer behaviour, effects, knowledge and awareness/attitude in the areas of household, mobility, nutrition and consumer goods.

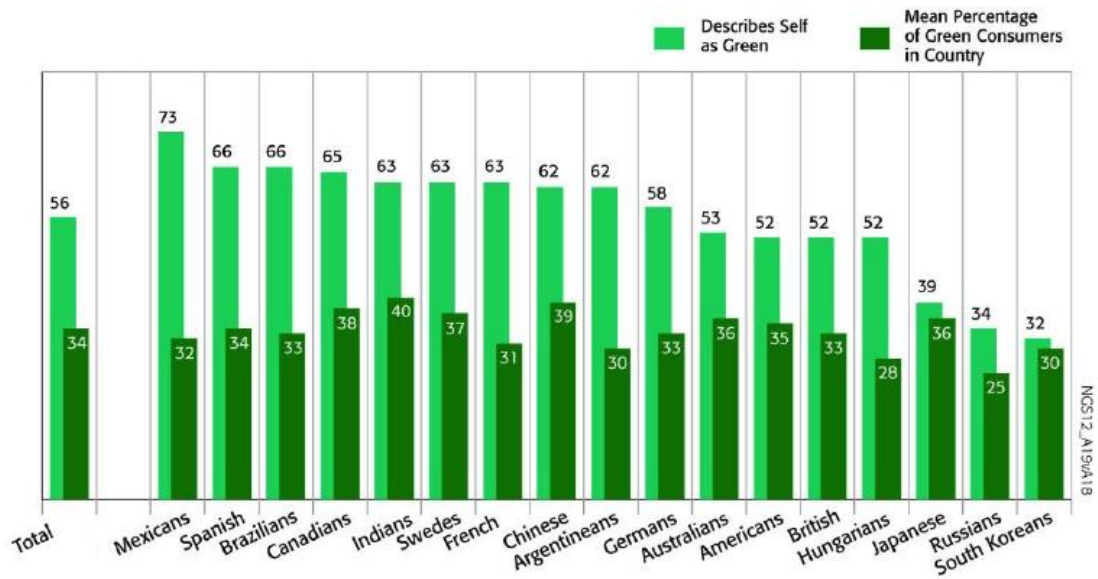


Figure 3: Attitude-Behaviour-Gap (Consumers with *green attitude* versus average actual *green consumer behaviour* in % (based on Greenindex, 2012)

Also, data on the *market share of organic food* confirm that the willingness to buy environmentally and socially sustainable food products is different from the preferences expressed (see figure 4). A worldwide comparison of the market share of organic food showed a relatively small proportion of organic food in the domestic food markets. According to the IFOAM and FIBL the largest consumers of organic foods are the Scandinavian and Alpine countries (Willer and Kilcher, 2012). In recent years, the highest market shares of organic food were reached in Denmark (7,6 %), Austria (6,5 %) and Switzerland (6,3 %) (see figure 4). In absolute values, the highest per capita consumption of organic food in 2012 was found in Denmark (189 Euros/month), Switzerland (159 Euros/month) and in Luxembourg (143 Euros/month). The general *consumer expenditure share on food and beverages* in these selected countries is on average between 10-15%, except for the USA with 6,6%. Food spending is relatively similar e.g. in Denmark, Austria, Switzerland, Sweden and Germany. Countries with the highest spending on food, such as Japan, Spain, Italy, France show the lowest market shares in organic food. And although the food expenditure share is *relatively low*, the higher price for organic food is still one of the most important purchasing obstacles (see next section).

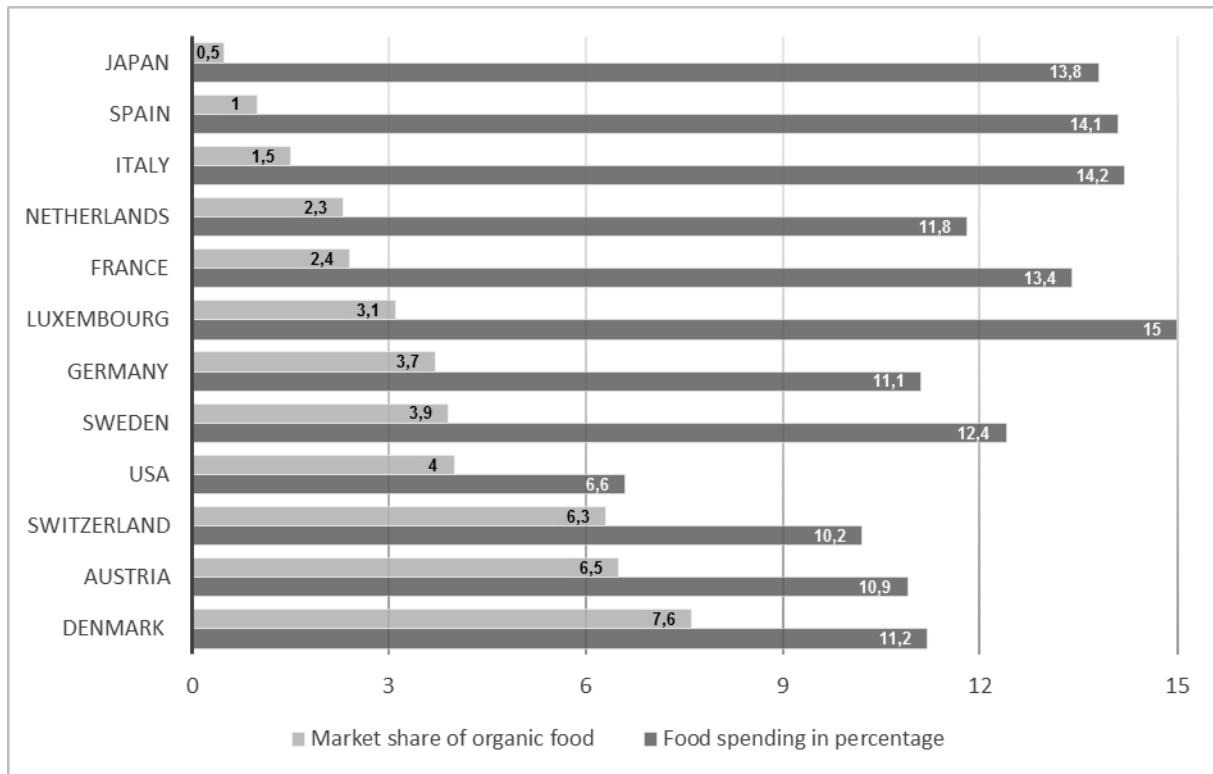


Figure 4: Market share of organic products and consumer expenditure share of food and beverages in % across selected European countries, 2012 (based on Japanese data only for 2008; Agriculture a. Agri-Food Canada, 2008 (for Japan); USDA GAIN Report Japan, 2013; OrganicDataNetwork Survey, 2013; FiBL-AMI Survey, 2014; US Depart. of Agriculture; Migros Sustainability Magazine; Stat. Portal of Luxembourg; Japantoday 2015)

The fact that the market share for organic food is smaller than the preferences expressed and that a large number of the households questioned only occasionally buy organic food shows that *purchasing barriers* exist, which discourage consumers from buying more organic products. There are already a number of studies which attempt an overall assessment and focus on individual aspects (E. g. Areni and Black, 2008; De Pelsmacker and Janssens, 2007; Shaw and Shui, 2002; Carrington et al., 2010; Vermeir and Verbeke, 2006; Young et al., 2010; Gupta and Ogden, 2006; Valor, 2008; Ahaus et al., 2011; Balderjahn, 2013). Apart from personal and societal influence factors, the *main barriers* are as follows:

- *Higher prices/ relatively high price premium:* The vast majority of existing surveys on organic food consumption agrees that organic food is more expensive than conventional products. This constitutes the most important purchase barrier (Aertsens et al., 2009; Baranek, 2007; Hassan et al., 2009; Hughner et al., 2007; Lea and Worsley, 2005; Lodoros and Dennis, 2008; Padel and Foster, 2005; Plassmann et al., 2009; Spiller, 2001; Nisen, 2007; Zanolli and Naspetti, 2002). The price gap between comparable organic and conventional food is very different, depending on the product type: Surcharges vary between fruits and vegetables, e.g. in 2002 between 13% for lemons and 108% for potatoes, according to ZMP. But the highest surcharges exist for meat (ZMP, 2003). Different reactions to prices show that the *additional benefits* of organic food is not obvious to occasional (cost sensitive) buyers.
- *Taste/sensory criteria:* The taste of organic food, which is an essential criterion for many organic food buyers, is at the same time the most important sales obstacle for non-buyers, beside the higher prices. Also sensory criteria play a role for occasional buyers. For example, some vegetables and fruits look less attractive and are consequently perceived as less fresh. Organic noodles are perceived as less tasty due to their whole meal content (Naspetti and Zanolli, 2009).
- *Lack of availability of organic products:* The availability of organic products varies depending on where consumers shop and what they are looking for. It is likely that low sales in organic food are partly due to this lack of availability. Organic food is not available everywhere or clearly visible on the shelves. Consumers have to make an „extra“ effort to buy in different shops. Convenience-oriented consumers usually avoid this additional effort (Hughner et al., 2007; Chen, 2007; Zanolli, 2004; Zanolli and Naspetti, 2002; Spiller, 2006).

- *Lack/overload of information, transparency and associated lack of trust*: Responsible consumers have a special need for product information. On the one hand consumers feel insufficiently informed about the environmental and social performance of (organic) food and have a high degree of ‘*cognitive dissonance*’. The latter leads to mental stress when consumers have to choose between two equally attractive goods influenced by values, emotions, attitudes and intentions (Koths and Holl, 2012; Hughner et al., 2007; Baranek, 2007; Spiller, 2006; Honkanen et al., 2006). On the other hand the consumers feel overwhelmed by the amount of information. Furthermore, there is a lack of transparency and trust in labels and certifications due to *asymmetrically distributed information* between producers/traders and consumers (Koths and Holl, 2012). Besides, satisfaction with conventional food and lacking additional benefits from organic food prevent the purchase of organic products (Honkanen et al., 2006).
- Food purchases in particular are characterized by *well-established consumption routines* (habits) and by their *low-involvement* feature: Low-involvement products are low-priced, (often) frequently purchased products and where the purchase decision is usually based on habits or prior experience (Beharrell and Dennison, 1995; von Alvensleben, 1997; Verbeke and Vackier, 2004; Grebitus et al., 2011 Schöberl, 2012).

Especially the low-involvement feature of food products and the tendency to avoid cognitive efforts lead to thoughtless purchases. Derived from the general behavioural psychological decision-making model of Nobel-Prize laureate Daniel Kahneman, the two different human mental systems (*dual action model*) are the main causes of the attitude-behaviour-gap: *mental system 1* (limbic system) is fast, automatic, subconscious and can lead to a ‘*cognitive bias*’ and the use of heuristics whereas *mental system 2* (cerebral cortex) is slow, logical, arduous and conscious. Most of the daily life decisions are based on *system 1*. A behavioural change towards sustainable consumption needs slow, logical, conscious and laborious decisions processed by the *human mental system 2*. This dual action model might give also an explanation for the divergence of consumer survey results and actual market share numbers. Apart from the suspicion that the respondents answer to comply with accepted social norms (Carrington et al., 2010), it is also probable that these answers reflect their conscious thoughts and desires resulting from *mental system 2*, whereas the actual purchasing behaviour is strongly influenced by *mental system 1*. It needs *cognitive efforts* to buy products based on ethical values (Young et al., 2010). At least at the beginning, *sustainable consumption* needs continual conscious decisions and efforts (*system 2*). Strong ‘*cognitive dissonances*’[‡] (Festinger 1957), when purchase decisions are not in line with ‘green’ values, are able to support this process. Mental stress may be the result. Individuals tend to avoid such situations. Apparent solutions (illusions) may be the consequence, or if dissonances are sufficiently strong, they can actually trigger behaviour changes. Therefore the creation of a *strong ‘green’ awareness* among consumers is needed to overcome acquired (non-sustainable) habits and to facilitate behavioural changes which pave the way for responsible actions (Kahneman 2012; Ruckriegel 2014).

4 Best-Practice Case: Denmark

In this paper, the *example of Denmark* will be explored in more depth, exploring the above discussed barriers of sustainable food consumption and possible options to close the attitude-behaviour gap.

Denmark is a country with a *long tradition of organic farming*. It is one of the top-ten European countries with respect to the share of organic production compared to the total cultivated area. It is also the country with the highest market share of organic products in the world. Between 1920-1940 and from 1960 onwards alternative farming methods were particularly popular.[§] The country experienced a widespread interest in natural living and natural food in the 20’s, influenced by the ideas of biodynamic agriculture in Germany. A *Biodynamic Association* was established by influential landowners from the aristocracy in 1936, but it remained quite marginal. In Denmark the period between 1960 and 1970 was characterised by the development of organic farming. Environmental concerns, especially the harmful environmental impact of modern, industrial farming became an important issue on the agenda of *environmental movements*. Other stakeholders such as fishermen, scientists and waterworks managers expressed their concerns about the environmental hazards connected with modern farming. The environmental protection act passed in 1974 did not include agricultural issues. *Organic pioneers* – urban people who had moved to the countryside – introduced a more sustainable agriculture in the late 70’s.

[‡] Decisions, actions and information are not in line with values, attitudes and intentions; Festinger 1957

[§] It should be noted, however, that organic farming between 1920 and 1940 also occurred in a number of other European countries, e.g. in Germany; Michelsen et al. 2001

Production, sales and consumption of organic products during that time were less than one percent. Nevertheless, it marked a turning point (Danish Agricultural Advisory Service (SEGES), 2015; Danish Farmers' Trade organisation, 2015; Jones, 2012).

In the 80's and 90's a number of changes were brought about at an *institutional level*: organic farming became a political agenda. Groups of organic farmers and activists established the *Danish Association for Organic Farming* (LØJ) in 1981. LØJ was active (almost as monopolist) in the area of formulating standards, inspections and certification of organic goods using its *own organic label* until 1987.^{**} LØJ controlled organic sales and its distribution through co-operatives, retailers, and direct farm selling (Michelsen, 2001, Ichihara Formsgaard, 2006). In 1987, the *government* adopted a law on a governmental certification scheme relating to organic farms, organic producers and retailers (*Organic Food Act*). The same act ensured *subsidies* for farmers who would convert to organic farming and its maintaining on the basis of the certification scheme.^{††} In parallel, several *acts regulating* Danish agriculture, e.g. *taxation of the use of pesticides and measures for the use of fertilizers*, were passed in 1987.^{‡‡} Additional public measures were in particular funds for *research, product development, awareness campaigns and consulting activities* (Tress 2001).

Danish Association for Organic Farming



(Landsforeningen Økologisk Jordbrug, LØJ, today Økologisk Landsforening)

LØJ is the biggest Danish organic agriculture organization today. The membership of LØJ is principally open to farmers, food-processing companies, consumers, academics and many others, in contrast to the conventional farmers' organizations who traditionally represent the exclusive interests of farmers. Danish scientists state that LØJ re-invented cooperatives to manage production and distribution of goods. The co-operative started to distribute organic food on a small scale. At the same time, the association began its negotiations with the Danish government.

Source: Johansen and Ichihara Fomsgaard, 2002.

With respect to the Organic Food Act, LØJ played a significant role in the accrediting procedure. Furthermore LØJ became a designated member of the newly established *Organic Food Council* (OFC), together with representatives from the Ministries of Food, Agriculture and Fisheries and of Environment and Energy, retail organisations and the consumers, other civil society organisations and experts. OFC is unique in its nature. It is a *consensus-building multilevel stakeholder forum*, which creates a politically relevant platform for organic farming. Until today the council serves as a platform for policy consensus building in organic farming. OFC catalysed initiatives in different areas of the organic food production. E.g. OFC co-formulated the '*Action Plan for Organic Farming*' with 65 recommendations to the Minister of Agriculture, Food and Fishery to encourage organic farming in Denmark in 1993 and 1999 (Kristensen and Nielsen, 1998).

However, in the late 90's LØJ's position has weakened. The Danish *government* took over the *certification* of organic food products. The Danish *state control-label*, red Ø-mark, was launched in 1990. It strengthened the consumption of organic products, lead to more manufacturers and retailers being interested in producing and selling organic products. Norfelt in 2003 emphasized the fact that in the case of the Ø-mark label it is the *Danish government* which controls the farms and companies that produce, process, package or label organic goods in Denmark (Norfelt, 2003). The success of the Danish Ø-mark lies in the distribution strategy of organic products.

^{**} Until the mid-1990s in the area of organic dairy products, Ichihara Fomsgaard 2006.

^{††} The subsidies for conversion amounted to 140 ECU/ha/year whereas the maintenance of organic agriculture was supported by 115 ECU/ha/year; Tress 2001, Daugbjerg 2010

^{‡‡} Also initiatives at the European Union level influenced the Danish production of organic food with the adaptation of rules on organic production of vegetable and livestock in 2000; Tress 2001

Danish Ø-mark



The designation 'organic' ((Ø for økologisk) and the Danish eco-label (the red Ø symbol) may only be used for milk, meats, eggs, cereals, vegetables etc. from farms with authorized organic production. The Department of Organic Farming checks that organic farms comply with the rules applicable to both organic plant and animal husbandry. They inspect enterprises producing or marketing organic animal feed, seeds and cereals, fertilisers and other non-food products. Approximately 98 % of the Danish consumers are familiar with the "Ø"-label. Eight out of ten trust the label. A study shows that 85% of the consumers do not trust foreign organic products without the Ø-label.

Source: Danish Ø-mark website, OrganicDenmark; YouGov on behalf of the Danish Ministry of Food, Agriculture and Fisheries; Holm and Stauning, 2002; Brunsø, 2002.

The *Danish FDP* (United Danish Supermarket Cooperative, now *Coop*) started to offer *discounted organic products* in 1993. Organic milk was the first Ø-label product sold in FDB. *Promotion* of organic products became a business strategy of the FDB. They also ran a television campaign for ecological products at discount prices in Denmark. This campaign stimulated sales (Hamm and Michelsen, 1996; Wier et al., 2002). The Danish chains *Dagli'Brugsen* and *SuperBrugsen* followed the FDB organic retail initiative in 1996 and 1997. They offered a 5% *member bonus* for every purchase of organic products. According to OrganicDenmark, the discount retail chain *Netto* published a '*special offers pamphlet*' in 1997, which contained only organic products. A massive increase in the production and sales of organic milk and eggs in particular, was observed between 1993 and 2003. The period after 2003 was characterised by a slight domestic stagnation in organic dairy products due to overproduction. Besides, the export of organic products could not be expanded. Some farms reduced their organic production areas. In 2004, a *national campaign* on the EU-logo of organic farming was launched in Denmark. As of 2005, the sales of organic products in Danish *supermarkets* and *discounters* increased with *extended assortments*.

Danish Coop (FDB)



The Danish grocery market is mostly represented by supermarket chains, dominated by Coop (former Forenede Danske Brugsforeninger, FDB), holding 40% of the market share. As a large consumer co-operative it consists of several relatively independent chains and warehouses. FDB has a long tradition in promoting consumer interests in terms of quality as well as cheap and safe products. In the 80's, an environmental profile was added, when FDB started to sell organic products as part of their range. In the 90's, the promotion of organic products became an important part of their business strategy, and they have played a significant role in the growing market for organic products in Denmark. FDB changed its name to Coop Danmark A/S in 2002.

Source: Holm and Strauning, 2002.

Today *organic farming* in Denmark is still a *key policy tool* for water quality protection, pollution control, climate change, biodiversity and green growth strategies. It is also in line with the Danish Rural Development Plan. Additionally the new *Danish Organic Action Plan 2020* aims to convert *public catering*, such as hospitals, kindergartens, nurseries, canteens and schools towards providing organic food. According to OrganicDenmark, in 2010 64% of the food served in Copenhagen institutions and canteens was organic.

Additionally, a *New Nordic Cuisine*, which embodies principles of quality, purity and ethics has become a novel trend. Danish *exports* of organic product categories, especially dairy products, pork, grain and animal feed, have increased with the total export rate of 46%, in particular due to dairy products, including eggs. In 2012, Germany imported 52% of organic goods from Denmark. Danish exports of organic food exceed imports. Statistics show that Denmark is in the position to provide organic food for 20 million people, which is four times the total Danish population.

To *summarise*, the current Danish organic market has a long tradition. It started as a '*grass-root*'

development in the late 70ies. The *widespread* and *rapid development* of this sector was/is the result of a *proactive state* with an own labelling and certification programme, subsidies, taxation and funding of research, product development, public awareness campaigns and consulting activities, as well as a *strong cooperation* among different stakeholders. These are in particular the government authorities, farmers and retailers (e.g. consumer cooperative Coop Denmark (FDB)) together with environmental and consumer organisations, research institutes, food industry and others, such as public procurement.

Furthermore the current organic market in Denmark is characterised by the following *important conditions* for a well-functioning organic market. Firstly, organic foods are primarily sold through *conventional supermarkets*, ensuring stable supplies and promoting organic products in a location where the majority of consumers do their shopping (Barrier: *Lack of availability of organic products* overcome). Secondly, there is a very well-functioning and trustworthy *labelling and certification programme* (state Danish Ø-mark; Barrier: *Transparency and associated lack of trust* overcome). Thirdly and finally, price premiums for organic products such as dairy products, rye bread and eggs in Denmark are in most cases relatively low as result of the reforms of 80ies and 90ies; e.g. due to farmers' *subsidies* for organic production and reasonable offers in Danish *discounters*'. Supermarkets lowered the prices of organic dairy, cereals and eggs by 15-20% (Hansen and Sorensen, 1993) (Barrier: *Higher price/ relatively high price premium* overcome) (Michelsen et al., 1999; Wier et al., 2002).^{§§}

5 Conclusions

It seems that the consumer behaviour is the most unstable and unpredictable part of the entire supply chain and requires special attention. Both, the causes of the observed attitude-behaviour-gap phenomenon as well as possible solutions are exceedingly complex and require an interdisciplinary approach. Empirical analysis of selected countries worldwide give further valuable information. The organic food sector in Denmark serves as a 'best practice' case, where especially in the 80ies and 90ies, the market share rose to a leading position worldwide.

In summary the successful development of organic food and farming in Denmark is the result of *pioneers*, a *proactive state* integrated in a *joint strategic action*, together with the agricultural, food and retailing sectors (and the importance of the consumer cooperative Coop (FDB)), consumer and environmental organisations as well as research institutions. Other important interested stakeholders, such as public catering and procurement were also actively involved.

To close the *attitude-behaviour-gap* and to enhance sustainable consumption, the following selected *concrete measures* are recommended

- *Raise awareness* of the consumers and citizens and *offer incentives* to strengthen the personal responsibility of an individual consumer. This should facilitate a behavioural change through education, campaigns, marketing and promotion. Furthermore (occasional) buyers of organic products are motivated by *additional personal benefits* for hedonistic (e.g. taste, sensory attributes) or *health reasons*, while regular buyers consume due to *ethical, environmental and social benefits* (Balderjahn, 2013; Ahaus et al., 2011). The first group of consumers is not affected by ethical obligations. In this regard, *sensory marketing* could be an important tool to build awareness and train consumers in unaccustomed sensory properties of organic food.
- *Nudging*, the creation of stimuli to make people act in a certain manner. *Nudges* are by definition a rational self-obligation of consumers (Thaler and Sunstein, 2009). For example, in Denmark green footprints were placed, pointing the way to rubbish bins, in order to motivate consumers to change their behaviour and not to dispose of their waste elsewhere.
- Improve *communication of quality attributes* of products – (considering environmental protection, social issues and animal welfare) - and their impact and importance.
- Create more transparency and trust by *unified* (simplified) and *reliable certificates and labels*.
- Improve *sensory properties* of (organic) products.

Individual consumption behaviour is influenced by societal and political framework conditions (Balderjahn, 2013). Companies could play a special role by adopting stricter self-responsibility in the sense of **Corporate Social Responsibility** and offer an assortment of sustainable products, with a socially and

^{§§} The other two barriers mentioned in the above discussion – taste/sensory experience and habitual behaviour, which are of a more psychological nature, are not country specific.

environmentally compatible life cycle (supply chain), ranging from raw material to waste disposal and recycling. This process could be supported by *organizational and technological innovations and appropriate communication strategies*. According to the Scientific Advisory Board of the Federal Government (WGBU) 2011 a *proactive state* is needed to create the legal framework, implement the political will and promote general awareness. Possible measures could be minimum standards of sustainability of products and prohibitions, support and assessment of environmental and social rules, financial incentives structures, research activities, increased awareness through qualified information, further education and training, communication as well as political and medial agenda-setting. In this regard a state could serve also as an example in the area of *public procurement*, which constitutes a total of 13% of the German GDP (OECD National Accounts Database and Eurostat, 2011). *Mass media, consumer and environmental organizations* can be the source and mediator of information on sustainable consumption as well as (interdisciplinary) *research*, which stimulates the development of innovative ideas by their analysis of existing structures and approaches. Also, the creation of a *multi-stakeholder forum* of all interested parties, following the Danish example, is a possibility to influence the political will.

Common efforts and a *shared responsibility* of consumers, business, (interdisciplinary) researchers, mass media and political decision makers are vital ingredients in this development. *Pioneers of change* and a *proactive state* are the key players (Scientific Advisory Board of the Federal Government (WGBU), 2011). Change agents need to reach a 'critical mass' to increase their impact and a widespread 'sustainable' behaviour. Considering the strong psychological barriers of consumers and the continuing low market share of organic food, proactive policy measures would be conducive to foster the *personal responsibility* of the consumers and offer incentives towards a sustainable production. Also further self-obligations of companies (*Corporate Social Responsibility – CSR*) as well as more transparency and simplification of reliable *labels and certifications* are needed to foster the process of a sustainable development.

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